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REPORTED *CYANOBACTERIA* FROM THE SOUTHERN COAST OF THE CASPIAN SEA (CITY OF NOOR)

Sarvenaz bigham Soostani[1], Rahman Patimar[2], Behrouz Zarei Darki[3]*, Esa Jorjani[4]

1. Masters student of Marine Biology Orientation Sea Animals, University of Technical Engineering and Basic Sciences, University Gonbad Qabus

2. Associate Professor in Fisheries Ecology University Gonbad Qabus

3. Assistant Professor, Department of Marine Biology, School of Marine Science, Tarbiat Modares University

4. Assistant Professor, School of Technical Engineering and Basic Sciences, University Gonbad Qabus

Email: zareidarki@modares.ac.ir

Background: *Cyanobacteria* as photosynthetic organisms have a main effect on life and productivity of the aquatic ecosystems. The long-term studies on the identification, distribution and diversity of *Cyanobacteria* is crucial in the Caspian Sea.

Methods: Four transects were determined parallel to the Sabzehrud River, the Lavij River, Noor River, and the Department of Marine Biology of Tarbiat Modares University from 2014 to 2015. Samples were seasonally collected from three stations in each transect by a plankton net with a mesh size of 55 and the Ruthner's bathometer. Standard hydrobiological and phycology approaches were used for identification and totaling abundance of cyanobacteria.

Results: The most number of cyanobacteria was observed in station A1 with number of 1062500 N/L during summer season. Genera *Chroococcus*, *Gloeocapsa*, *Merismopedia*, *Microcystis* belong to unicellular taxa and *Anabaena*, *Anabaenopsis*, *Nostoc*, *Oscillatoria*, *Phormidium* were identified as the multicellular genera. Anabaenopsis nadsonii was observed as the most distributed species.

Conclusion: The result showed that *cyanobacteria* abundance was significantly different among stations and all seasons. The reported blue-green algae also have no same frequency among stations inside each transect (Test Chi-Square, P <0.05).

Keywords: *Phytoplankton, Lake, Cyanoprakaryota, Algae, Water boy*

THE PREVALENCE OF HEPATITS B INFECTION IN HEALTH CARE WORKERS IN IRAN- A SAYSTEMATIC REVIEW AND META-ANALYSIS

Kourosh Sayehmiri[1], Milad Azami[2*], Zahra Darvishi[3], Sasan Nikpay[4], Milad Borji[5]

1. *Department of Biostatistics, Research Center for Prevention of Psychosocial Impairment, Ilam University of Medical Sciences, Ilam, Iran*
2. *Student of Medicine, Student Research Committee, Ilam University of Medical Sciences , Ilam, Iran*
3. *Clinical Microbiology Research Center, Ilam University of Medical Sciences , Ilam, Iran*
4. *Student of Medical Laboratory Sciences, Student Research Committee, Ilam University of Medical Sciences , Ilam, Iran*
5. *Nursing Student, Student Research Committee, Ilam University of Medical Sciences , Ilam, Iran*

Email: MiladAzami@medilam.ac.ir

Background: This study aimed to investigate the prevalence of *hepatitis B* infection in health care workers in Iran as a systematic review and meta-analysis study**.**

Method: To obtain corresponding Persian and English documentations, Iranmedex, SID, Medlib, Scopus, PubMed, Science Direct, Cochrane, Embase, Web of Science, Springer, Online Library Wiley and also Google Scholar in chronological were searched with no time limit to 2015 by two independent researchers using standard key words. Criteria for diagnosis of hepatitis B infection, HBsAg (+) were considered. Data manipulation and statistical analyses were performed random effect model by using Stata Ver.11.1.

Results: In the 20 eligible studies, the 4280 individuals were been evaluated. The prevalence of hepatitis B infection in health care workers of Iran 0.4 %(95% CI: 0.1-0.6) was estimated. The minimum and maximum percent were related to the center country (0.3%) and West (4.1%), respectively. The prevalence of HBcAb in health care workers of 5.9 %(95% CI: 4.2-7.6) was estimated.

Conclusion: The prevalence of hepatitis B among health care workers in Iran to our expectation was lower than the Iranian general population.

Keywords: Hepatitis B, HBsAg, HBcAb, health personnel, Iran, meta-analysis, systematic reviews

ISOLATION AND IDENTIFICATION OF ERYSIPELOTHRIX RHUSIOPATHIAE BACTERIA FROM BUTCHER'S HANDS WORKING IN AHVAZ CITY AND THEIR SENSITIVITY TO COMMON ANTIBIOTICS

Pariya Ahmadi Balootaki[1], *Mansour Amin[2], Nahid Khademi[2]
1. *Department of Microbiology, Kerman Branch Islamic Azad University, Kerman, Iran.*
2. Health Research Institute, Infectious and Tropical Diseases Research Center and Department of Microbiology, School of Medicine, Ahvaz, Jundishapur University of Medical Sciences, Ahvaz, Iran
Email: mnsamin@yahoo.com

Background: *Erysipelothrix* is long and thin facultative anaerobic Gram-positive, nonsporulating, intracellular rod-shaped bacterium, and is widely distributed in nature.
Methods: One hundred fifty samples were taken from slaughterhouse workers, slaughter, fishermen, fish handlers and fishes, liver and heart of sheep and calf by swabbing method. Detection and distribution of *Erysipelothrix rhusiopathiae* in all specimens were performed using phenotypical and PCR amplification methods.
Results: Out of 150 samples, 12 positive isolates were recovered by phenotypical properties related to *Erysipelothrix rhusiopathiae,* that they were also PCR positive. According to PCR analysis, 8 more cases (5.33%) among 134 negative cultures were found as the strain of *Erysipelothrix rhusiopathiae.* In general, by using molecular method 20 (13.3%) samples were observed as *E. rhusiopathiae.* All confirmed isolated bacteria by PCR were highly sensitive to Penicillin, Ciprofloxacin, Impenem, Erythromycin. All of the above mentioned isolates were resistant to Gentamycin and Neomycin.
Conclusion: *Erysipelothrix rhusiopathiae* is widely distributed on seafood's and present as commensally pathogen in nature and animals. Infection with this microorganism must be emphasized because it is a rare organism that is causative of severe infection including infectious endocarditis, polyarthritis following localized infections.

Keywords: *Erysipelothrix rhusiopathiae*, erysipeloid, PCR amplification

EFFECT OF GREEN TEA EXTRACT ON ROTAVIRUS INFECTION IN CELL CULTURE

***Maryam Esghaei[1], Manijeh Motevallian[2], Kobra Abolhasani[3], Angila Ataei-Pirkooh[1], Farah Bokharaei-Salim[1], Seyed Hamidreza Monavari[1]**
1. Department of Virology, Iran University of Medical Sciences, Tehran, Iran
2. Department of Pharmacology, Iran University of Medical Sciences, Tehran, Iran
3. Department of Biochimistry , Payame Noor University, Taft, Yazd, Iran
Email: maryam.esghaei@gmail.com

Background: *Rotavirus* is the leading cause of severe diarrhea in children with a worldwide distribution. The purpose of this investigation was to determine if green tea (Camellia Sinensis) extract, could inhibit rotavirus infection in cultured BS-C-1 (monkey kidney epithelial) cells.
Methods: Effects of green tea extract on BS-C-1 cultured cells and *rotavirus* was assessed by using cell viability and proliferation assays. After establishing the maximum non-cytotoxic concentration of green tea extract, BS-C-1cells and rotavirus particles were treated with varying concentrations of green tea extract. BS-C-1 cells were infected with rotavirus and the effect of infectivity was determined by TCID50 and MTT assays. Green tea solutions with concentrations of 50, 500, 1000 µg/mL in water, were allowed to react with simian rotavirus SA11, and the inhibition of tea extract was quantified using the TCID50 assay.
Results: Green tea extract was not cytotoxic to BS-C-1 cells, as confirmed by cell viability and proliferation assays, in which green tea extract treat group paralleled the positive control group. We found that extracts from green tea reduced viral infectivity in more than 4-log scale against *rotavirus* tested, is showing strong antiviral effects against *rotavirus*.
Conclusion: Green tea extract is not cytotoxic and can reduce or block the production of infectious rotavirus in cultured BS-C-1 cells. The findings indicate that green tea extract has the potential to be developed as a safe, therapeutic antiviral agent to prevent the spread of rotavirus.

Keywords: *Rotavirus*, Green tea, Antiviral effects

RESISTANCE AND SENSITIVITY ANTIBIOTIC PATTERN THE MOST COMMON ISOLATED BACTERIA FROM HOSPITALIZED PATIENTS IN BURNING CENTER

***Mohammad Khodadad Motlagh**
Department of Biology, School of Science, Qom University, Qom, Iran
Email: m.khodadadmotlagh@gmail.com

Background: Burn wounds are suitable environments for the growth of various opportunistic infections. The knowledge of the common microorganisms in these infections and their antibiotic resistance are fundamental. We studied common microorganisms and their antibiotic resistance in burn ward of Nekuei Hospital, Qom, Iran.
Method: In this study, during 5 months, 70 patients admitted to the burn ward of Nekuei hospital were examined. After Sampling and isolation of bacteria, biochemical standard tests for determination of microorganisms were done. Determination of antibiotic resistance was done by using disc diffusion or Kirby Bauer using these antibiotics: co-trimoxazole, vancomycin, ciprofloxacin, cephalothin, ceftazidime, amoxicillin, amikacin, gentamicin, chloramphenicol, cefazolin, cefotaxime, ceftriaxone, ampicillin, oxacillin, and imipenem.

Results: Totally, the cultures of 54 cases (77.14%) of a total of 70 samples were positive. The most common isolated bacteria were Pseudomonas aeruginosa (38.9%), *Staphylococcus aureus*, and *staphylococcus epidermidis* (11.42%), and *Enterococcus faecalis* (9.59%). The results of the Antibiotic resistance of Pseudomonas aeruginosa are as follows: amoxicillin 94.73%, amikacin 25.64%, gentamicin 30.77%, co-trimoxazole 84.62%, ciprofloxacin 48.72%, ceftazidime 51.28%, cefotaxime 58.97%, Chloramphenicol 86.84%, ceftriaxone 55.26%, and imipenem 50%
Conclusion: The most common bacteria in infection of burn wound were pseudomonas aeruginosa, which was mostly susceptible to amikacin and gentamicin.

Keywords: infection, burn wound, bacteria, antibiotic resistance

RELATION OF TOTAL PHENOLIC CONTENT AND ANTIBACTERIAL ACTIVITY OF FARS HERBAL PLANTS

***Abbas Abdollahi[1, 2, 3], Elaheh Ahmadi [2, 3], Najmeh Namdar [2, 3], Mahdi Fasihi-Ramandi [4]**
1. Department of Microbiology, Fasa University of Medical Sciences
2. Herbal Plants Laboratory, Fasa University of Medical Sciences
3. Non-Communicable Diseases Research Center, Fasa University of Medical Sciences
4. Molecular Biology Research Center, Baqiyatallah University of Medical Sciences
Email: a.abdollahi360@yahoo.com

Background: In this study we determine the relation of total phenolic content and antibacterial activity of Fars herbal plants.
Methods: Hydro-alcoholic extraction of 27 herbal plants, domestic of Fars province, was done by maceration method. Disk diffusion, well method and MIC were used to evaluate the antibacterial activity of extract on *S. aureus* and *E. coli* in compare with standard commercial antibiotic. Total phenolic content was measured using Folin-Ciocalteau reagent and gallic acid standard (Seevers and Daly colorimetric methods).
Results: In compare with examined commercial antibiotics, most antibacterial effect of plants was correlated with 32, 22 mm (*Zataria multiflora*) 30, 23 mm (*Melissa officinalis*) and 30, 20 mm (*Ziziphora clinopodiodes* L.) inhibition zone diameter in disk and well methods of against *S. aureus* and 23, 16 mm (*Zataria multiflora*) 17, 14 mm (*Melissa officinalis*) and 19, 10 (*Ziziphora clinopodiodes* L.) against *E. coli*, respectively. Other extraction diameter were less than 15 mm. MIC results shown the most activity of *Zataria multiflora, Rosmarinus officinalis* L., *Carum copticum* L., *Laurus nobilis* L., *Lippia citroiodora* extraction with 7.8µg/mL concentration. Phenolic contents vary from 66.51±1.9 (*Plantago psyllium*) up to 223.55±2.3 (*Zataria multiflora*).
Conclusion: Our results indicate the direct relation between phenolic content and antibacterial activity of these herbal plants.

Keywords: antibacterial, herbal plants, phenol content

INTERACTIONS OF METHYLXANTHINES, THYMOQINONE AND GENTAMICIN AGAINST *STAPHYLOCOCCUS AUREUS* AND *PSEUDOMONAS AERUGINOSA*

BiBi Sedigheh Fazly Bazzaz[1], Hossein Hosseinzadeh[2], Jafar Saeedi Nia[3], *Roshanak Salari[4]
1. Biotechnology Research Centre, Department of Drug and Food Control, School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran
2. Pharmacodynamy and Toxicology Department, School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran.
3. School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran
4. Department of Traditional Persian Pharmacy, School of Traditional and Complementary Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
E-mail: Salarir@mums.ac.ir

Background: The interactions of three materials (Theophylline, Caffeine (Methylxanthines) and Thymoqinone (from Nigella Sativa)) on effectiveness of Gentamicin upon *Staphylococcus aureus* and Pseudomonas aeruginosa were evaluated.
Methods: Two microorganisms were cultured on agar culture medium then incubated at 37°C for 24h. The 106cfu/ml concentrations of both microorganisms' suspensions after mixing by Gentamicin were inoculated in 96 wells plate and MIC (Minimum Inhibitory Concentration) and MBC (Minimum Bacteriacidal Concentration) were investigated. Mueller Hinton broth medium was used in this research. Methylxanthines and Thymoqinone separately with different concentrations ware introduced to the wells to evaluate the changes in MIC and MBC values of Gentamicin.
Results: Between two Methylxanthines, Theophylline in comparison with Caffeine made more decrease in MIC and MBC of Gentamicin. Theophylline in 13.33 and 10.41 mg/ml concentrations inhibits growth of *Pseudomonas aeruginosa* and *Staphylococcus aureus*, respectively. Caffeine lonely showed no antimicrobial effects. Thymoqinone indicated more effects on *Staphylococcus aureus* in comparison with *Pseudomonas aeruginosa* and inhibited the growth of microorganisms in 3.33 µg/ml concentration while lonely in the concentration of 853 µg/ml couldn`t inhibit growth of *Pseudomonas aeruginosa.*
Conclusion: Theophylline, caffeine and thymoqinone increased Gentamicin effectiveness on *Pseudomonas aeruginosa* and *Staphylococcus aureus.*
Keywords: Methylxanthines, Thymoqinone, MIC, Gentamicin

ANTIBACTERIAL ACTIVITY OF PUNICA GRANATUM FLOWER EXTRACT ON *STAPHYLOCOCCUS EPIDERMIDIS*

Ali Ahmadi[1], *Neda Soleimani[2], Mahdi Tajbakhsh[1]
1. B.Sc, Department of Plant Biology, School of Biological Sciences, Shahid Beheshti University, Tehran, Iran.
2. Assistant Professor, Department of Microbiology, Faculty of Biological Sciences, Shahid Beheshti University, Tehran, Iran.
Email: _nsoleimani@sbu.ac.ir

Background: Goal of this Study was to estimate the antibacterial activity of the extract of the plant P. granatum flower on *Staphylococcus epidermidis*, a gram-positive, coagulase-negative cocci that is a part of our normal flora.
Methods: *Punica granatum* flower extract prepared from it's dried flower. Type strain was obtained from American Type Culture Collection (ATCC): *Staphylococcus epidermidis* (PTCC 1114). For evaluation the antibacterial activity was used 2 method: Well diffusion method and MIC. MIC is defined as the minimum concentration of the extract that inhibits visible growth of bacteria. In order to determine the MIC of the *P. granatum* flowers water extract micro dilution method according to the CLSI standard (National Committee for Clinical Laboratory Standard, 2006) with minor modification was used. The water extract of *P. granatum* flowers was prepared at 0.001, 0.005, 0.01 and 0.05 mg/ml concentrations in MHB medium (Merck, Germany) and inoculated with the microorganism with the bacterial count of 5×10^5 CFU/ml.
Results: In this study primary assessment of the antibacterial effect of *P. granatum L. flower* water extract was done using the well-plate method. The mean diameter of growth zone of inhibition (mm) for bacterial strain exposed to concentrations of the extract is demonstrated. Well diffusion method had shown that the extract of *Punica granatum flower* with 11.2 mm zone of inhibition had a semi-strong antibacterial activity of *S. epidermidis*. The MIC was evaluated using the microdilution method. MIC and MBC of the *P. granatum L. flower* water extract against microorganism are demonstrated. MIC and MBC of *P. granatum* L. flower water extract for S. *epidermidis* was 0.01 and 0.05 mg/ml, respectively.
Conclusions: *Punica granatum flower* extract maybe useful either alone or in a combination with antimicrobial agents in treatment of bacterial infections.

Keywords: antibacterial activity, *Punica granatum*, *Salmonella.*

FROM IN SILICO APPROACH TO IN VITRO AND IN VIVO LABORATORY EXPERIMENTS: A NEW RECOMBINANT SUBUNIT VACCINE CANDIDATE AGAINST *BRUCELLA*

Abbas Abdollahi[1], *Shahla Mansouri[1], Jafar Amani[2], Mahdi Fasihi-Ramandi[3], Mohammad Moradi[1]

1. Department of Microbiology, Kerman University of Medical Sciences, Kerman, Iran
2. Applied Microbiology Research Center, Baqiyatallah University of Medical Science, Tehran, Iran.
3. Molecular Biology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran
Email: smansouri@kmu@ac.ir

Background: Brucellosis is an important health problem in developing countries and cause of abortion and infertility in the animals and undulant fever in human (brucellosis). There is no vaccine available for prevention of human infection and available vaccines are used to animal. In this study we evaluated the immune responses induced by a designed recombinant chimera protein.
Methods: *Omp31*, *Bp26* and trigger factor (TF) (fused by EAAAK linker) immunodominant fragments of *Brucella* antigens were designed to make a recombinant chimeric protein (in silico), synthesized, cloned, expressed in *E.coli BL21* and then purified by using Ni-NTA agarose and Western blot. BALB/c immunization was performed and sera antibody level was measured by ELISA.
Results: mRNA secondary structure, antigenisity, protein structure and physicochemical parameters, MHC class I and II binding, allergenisity and other necessary data, were predicted by bioinformatics data base and results in reliable chimeric protein design. ELISA result was proved that immunized sera of mice contain high level of antibodies (IgG) against recombinant chimeric protein in contrast with control group.
Conclusion: These results indicate the importance role of the bioinformatics ability of vaccine design with associate by experimental procedures. The recombinant chimeric protein could be a new potential antigen candidate for the development of a subunit vaccine against *Brucella*.

Keywords: *Brucella*, vaccine, recombinant, subunit, immunity

EVALUATION OF ANTIBACTERIAL ACTIVITY AND TOTAL PHENOLIC CONTENT OF PUNICA GRANATUM: A NEW COMPONENT DETERMINATION

***Abbas Abdollahi[1,2,3], Elaheh Ahmadi[2,3], Najmeh Namdar[2,3], Mahdi Fasihi-Ramandi[4]**

1. Department of Microbiology, Fasa University of Medical Sciences
2. Herbal Plants Laboratory, Fasa University of Medical Sciences
3. Non-Communicable Diseases Research Center, Fasa University of Medical Sciences
4. Molecular Biology Research Center, Baqiyatallah University of Medical Sciences
Email: a.abdollahi360@yahoo.com

Background: *Punica granatum* is a non-productive form of Pomegranate and used for treatment of diarrhea and cardiovascular diseases in traditional medicine; anti-inflammatory activity is also known for plant. In this study we evaluate antibacterial activity and total phenol content of *Punica granatum.*
Methods: Hydro-alcoholic extraction was done by maceration method. Disk diffusion, well method and MIC were used to evaluate the antibacterial activity of extract on *S.aureus* and *E.coli* in compare with standard commercial antibiotic. Total phenolic content was determined using Seevers and Daly colorimetric methods (Folin-Ciocalteau reagent, gallic acid).
Results: 35 and 29 mm inhibition zone diameter for *S. aureus* and 22 and 17 mm inhibition zone diameter for *E. coli* examination by disk diffusion and well method was shown, respectively. Also, 7.8 µg/mL concentration of extract showed the MIC points for two bacteria. Phenol compound of extract was 233.15±5.1 mg in 1gr of extraction.
Conclusion: Antibacterial effect of *Punica granatum* in compare with antibiotics indicates the proper activity against examined gram positive and negative bacteria and suggests the more study of this plant.

Keywords: antibacterial, herbal plants, phenol content

GENOMIC, FUNCTIONAL AND BIOCHEMICAL APPROACHES TOWARDS CHARACTERIZATION OF NOVEL NATURAL ANTIMICROBIALS FROM BACTERIAL RESOURCES

***Hassan Rokni-Zadeh[1,2], Tina Shahani[3]**
1. Zanjan Pharmaceutical Biotechnology Research Center, Zanjan University of Medical Sciences, Zanjan, Iran
2. Department of Medical Biotechnology and Nanotechnology, Zanjan University of Medical Sciences, Zanjan, Iran
3. Department of Molecular Medicine and Genetics, Zanjan University of Medical Sciences, Zanjan, Iran
Email: hassan.roknizadeh@zums.ac.ir

Background: Given increased microbial resistance, characterization of novel antimicrobials from natural resources is essential. A potential resource for such novel compounds is provided by the diverse secondary metabolites that mediate antagonism among plant-associated bacteria, such as lipopeptides (LPs) frequently produced by pseudomonads.
Methods: A large collection of fluorescent *Pseudomonas* isolates from different plant rhizospheres and geographical origins were screened against a plenty of pathogenic bacteria using both conventional deferred antagonism and co-culture assays. These methods identified several strains inhibiting the growth of target bacteria that were retained for further characterization. To characterize involved compounds we employed three main approaches of genomics (next generation sequencing-based whole genome sequencing, genome annotation, and pathway detections), functional studies (mutagenesis) and biochemical analysis (extraction, HPLC purification, LC-MS and NMR).
Results: We have reported novel antimicrobial LPs. The genetic systems underlying the synthesis and regulation of respective LPs as well as structure and antimicrobial activities and the role in some important microbial phenotypes including biofilm formation, swarming and hemolysis were identified.
Conclusion: Our studies showed how the employed main approaches in parallel are effective in characterization of novel antimicrobials. Such novel bioactive compounds may serve as lead molecules in future for drug development.

Keywords: *Antimicrobial discovery, genomics, lipopeptides*

PREVALENCE OF *MYCOPLASMA AGALACTIAE* BY PCR IN GOATS IN KURDISTAN, WEST OF IRAN

***Mohammad Kezri[1], Seyed Ali Pourbakhsh[2], Abbas Ashtari[2], Babak Rokhzad[1]**
1. Veterinary Research Department, Kurdistan Agricultural and Natural Resources Research Center, AREEO, Sanandaj, Iran
2. Mycoplasma Reference Laboratory, Razi Vaccine & Serum Research Institute, AREEO, Alborz, Iran
Email: khezri1836@yahoo.com

Background: This study was designed to detect of Ma in semen, conjunctiva; nasal and ear from Markhoz goat bucks participating in the genetic improvement plan of the Ministry of Jihad-e-Agriculture without clinical singe of CA by PCR for the first time in Iran.
Methods: The PCR with Mycoplasma *16S rRNA* was applied for detection of a variety of Mycoplasma species. In this study two primers (forward and reverse) amplify 163bp region of *16S rRNA* gene of *Mycoplasma* genus and amplify 375bp region of *16S rRNA* gene of Ma species were used. To determine the presence of carriers of Ma, a total of 196 samples were collected from fresh semen (n=49), conjunctiva (n=49), nasal (n=49) and ear (n=49) of goat bucks (Capra hircus) from July to September 2013. The fresh semen samples were collected from goat bucks of one age.
Results: In total, 61 (31.12%) of the samples were positive for the presence of *Mycoplasmas* by PCR. Ma was diagnosed from 17 samples (8.67%) tested. These positive samples including 6 conjunctiva swabs (12.24%), 1 nasal swabs (2.04%), 5 ear swabs (10.20%) and 5 semen (10.20%) samples. In the semen, *mycoplasma*s were the most detected with 36 samples (73.46%) proving positive for these microorganisms.
Conclusion: CA is considered as a neglected disease of small ruminants because of the complex disease distribution pattern, ubiquitous nature of the causal agent and poor sheep and goat farm management practices, especially in developing and under developed countries like Iran.

Keywords: Contagious agalactia, Goat bucks, *Mycoplasma agalactiae*, Markhoz goat, PCR.

AN OVERVIEW OF THE MOST IMPORTANT INFECTIOUS AGENTS AND INFERTILITY

***Masoumeh Navidinia[1], Samira Mollaei Rameshe[2], Zahra Farajollahi[2]**

1. Assistant Professor of Medical Bacteriology (PhD), School of Paramedical Sciences, Shahid Beheshti University of Medical Sciences,Tehran, Iran

2. Student of Medical Laboratory Sciences (BSc), School of Paramedical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Email:m.navidinia@yahoo.com, dr.navidinia@sbmu.ac.ir

Background: Infertility is an important problem cause disappointing and devastating to the male or female. Male infertility refers to the inability to get pregnant after a year of having a wife, and the woman was not pregnant after this term.

Methods: This paper studies an overview of the most important agents causing infertility in men and women with infectious agents. These agents are following as : *Brucella* spp., *Helicobacter pylori* , *Chlamydia trachomatis* ,*Neisseria gonorrhea* , *Mycobacterium tuberculosis* ,*Mycoplasma hominis* , *Treponema pallidum* , *Mycoplasma genitalium* ,*Ureaplasma urealyticum* ,*Enterobacteriaceae* and some gram positive cocci, *Trichomonas vaginalis* ,*Toxoplasma gondii* ,*Candida albicans* , *Filaria* spp, *Plasmodium falciparum*, *Entamoeba hystolytica* ,*Mumps* virus, *HSV-2 , HSV-1, HPV ,HIV,HBV , HCV*.

Results: Some infections in female and male are caused infertility.The infection also causes inflammation of the testicles and surrounding tubes, which can affect a man's fertility. In women, the infection can remain latent for several months and then colonization into the cervix and the tubes leading to pelvic inflammatory disease. If untreated, can cause a blockage and damage the tubes, resulting in infertility or ectopic pregnancy.

Conclusion: A role in pathogenesis and the development of sequelae, a pursuit for relevant clinical markers and a viable vaccine could ultimately help guide targeted screening and control efforts of these important pathogens. Due to the rising infertility in our country, it is necessary to consider the most important infectious agents in infertility problems and to apply the appropriate medical treatment.

Keywords: Infertility, Infectious agents, genital tract infections

THE MOST COMMON PATHOGENICITY ISLAND (PAIs) IN *UROPATHOGENIC E.COLI* (UPEC) AND FECAL *E.COLI*

***Masoumeh Navidinia[1], Shahin Najar Peerayeh[2], Fatemeh Fallah[3], Seied Saeed Salar Ghafari[4]**

1. Assistant Professor of Medical Bacteriology (PhD), School of Paramedical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran

2. Associated Professor of Medical Bacteriology (PhD), bacteriology Department of Medical Sciences, Tarbiat Modares University, Tehran, Iran

3. Full Professor of Medical Microbiology (PhD), Pediatric Infections Research Center, Mofid Children's Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

4. Student of Medical Laboratory Sciences (BSc), School of Paramedical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Email:m.navidinia@yahoo.com, dr.navidinia@sbmu.ac.ir

Background: The aim of present study was to identify the Most common pathogenicity island (PAIs) in uropathogenic *E.coli* (UPEC) and fecal *E.coli*.

Methods. One hundred *E.coli* isolates (urinary and fecal) from children were examined. The suspected *E. coli* colonies were isolated and confirmed by biochemical tests. The genomic DNA was extracted and target genes were amplified by polymerase chain reaction (PCR). Moreover, data analysis was performed by using SPSS software.

Results: The prevalence of PAIs in uropathogenic *E. coli* (UPEC) and fecal *E. coli* were 89% and 38% respectively. The number and variety of islands of PAIs in urinary isolates significantly more than fecal strains. ($P < 0.05$) Some pathogenicity islands were more prevalent in urinary *E.coli* isolates than fecal *E.coli* isolates as followed: PAI ICFT073, PAI IICFT073, PAI I536, PAI IV536, PAI II J96, and PAIII536.The most abundant PAIs in uropathogenic *E.coli* (UPEC) and fecal *E. coli* were ICFT073, IV536, and PAI J96I was at the least.

Conclusion: Knowledge of the molecular details of urinary *E.coli* is useful for development of successful strategies for treatment of urinary tract infection in human and prevent of complications associated with UTIs.

Keywords: Pathogenicity island (PAIs), *uropathogenic E.coli* (UPEC), fecal *E.coli*, PCR

COMPARISON OF GENES ASSOCIATED WITH PROTECTINS BETWEEN UROPATHOGENICE *E.COLI* AND FECAL *E.COLI*

***Masoumeh Navidinia[1], Shahin Najar Peerayeh [2], Fatemeh Fallah[3], Mohammad Ali Sadeghi [4]**
1., Assistant Professor of Medical Bacteriology (PhD), School of Paramedical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2., Associated Professor of Medical Bacteriology (PhD), bacteriology Department of Medical Sciences, Tarbiat Modares University, Tehran, Iran.
3. Full Professor of Medical Microbiology (PhD), Pediatric Infections Research Center, Mofid Children's Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran
4 Student of Medical Laboratory Sciences (BSc), School of Paramedical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran
Email:m.navidinia@yahoo.com, dr.navidinia@sbmu.ac.ir

Background: *Escherichia coli* is one of the most causative agents of urinary tract infection (UTI) extremely common among young children specially under 5 years old who are also highly at risk. Protectins are determined by the *kps* operon which code genes associated with protection such as *kps*MTII (K1/K5), *kps*MTIII (K10 &K54), *rfc* (O 4 LPS), *kps*MTI (K1). We compare these genes between uropathogenic *E.coli* (UPEC) and fecal *E.coli*.
Methods. Fifty Urine and 50 feces samples were taken from children with urinary tract infection. The suspected *E. coli* colonies were isolated and confirmed by biochemical tests. The genomic DNA was extracted and genes associated with protection were amplified by PCR. Moreover, data analysis was performed by using SPSS software.
Results. The most abundant of gene associated with protection was *kps*MTII (K1 / K5) and frequency of (O4 LPS) *rfc* was at the least. There was no significant difference in gene frequency between two studied groups. (P≥0.05)
Conclusions: As, genes associated with protection also been observed with other virulence factors in UPEC including *kps*MTII and *hly*A,so knowledge of the molecular details of is useful for development of successful strategies for treatment of urinary tract infection and prevent of complications associated with UTIs.

Keyword: Genes associated with protections, uropathogenic *E.coli* (UPEC), fecal *E.coli*, PCR

THE EFFECTS OF TEUCRIUM POLIUM ETHANOLIC EXTRACT ON BLOOD CELL PARAMETERS OF *CANDIDA ALBICANS* INFECTED MICE

***Mandana salbi[1], Mahboobeh Madani[1], Mehrdad Modaresi[2]**
1.Department of Microbiology, Falavarjan Branch, Islamic Azad University, Isfahan, Iran
2.Physiology Department, Khorasgan (Isfahan) Branch, Islamic Azad University, Isfahan, Iran
Email: m.salbi508@yahoo.com

Background: *Candida albicans* is one of the etiologic agent of opportunistic diseases in humans with high virulence. Pharmaceutical plants have been Longly used in traditional medicine. Felty germander (*Teucrium polium*), a medicinal plant with broad-spectrum use. The effects of felty germander's ethanolic extract on blood parameters of *Candida albicans* infected mice was the aim of the study.
Methods: 72 female mice were divided randomly in six groups including control, *Candida*, placebo, and three experimental groups. Ethanolic extract was injected peritoneally in 50, 100 and 200 mg/kg doses for 20 days. PBS was used as placebo. Blood parameters including WBC, RBC, hemoglobin, hematocrit, MCV, MCH, MCHC, platelets, lymphocytes, neutrophils and monocytes were studied using routine laboratory methods. Obtained data were analyzed using SPSS software and Duncan test.
Results: According to results, the extract had an effect on blood parameters. RBC was reduced in 100 and 200 mg/kg doses and Monocytes count was reduced in all doses. MCV, MCH, and lymphocytes amounts were increased in 100 and 200 mg/kg doses. WBC, hematocrit, MCHC, hemoglobin, neutrophils and platelet were normal. The parameters of hematocrit, lymphocytes, hemoglobin and WBC increased in *Candida* group.
Conclusion: In general, the extract could affect blood parameters to control the infection of *Candida albicans* infection.

Keywords: *Teucrium polium*, *Candida albicans*, Blood parameters

EFFECTS OF ORALL TREATMENT WITH *BACILLUS* COAGULANS THE NATIVE PROBIOTIC OF IRAN ON REDUSING ALLERGIC SYMPTOMS AND IMPROVING GUT FLORA IN OVA-SENSITIZED RATS

Marjan Salehi[1*], Parvaneh Jafari[2]
1. Department of Microbiology, Islamic Azad University, Qom Branch, Qom, Iran
2. Assistant Professor, Department of Microbiology, School of Sciences, Islamic Azad University of Arak, Iran
Email: P-jafari@iau-arak.ac.ir

Background:Recent studies has proven ,probiotics are live microorganisms that have favorable and beneficial influence on health and can play a role in improving human health by effect on intestinal flora. Also Evidence demonstrating an important role of the intestinal microbiota in the incidence of allergic disorders has led to the concept of using probiotics as possible antiallergic therapy. In this research we studied the effect of *bacillus coagulans* (the native probiotic of IRAN) on gut flora and allergic symptoms of ovalbumin-sensitized Rats.

Methods: 30 male Rats were classified in trial, positive and negative control groups. After challenge by OVA intraperitoned injection and orally feeding the symptoms of allergy have revealed and. OVA-sensitized Rats in trial group were orally administered the *Bacillus* Coagulans every day during 3 week and we measured the number of *Lactic acid bacteria*, Yeasts and *Bacillus* of stool samples gathered in first and third week, Actually we analysed and compared the changes in gut flora.

Results: The results of comparison between three groups containing trial group with probiotic gavage and positive and negative control groups shows an improvment in gut microflora and increase in *Bacilluses, yeasts* and *Lactic acid bacteria* and subsequently in trial group decreased the symptoms of allergy like: asthma, itching tail skin, wheezing, redden eyes and noise, Shortness of breath. But in two control groups results were fully vice versa.

Conclusion: *Bacillus coagulans* is able to influence on microflora and modify it and in parallel strengthen immune system. Because gut flora is a main part of immune system so it can make positive impress in treatment and control the symptom of allergy in susceptible people or children.

Keywords: probiotic, *Bacillus coagulan*, Allergy, microflora, ovalbumin

PRODUCTION OF UNIQUE VOLATILE COMPOUND BY BACTERIA

Najmeh Karami[1], Fatemeh Fallah[1*], Hassan Rezadoost[2], Atusa Aliahmadi[3], Abdollah Karimi[1], Fatemeh Mirzajani[4], Alireza Ghassempour[2]
1. Pediatric Infection Research Center, Shahid Beheshti University of Medical Science, Tehran, Iran
2. Department of Phytochemsitry, Medicinal plants and Drugs research Institute, ShahidBeheshti University, Tehran, Iran 3. Department of Microbiology, Medicinal Plant and Drug Research Institute, ShahidBeheshti University, Tehran, Iran
4. Department of Biotechnology, The School of Renewable Energies & New Technologies Engineering (NTE), Shahid Beheshti University, G.C. Evin, Tehran, Iran.
Email: dr_fallah@yahoo.com

Background: The current study was aimed at identifying the VOC of *Pseudomonas aeruginosa* and *Staphylococcus aureus*.

Methods: Standard strains of *P. aeruginosa* and *S. aureus* were cultured in nutrient agar for 20 hours at 37° C and then were sub-cultured onto tryptic soy broth (TSB) medium. Headspace analyses of mentioned bacterial samples were performed after 4 and 24 hours incubation at 37° C. Volatile compounds produced by bacteria were analyzed using solid-phase microextraction (SPME) and Gas Chromatography/Mass spectrometry (GC/MS). A fiber of Divinyl benzene/Carboxen/Polydimethylsiloxane (DVB/CAR/PDMS) was used for absorption of bacterial compound. The sterile TSB medium was used as a control.

Results: According to the primary results VOC produced by *P. aeruginosa* and *S. aureus* were totally different regarding the number of peaks and their intensities obtained in correspond chromatograms.

Conclusion: Our study suggested that different pattern of VOC produced by various bacteria could be used for designing of a new detection approach of bacteria species. Evaluation of VOC of other respiratory tract pathogens and determination of especial biomarker for a collection of them will be carried out in our ongoing research.

Keywords: Volatile organic compounds, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, GC/MS

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PHENOTYPE CHARACTERIZATION OF *E.COLI* SEROTYPE ISOLATED FROM BOVINE SUBCLINICAL MASTITIS IN SUBURB URMIA

Aisan Akbari[1], Abdolreza Rastegarnia[2]*, Shiva Kheirjouei[1]
1. Gratuated of microbiology, Urmia Branch, Islamic Azad University, Urmia, Iran.
2. Department of clinical science, School of Veterinary Medicine, Urmia Branch, Islamic Azad University, Urmia, Iran.
Email: a.rastegarnia@hotmail.com

Background: Subclinical mastitis is known as a disease that causes heavy financial losses to milk producers and to the dairy industry. The aim of this study was to evaluate the phenotypic characteristics of the serotypes of the *E. coli* isolated from cow's milk with subclinical mastitis around the city of Urmia.
Methods: A total of 480 quarter milk samples were collected from 120 dairy bovine cow and screened for subclinical mastitis by the aid of California Mastitis Test (CMT). In order to isolation of *E. coli* by cultural methods, bacteriological examinations with biochemical tests were done on all samples. Virulence tests were performed on *E. coli* serogroups isolated from mastitis cases.
Results: The subclinical bovine cow mastitis prevalence rates were 97.46% in all samples. *E. coli* was isolated from 4 (%2.31) mastitis milk samples out of 477 examined ones. All *E. coli* isolates were serotyped O44, O125, and O128 strains. It was found that 3 strains were serum resistant and 4 isolated cases had enteropathogenic (EPEC) activity. The results of antibiotic sensitivity of *E. coli* revealed that it was sensitive to, norfloxacin, and on the other hand, all strains was resistant to colistin and neomycin.
Conclusion: Overall, the results show that due to relative high levels of pollution caused by *E. coli* strains in milk samples of cows around the city of Urmia, identification and control of the serotypes seasonal variation in *E. coli* strains is very important.

Keywords: clinical, mastitis, *E. coli*, CMT

DERMATOPHYTOSIS IN COWS IN TEHRAN, IRAN

***Hojjatollah Shokri[1], Alireza Khosravi[2]**
1. Department of Pathobiology, School of Veterinary Medicine, Amol, University of Special Modern Technologies, Amol, Iran
2. Mycology Research Center, School of Veterinary Medicine, University of Tehran, Tehran, Iran
Email: hshokri@ausmt.ac.ir

Background: Dermatophytosis is a superficial infection of the keratinized tissues of epidermis, hair and nail caused by dermatophytes. The aims of the present study were to isolate and identify the causative fungi of dermatophytosis and to determine the distribution of lesions on different sites of cow body.
Methods: Seventy cows suspected of having ringworm were examined clinically for detecting of dermatophytosis lesions in different sites of body (head, trunk, cranial and caudal limbs). Skin scales were collected by scraping of the margin of the lesion using a sterile scalpel blade into sterile Petri dish. Direct microscopic examination was performed by 10 % KOH/ DMSO or lactophenol cotton blue. Specimens were cultured on sabouraud glucose agar and sabouraud glucose agar with chloramphenicol (0.005%) and cyclohexamide (0.04%) and incubated at two different temperatures, 30ºC and 37ºC, for one month.
Results: Forty-three cases were appeared with positive clinical signs of dermatophytosis. The etiologic agent of the infection was only *Trichophyton verrucosum*. A significant relation was observed between the frequency of head and neck lesions and other sites ($P<0.05$). The most distribution of lesions on head were observed on preorbital (34 cases: 44.7%), ear (20 cases: 26/3%), mandible (9 cases: 11.84%), nasal (9 cases: 11.84%) and buccal (4 cases: 5.26%) areas, respectively.
Conclusions: The results suggest that we should plan a program to provide a suitable *T. verrucosum* antigenic complex as vaccine for immunizing cows against dermatophytosis into the future.

Keywords: Dermatophytosis, *Trichophyton verrucosum*, Cow

OTOMYCOSIS IN CATS

Hojjatollah Shokri
Department of Pathobiology, School of Veterinary Medicine, Amol University of Special Modern Technologies, Amol, Iran
Email: hshokri@ausmt.ac.ir

Background: Feline otomycosis is a very common and etiologically complex disease. Because of the availability of several predisposing factors, such as humidity, pH, allergies, foreign bodies and otoacariasis, the external ear canal of the cat provides an ideal environment for the growth of different fungi. The aim of this study was to evaluate the occurrence of different fungi in the external ear canal of cats with otitis externa.
Methods: Eighty-two cats with otomycosis were clinically examined. Sterile cotton swabs were used to collect specimens from the external ear canal and streaked onto the surface of Sabouraud dextrose agar and modified Dixon agar.
Results: *Malassezia* yeasts were isolated from 95.1% of the cats with otomycosis. Out of the 137 isolates obtained from cats with otitis, 57.7% were identified as *Malassezia pachydermatis* (with significant frequency; $P<0.05$), 15.4% as *M. obtusa*, 11.4% as *M. globosa*, 7.3% as *M. slooffiae*, 4.1% as *M. sympodialis*, 2.4% as *M. furfur* and 1.6% as *M. restricta*. *Malassezia* species were frequently isolated from infected cats with age range from 1 to 4 years old (42.7%).
Conclusions: Our findings indicated that feline otomycosis can be associated with lipid-dependent *Malassezia* species in addition to the non lipid- dependent species *M. pachydermatis*.

Keywords: Feline, Otomycosis, *Malassezia pachydermatis*

THE THERAPEUTIC EFFECT OF FELTY GERMANDER'S AQUATIC EXTRACT ON CANDIDA ALBICANS INFECTED MICE AND FUNGAL COLONIZATION IN THEIR LIVERS AND KIDNEYS

***Mandana Salbi[1], Mahboobeh Madani[1], Mehrdad Modaresi[2]**
1.Department of Microbiology, Falavarjan Branch, Islamic Azad University, Isfahan, Iran
2. Department of Physiology, Khorasgan (Isfahan) Branch, Islamic Azad University, Isfahan, Iran
Email: m.salbi508@yahoo.com

Background: *Candida albicans* is one of the etiologic agent of opportunistic diseases in human and a most common nosocomial infection. Felty germander (*Teucrium polium*) is an old medicinal plant which has been used due to its antimicrobial - anti fungal properties. This research was carried out to study the effects of felty germander's aquatic extract on reducing fungi colonization and weight changes of the livers and kidneys of *Candida albicans* infected mice. **Methods:** 72 female mice were divided randomly in six groups including control, candida, placebo, and three experimental groups. Aquatic extract of felty germander was injected peritoneally in 50, 100 and 200 mg/kg per mouse for 20 days. *Candida albicans* (McFarland 0.5) was injected once. PBS was used as placebo. Mice were autopsied and their liver and kidneys were weighed and cultured on SDA medium in three dilutions after homogenization. Data were analyzed using SPSS software and Duncan test.
Results: According to results, the extract reduced colonization of *Candida* in the mice liver and kidney significantly. The least colonization was observed in 100 and 200 mg/kg groups which were significantly different from *Candida* group. Increase in weight was only observed in *Candida* group of liver.
Conclusion: In general, the extract of felty germander reduced fungi colonization and showed therapeutic effects of mice candidiasis which was probably because of strengthening of the immune system. Increase in liver weight was probably due to tissue tendency of *Candida* and local Inflammation.

Keywords: Felty germander, *Candida albicans*, Colonization, Liver, Kidney

ANALYSIS OF IRANIAN SCIENTISTS OUTPUT IN ZOONOSES INDEXED IN ISI WEB OF SCIENCE DATABASE BASED ON QUALITATIVE SCIENTOMETRIC INDICES

***Ahmad Yousefi[1], Seyyed Mohammad Alavinia[2], Kourosh Arzamani[2]**
1. Razi Vaccine and Serum Research Institute, Agricultural Research, Education and Extension Organization, Karaj, Iran
2. Vector-borne Diseases Research Center, North Khorasan University of Medical Sciences, Bojnurd, Iran
Email: a.yousefi@rvsri.ac.ir

Background: Nowadays, the number of Iranian articles in zoonoses increased in Web of Science (WoS) database. So, evaluating the status of qualitative scientometric indices for literature on zoonoses in Iran in WoS database is important. Evaluating the articles according to impact factor and immediacy index, citation analysis, and international collaboration and co-authorship are the main purposes of this research.
Methods: This is a scientometric study in zoonoses and survey method is used. All articles indexed in the ISI WoS database on zoonoses that at least one of the authors is Iranian, have been analyzed.
Results: In total, from 1971 to the end in 2012, 3807 articles in the field of zoonoses from Iranian scholars and writers in the WoS database are indexed. The most articles have been published in INTERNATIONAL JOURNAL OF INFECTIOUS DISEASES. Mean of impact factor is 2.069 and Mean of immediacy index is 0.019.
Conclusion: The mean impact factor of the zoonoses articles of Iran has a favorable situation. The mean impact factor of the journals publishing zoonoses articles of Iran is 2.069, which shows the average impact factor of zoonoses articles of Iran is higher than other subject areas of medical sciences in Iran and some of other regional countries like Pakistan and Egypt, but is lower than forensic medicine of Europe, Epidemiology of America, Canada and Japan. The desirable condition of the mean impact factor of zoonoses articles of Iran is because that: 1. the much of articles, published in foreign journals (83.71%), that their impact factor is higher than the Iranian journals. 2.

Keywords: Zoonoses, Scientometrics, Iran, Articles, Web of Science, ISI

INVESTIGATION OF AUTHOR SELF-CITATION IMPACT ON RANKING OF SOUTHWEST ASIAN COUNTRIES BASED ON CITATION PER PAPER IN ZOONOSES

Ahmad Yousefi
Razi Vaccine and Serum Research Institute, Agricultural Research, Education and Extension Organization, Karaj, Iran
Email: a.yousefi@rvsri.ac.ir

Bachground: Nowadays, the number of Iranian articles in zoonoses increased in Web of Science (WoS) database. So, evaluating the status of qualitative scientometric indices for literature on zoonoses in Iran in WoS database is important.
Methods: The scientometric study and citation analysis have been used. Zoonotic keywords in the fields of title and topic have been searched, and thus it separately with each of the target countries combined. All analyses have been done based on the results of these searches that include 19205 articles. The main objective of this study was to investigate the influence of author self-citation on the ranking of the region of 1404 perspective countries based on the average citation per paper.
Results: Based on the number of articles, Turkey, Israel and Iran with 8397, 5595 and 3807 articles were the most prolific countries respectively. Based on the average citation per paper, Azerbaijan, Israel and Palestine with 30.83, 18.96 and 12.14 gained the fist 3 ranks. Based on the rate of self-citation, Iran, Tajikistan and Turkey with 22.92, 2051 and 19.85 have the most rate of self-citation respectively. According to the average citation per paper excluding self-citation, Azerbaijan, Israel and Palestine with 30.45, 17.21 and 12 appropriated 3 first places.
Conclusion: Iran ranks relatively well in terms of number of papers in the region. But, in spite of the significant increase in the number of Iranian articles in recent years, still according to the number of articles in proportion of total population, hadn't proper position.

Keywords: Zoonoses, Self-citation, Southwest Asian Countries, Scientometrics, Ranking, Articles, Web of Science, ISI

EVALUATION EFFECT OF MICROWAVE IN REPETITIVE MODE ON PROTOSCOLICES OF HYDATID CYST IN VIVO (SYRIAN MICE)

[*]Zahra Eslamirad[1], Homa Soleymani[2]
1. Department of Parasitology, Arak University of Medical Sciences, Arak, Iran
2. Department of Medical physics and physiology, Arak University of Medical Sciences, Arak, Iran
Email: dr.eslami@arakmu.ac.ir

Bachground: Hydatidosis is a zoonotic infection caused by the larval stage of the *Echinococcus*. This larval stage can infect both animals and humans. Surgery is a common treatment of hydatid cyst. As external and non-invasive techniques, radiation therapy may be used to disable the protoscolices. Therefore, the aim of this work was to evaluate the effect of repetitive microwaves on protoscolices.
Methods: Hydatid cysts from slaughtered sheep transferred to Parasitology Laboratory in Arak university of medical sciences. The content of cysts was completely empetied and viability of protoscolices was determined by eosin stain method. Microwave irradiation in tube containing protoscolices and with different duration time was conducted. So we had 5 groups. After irradiation the mortality rate of protoscolices was calculated in each tube and the contents of each tube were injected into female mice.The mice were sacrificed 4 months later and the number of hydatid cysts were counted.
Results: The results showed that after microwave irradiation the changes of temperature was much low but mortality rate of protoscolices were increased from 7 per cent (control group) to 38.6 per cent after 80 seconds (fifth group). The comparison of mortality rates in cases and control groups showed significant differences ($p<0.001$). However, no significant difference was observed between the number of cysts in case and control groups.
Conclusion:
Microwave in repetitive mode can affect in mortality rate of protoscolex of hydatid cyst. Also this type of radiation can caused reduce of potential to produce cysts from the live protosculex.

Keywords: Hydatis cyst, Protoscolex, Microwaves, Repetitive mode

STUDY ON BM86 SIMILAR STRUCTURE IN IRANIAN TICK SPECIES BY DEVELOPMENT OF INDIRECT ELISA USING BM86 SPECIFIC MAB

Zohre Zare[1], [*]Ali Mirjalili[2], Mohammad Abdi Goudarzi[2], Abolhasan Shahzadeh Fazeli[1]
1. Science and Culture university of Tehran
2. Razi Vaccine & Serum Research Institute (RVSRI)
Email: ali_mirjalili@yahoo.com

Background: Concealed versus exposed antigen was used as main principle to develop vaccine against tick species. Bm86 is a specific glycoprotein which is primarily found in midgut epithelial cells of particular tick species; Due to its crucial role in midgut epithelial cell and its concealed feature, this glycoprotein was used for making of vaccine (Tick GARD and GAVAC in Australia and Cuba, respectively) against *Boophilus microplus* tick species. Since Iran's predominant ticks species are completely different from above mentioned tick, in this study we attempted to develop indirect ELISA test to find out similar Bm86 structure in Iranian tick species using our developed Bm86 specific mAb.
Methods: Different midgut protein extracts obtained from prevalent Iranian tick species including *Hyalomma anatolicum anatolicum, Hyalomma dromedarii, Hyalomma marginatom* and *Rhipicephalus sanguies* were used as 1 □g/ml concentration to coat microtiter plates separately. Monoclonal antibody against Bm86 was developed earlier in Razi Ins. (RVSRI), and its hybridoma supernatant was used directly and as concentrated form. Anti-mouse HRP conjugate also used as secondary antibody to reveal positive reactions.
Results: High OD value of our cell supernatant displayed positive reaction of our Bm86 mAb and different Iranian tick gut proteins.
Conclusions: Our results displayed, our developed Bm86 mAb could reacted with midgut protein extract of different tick species which means possibility of existence of Bm86 similar structure in Iranian tick species. Therefore, we can utilize this mAb to find out possible candidate molecule in Iranian tick species for development of anti-tick vaccine.

Keywords: Bm86,TICK GARD, Gavac

INVESTIGATION OF VENTILATOR ASSOCIATED PNEUMONIA AND ITS RESPONSIBLE PATHOGENS IN HOSPITALS AFFILIATED TO ARAK UNIVERSITY OF MEDICAL SCIENCES, SUMMER 2014

***Sharareh Khosravi[1], Koorosh Rezaie[1], Maryam Gholami Mehrabadi[1], Bita Malekian zadeh[2]**
1. Department of Nursing, School of Nursing and Midwifery, Arak, University of Medical Sciences, Arak, Iran
2. Department of Anesthesiology, School of Medicine, Arak University of Medical Sciences, Arak, Iran
Email: khosravi@arakmu.ac.ir

Background: Ventilator-associated pneumonia (VAP) is a common complication of patients in ICUs, and is associated with increased morbidity, mortality, and costs. This study was done to investigate the prevalence and responsible pathogens of VAP in hospitals affiliated to Arak University of Medical Sciences.
Methods: A total of 70 intubated, ventilator supported patients, were assessed for VAP during summer 2014 in ICUs of Vali-e- Asr and Amiralmomenin hospitals in Arak city. They were assessed for VAP using Clinical Pulmonary Infection Score (CPIS). Cultures in specific mediums were made by endotracheal aspiration (ETA) to find the responsible pathogens.
Results: 39 (55.7%) patients suffered from VAP. The isolated pathogens were *Acinetobacter* (51.4%), *Staphylococcus aureus* (13.4%), *Gram-Negative Cocci* (11.4%), *Acinetobacter* with *Klebsiella* (8.6%), *Klebsiella* (5.8%), and *Pseudomonas* (2.9%).
Conclusion: Near half of the patients suffered from VAP. The two most frequent pathogens of VAP were *Acinetobacter* and *Staphylococcus aureus*.

Keywords: Ventilator associated pneumonia, Prevalence, Pathogens

PHENOTYPE CHARACTERIZATION OF *STREPTOCOCCUS* SPECIES ISOLATED FROM RAW AND SUBCLINICAL BUFFALO MASTITIS IN AROUND OF URMIA

Shiva Kheirjouei[1], *Abdolreza Rastegarnia[2], Aisan Akbari[1]
1. Gratuated of microbiology, Urmia Branch, Islamic Azad University, Urmia, Iran.
2. Department of Clinical Science, School of Veterinary Medicine, Urmia Branch, Islamic Azad University, Urmia, Iran.
Email: a.rastegarnia@hotmail.com

Background: Subclinical mastitis cause damage to the industry of buffalo milk and its products, therefor; it has great economic importance. One of the main causes of mastitis in dairy herds is *streptococcus* species. The aim of this study was to compare the diversity and phenotypic characterization of *streptococcal* species in milk samples from with subclinical mastitis in buffaloes.
Methods: A total of 478 quarter milk samples were collected from 120 dairy buffaloes in around of urmia and screened for subclinical mastitis by the aid of California mastitis Test (CMT).In order to isolation of *streptococcus* species by cultural methods, bacteriological examinations with biochemical tests and examined by polymerase chain reaction (PCR)were done on all samples.
Results: *streptococcus* species was isolated from 27 (22.5%) mastitis milk samples out of 477 examined ones. The result were compared with the conventional bacterial culture. Based on the PCR results, *S.agalactiae*, *S.dysgalactiae* and *S.uberis* were causative agents in 2.7, 2.7 and 40.54% of sample, respectively. Streptococcus equi subspecies zooepidemicus (5.40%) and other strains contain *S.pyogenes*, *S. pnemoni*, *S.canis*, and *S.equinus* each 2.7 percent were reported. There was not any culture – positive samples being negative in PCR.
Conclusion: The result of this study showed that subclinical infection from these bacteria are prevalent in dairy buffalo around of urmia and recontrol programs should be planned to control the infection.CMT test has sufficient sensitivity for detection of subclinical mastitis due to this agents.

Keywords: phenotype, *streptococcus* species, subclinical, mastitis, buffaloes

ISOLATION AND IDENTIFICATION OF CELLULASE PRODUCING BACTERIA FROM HOT SPRINGS OF BANEH COUNTY OF KURDESTAN PROVINCE OF IRAN

Zhila Shabani[1], *Roya Moravej[2]
1. M.Sc. Student of Microbiology, Department of Biology, School of Basic sSciences, Islamic Azad University of Sanandaj, Sanandaj, Iran.
2. Assistant Professor, Department of Biology, School of Basic Sciences, Islamic Azad University of Sanandaj, Sanandaj, Iran.
Email: microbiology.m@Gmail.com

Background: Our study was aimed to isolate and identify local cellulase producing bacteria of hot springs of Baneh Country Kurdestan Province of Iran.
Methods: to this aim, six samples where collected from different places of hot spring of Saluk Village of Baneh County of kurdestan province, iran. Specific media where used to isolate cellulytic bacteria. Firstly, this bacteria where enriched in specific medium containing microcrystalline cellulose as the only source of the carbon. Cellulase preducing bacteria where isolated which showed larger diameters of clear zones of Carboxy Methyl Cellulose (CMC) agar plates stained whit Congo red. Then, specific activities of main components of cellulase system (endoglucanase, exoglucanase and cellobiase) where assayed using dinitrosalicylic acid (DNS) based on the level of reduced sugars derived from CMC at pH five. The strain whit highest enzymatic activity was determined an optimum temperature and ph where calculated for it. Also, all cellulolytic strains where identified according to microscopic biochemical and genetic (*16s rDNA*) methods.
Results: our results showed that all isolated cellulase producing bacteria strains from Saluk had significant cellulolytic activity. The three other isolates where associated whit *Bacillus. Licheniformis* and *Bacillus. Subtilis.*
Conclusion: Interestingly, the highest activity was recorded for isolate 4 which was quite stable at a wide temperature and pH range. This isolate was probably a strain associated whit *Acidothermus. Cellullolyticus*, according to phylogenetic analyses.

Keywords: Bacteria, Cellulase, Hot spring, Baneh

LPS TYPING OF OVINE PASTEURELLA MULTOCIDA ISOLATES BASED ON (L1-L4) OUTER CORE BIOSYNTHESIS LOCI

Seyedh Fahimeh Merhaghgoye Jalali[1], *Ahmad Reza Jabbari[2], Majid Esmaelizad[3]
1. MSc student Razi Vaccine and Serum Research Institute, Karaj,Iran
*2. National Pasteurella Research Laboratory,Razi Vaccine &Serum Research Institute, Karaj,Iran**
3. Central Laboratory Department, Razi Vaccine & Serum Research Institute,Karaj, Iran
Email: a.jabbari@rvsri.ac.ir

Background: The aim of thes study was to identify the LPS genotypes L1- L4 among sheep *P.multocida* abtained from pneumonia cases in Iran.
Methods: A collection of 33 bacterial isolates of *P.multocida* from sheep was analysed in this study. All *P.multocida* Strains were grown at 37°c in Brain Heart infusion broth (BHI). DNA was purified of culture using boiling Method .DNA extracted by this Method allowed amplification and sequencing. The quality DNA Measured by A260−A280 ratio in nonodrap. The specific primer sets were used to amplify the related gene. Each of the final PCR reaction (20µl) was performed in 1x taq polymerase buffer.
Results: Of the 33 examined isolates one isolates contained LPS2 ; eight isolates contained only LPS3 ; twenty one isolates contained only LPS6 ; two isolates contained of both LPS3 LPS6 ; no of the isolates contained LPS1; LPS4 or LPS5
Conclutions: The differentiation of *P.multocida strains* on the basis of LPS biosynthesis genes wich can accurately differentiate P.multocida strains in to on the eight distinct LPS genotypes. Each LPS genotype strains displaying variation or truncation of the LPS structure can arise from random point mutations or deletions in almost all cases with in the LPS outer core biosynthesis genes. These mutations can result in a change of function or a total loss of function resulting in early termination of LPS assembly.

Keywords:*p. multocida* ,ovine ,LPS-PCR typing

DIABETIC HYPERGLYCEMIA ASSOCIATED WITH BACTERIAL INFECTION

Attabak Toofani Milani[1]*, Seyed Hossein Hosseini[2], Mahshid Mohammadian[1] Zafar Gholinejad[1]

1. *Department of Biochemistry, School of Medicine, Urmia University of Medical Sciences, Urmia, Iran*
2. *Department of Biochemistry, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran*

Email: Toofani2020@yahoo.com

Background: In general, infectious diseases are more frequent and serious in patients with diabetes mellitus, which potentially increases their mortality. The greater frequency of infections in diabetic patients is caused by the hyperglycemic environment that favors immune dysfunction (e.g., damage to the neutrophil function, depression of the antioxidant system, and humoral immunity), micro- and macro-angiopathies, neuropathy, and decrease in the antibacterial activity of urine, gastrointestinal and urinary dysmotility, and greater number of medical interventions in these patients. The infections affect all organs and systems. Some of these problems are seen mostly in diabetic people, such as foot infections, malignant external otitis, rhinocerebral mucormycosis, and gangrenous cholecystitis.
Methods: The MEDLINE and LILACS databases were searched for articles published between 1999 and 2011, using the following keywords in various combinations: "diabetes mellitus," "infections," "immunization,". The articles were initially selected on the basis of their titles and abstracts.
Results: Recent evidence indicates that the late complications of diabetes are indeed the consequence of metabolic abnormalities (hyperglycemia) associated with an absolute or relative lack of insulin. There is also evidence that the development and rate of progression of these complications are related to the duration of diabetes and the degree of blood sugar control. Recent reports suggest that the achievement of metabolic control will delay or prevent the late complications of diabetes.
Conclusion: More research is needed for clarification of the immunopathogenic mechanisms linking DM and infections and to develop strategies for improve quality life in diabetic patients.

Keywords: *Diabetes mellitus, immunization, infections*

BIODEGRADATION OF XYLENE USING PSEUDOMONAS SP. ISOLATED FROM NORTHWEST OF IRAN

Najibeh Shirzad[1], Ali Farzi[2], Nader Hajizadeh[3*]

1. *Young Researchers and Elite Club, Ahar Branch, Islamic Azad University, Ahar, Iran.*
2. *Department of Chemical and Petroleum Engineering, University of Tabriz, Tabriz, Iran.*
3. *Young Researchers and Elite Club, Ilkhchi Branch, Islamic Azad University, Ilkhchi, Iran.*

Email: zist1360@yahoo.com

Background: Phenols and its derivatives are major pollutants in the effluents of chemical industries such as petrochemicals, pharmaceuticals, plastics and pulp products. These toxic compounds are a hazard to plants, aquatic life and mammals. Their removal from these wastewaters before discharging into the environment is crucial for safety of the ecosystem. Using biological methods and potential of existing indigenous soil microorganisms is preferred to other methods because of their low cost and availability. In this study, *Pseudomonas* sp. bacteria isolated from soil of east Azerbaijan was used for biodegradation of Phenol.
Metods: Phenols and its derivatives are major pollutants in the effluents of chemical industries such as petrochemicals, pharmaceuticals, plastics and pulp products. These toxic compounds are a hazard to plants, aquatic life and mammals. Their removal from these wastewaters before discharging into the environment is crucial for safety of the ecosystem. Using biological methods and potential of existing indigenous soil microorganisms is preferred to other methods because of their low cost and availability. In this study, *Pseudomonas* sp. bacteria isolated from soil of east Azerbaijan was used for biodegradation of Phenol.
Results: The results showed that, this bacterium is capable of decomposing Phenol up to 50% while it does not produce harmful components. According to the experimental data and proposed kinetic model, the reaction obeys first order.
Conclusion: The identified bacterium has an acceptable performance in biodegradation of Phenol and can degrade it up to 50%. *Pseudomonas* sp. is indigenous and resistant to environmental conditions and can be used in the region of East Azerbaijan with variable climate changes.

Keywords: *Phenol, Pseudomonas sp., Biodegradation, Reaction Kinetic Model*

BIODEGRADATION OF XYLENE USING *PSEUDOMONAS* SP. ISOLATED FROM NORTHWEST OF IRAN

Nader Hajizadeh[1], *Najibeh Shirzad[2], Ali Farzi[3]
1. Young Researchers and Elite Club, Branch, Islamic Azad University, Ilkhchi, Iran
2. Young Researchers and Ahar Club, Branch, Islamic Azad University, Ahar, Iran
3. Department of Chemical and Petroleum Engineering, University of Tabriz, Tabriz, Iran
Email: Sanamshirzad@yahoo.com

Background: Among the pollutants entered to the environment, polycyclic aromatic hydrocarbons are of special importance because of their significant harms on human and environment. One way of reducing various pollutants is using biological methods by the aid of microorganisms, which is called Bioremediation.In this study isolated *Pseudomonas* sp. bacteria from the soil of East Azerbaijan were used for xylene biodegradation.
Methods: Bacteria were isolated from oil-contaminated areas and were screened. To perform the tests the minimal mineral medium was used. Isolated bacteria were added to one of the samples, in addition to xylene. By comparison with mineral medium containing exclusively xylene the changes resulting from bacteria can be realized. The ability of bacteria to decompose hydrocarbons using maximum wavelength was determined by spectrophotometry.Further experiments and determination of the secondary metabolites were performed by gas chromatography. After extraction of experimental data, suitable kinetic model was proposed for biodegradation reaction and optimization of the concentration, temperature and pH was performed.
Results: In this study, the ability of *Pseudomonas* sp. bacteria isolated from East Azerbaijan for xylene biodegradation was investigated. The results showed that the bacterium is able to decompose xylene more than 40%. According to the experimental data it was observed that the decomposition reaction obeys first order kinetic model.
Conclusion: Because of ability for xylene biodegradation, *Pseudomonas* sp. bacteria can play an important role in cleanup of soils contaminated with aromatic hydrocarbons. With successful implementation of the project, field-scale infrastructure necessary to implement this process is provided in the near future.

Keywords: *xylene, pseudomonas sp, Biodegradation, Kinetic Model*

IMMUNE GENES INTERVENTION; A NEW ASPECT FOR SEPSIS MANAGEMENT

Nazila Bahmaie[1], *Abdolreza Esmaeilzadeh[2]
1. MSc Student of Medical Microbiology and Member of Student Research Committee, Department of Microbiology and Virology, Shool of Medicine, Zanjan University of Medical Science, Zanjan, Iran
2. Associated professor of Immunology, Department of Immunology & Cancer Gene Therapy Research Center, School of Medicine, Zanjan University of Medical Science, Zanjan, Iran
Email: a46@zums.ac.ir

Background: Sometimes our efforts for management of sepsis have been encountered to fail by several major concerns: a) Reappearance of invasive pathogens. b) The changing nature of infectious disease manifestation. c) Antibiotic resistance, subsequently incidence of multi-drug resistant strains and chronicity of the disease.
Method: This study is a systematic review and data are collected from PubMed, Scopus, Science Direct databases by using 4 keywords (as: Sepsis, Immune Genes, Intervention, Pro inflammatory Cytokines.) from ultimately 50 articles of 2000 to 2015.
Results: Although many advances have improved the outcomes of many diseases, the mortality of the septic shock continues to be distressingly high. It is demonstrated that gene polymorphism in CD14 promotor affects susceptibility to septic shock and seems to be a new genetic risk factor for death. Elevated levels of ROS and NOS, subsequently reduced translocation of Nrf2 leads to intensified SIRS and enhanced multi organ failure.
Conclusion: It seems that filling the gaps in the knowledge of how immune cells function in sepsis, may be useful, but not sufficient. We hope that immunological interventions in sepsis related genes will be a promising window and an accurate route to accelerate our limited advances for management of sepsis.

Keywords: Sepsis, Immune Genes, Intervention, Pro inflammatory Cytokines

ABUNDANCE OF SULFUR-OXIDIZING BACTERIA IN AGRICULTURAL SOILS AROUND SARCHESHMEH COPPER MINE, IRAN

Sadeghi Pour Marvi, M[1], *Pourbabaee, A.A[1], Alikhani, H. A[1]. Haidari, A[1], Manafi, Z[2].
1. Department of Soil Sciences, University School of Agriculture and Natural Resources, University of Tehran, Iran.
2. Researcher, Research and Development Office, Sarcheshmeh Copper Complex, National Iranian Copper Industries Iompany.
Email: pourbabaei@ut.ac.ir

Background: The release of sulfide minerals and sulfur gases from the copper mining activities to agricultural soil surrounding in Sarcheshmeh copper mine, has a major role in abundance of sulfur-oxidizing bacteria (SOB). Understanding the SOB population in the agricultural soil is the most necessary step for the use of biofertilizers in agriculture. Therefore, the aim of this study was to detect SOB in soils surround Sarcheshmeh copper mine.
Methods: Soil sampling was done and screening, isolation and purification were done using cultivation molecular microbiology techniques in 9k cultivation medium with PCR and analysis of *16S rRNA*. Therefore, it drew phylogenetic tree obtained using Likelihood approach.
Results: Based on these results six strains of SOB were detected that *Starkeya spp.* (*alpha-proteobacteria*) were gram negative, neutrophilic, mesophilic , but *Thiobacillus spp.* (*beta-proteobacteria*) were gram negative, neutrophilic, mesophilic. Based on ML analysis, strains 158, 190, 192, 156 (ML bootstrap, 94 %) and strains 129 and 103 (ML bootstrap, 91%) form monophyletic clades. Strains 158, 190, 192, 156, 129 and 103 had similarity with *Thiobacillus thiophilus* (94%), *Thiobacillus thioparus* (94%), *Thiobacillus aquaesulis* (99%), *Thiobacillus aquaesulis* (94%), *Starkeya novella* (95%) and *Starkeya novella* (95%), respectively.
Conclusion: Statistical analysis showed that *Thiobacillus thiophilus*, *Thiobacillus thioparus*, *Thiobacillus aquaesulis* and *Starkeya novella* had 17, 17, 33 and 33% abundance. The pH reducing property of SOB by the production of acid can be utilized for reclamation of alkali soils. Also, they can be incorporated to enhance sulfur oxidation in soil and to increase available sulphate in soil to optimize the S-fertilizer application.

Keywords: *Thiobacillius*, *Starkeya*, Sarcheshmeh

BIOSYNTHESIS OF SILVER NANOPARTICLES BY BACTERIA ISOLATED FROM INDUSTRIAL SEWAGE

Shima Kazemi[1], *Monir Doudi[2], Gholamreza Amiri[3]
1. Department of Microbiology, Falavarjan Branch, Islamic Azad University, Falavarjan, Isfahan, Iran.
2. Assistant Professor , Department of Microbiology, Falavarjan Branch, Islamic Azad University, Isfahan, Iran.
3. Assistant Professor , Department of Biology, Falavarjan Branch, Islamic Azad University, Isfahan, Iran.
Email: Doudi@iaufala.ac.ir

Background: In this study, the production of these nanoparticles in bacteria isolated from industrial sewage was examined.
Methods: First, the sample was collected from silver work sewage and the existing bacteria were counted. Next the isolation and identification of silver resistant bacteria was carried out. In the current study the method of diffusion in agar and PHG II growth medium containing 0.5 Mm of related metal was used. Then the level of resistance of isolated resistant strains to silver based on the minimum inhibitory concentration (MIC) was determined. A kind of bacteria which showed the highest level of resistance to silver was identified. Then the production of silver nanoparticles in isolated bacteria was checked. The characteristics of produced nanoparticles by XRD(X Ray Diffraction) and TEM (Transmission electron microscope) were investigated.
Results: In this study, *Stenotrophomas maltophilia* Bacteria, strain *MS8*, showed the highest resistance to silver (MIC=6Mm).This bacteria was able to synthesize silver nanoparticles. The results of visual observations, UV, TEM, and XRD showed that this bacteria was able to restore silver ions to silver nanoparticles. The largest size of nanoparticles was 18-19 nm.
Conclusion: Based on the results of this study, the isolated bacteria from sewage could not only be an appropriate candidate for biological removal of heavy metal contaminated industrial sewage, but also it could produce biological silver nanoparticles.

Keywords: Silver nanoparticles, Biosynthesis, Bacteria

INDOOR/OUTDOOR AIRBORNE FUNGAL IN THE AIR OF KHORRAMABAD HOSPITALS, IRAN

[*]Hasan Basiri[1], Asghar Sepahvand[2], Yusef Omidi-Khaniabadi[1]
1. Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran
2. Razi Herbal Medicine Research Center, Department of Medical Parasitology and Mycology, Lorestan University of Medical Sciences, Khorramabad, Iran
Email: h.basiri29@gmail.com

Background: Fungi are the dominant biological component of air and commonly have an environment source of indoor (I/O>1) or outdoor (I/O<1). The aim of this study was to determine rate of airborne fungal contamination in the inside parts and ambient air of the Khorramabad *hospitals*.
Methods: Sampling was conducted based on NIOSH standard using quick take-30 equipped with a single-stage sampler at an airflow rate of 28.3 L/min and sampling times of 2.5 min on to *Sabouraud dextrose agar* medium containing *chloramphenicol*. Fungal concentrations were determined over of 72-120 hours after sampling and results were reported to CFU/m^3. Also, relative humidity and temperature of indoor and outdoor air were measured.
Results: A total of 144 samples from ten rooms and two outdoor stations were obtained, which the results showed 75.7% of samples were positive and 24.3% other were negative. The dominant fungal species were *Penicillium* (37.3%), *Cladosporium* (28.52%), *Rhizopus* (7.43%), *Aspergillus niger* (9.3%), *Mucor* (4.4%), *Rhodotorula* (4.43%), *Aspergillus flavus* (2.27) and others (6.19%). Relative humidity and temperature average were ranged from 27% to 45.5% and 19.3 to 28°C for indoor air and 21.5% to 48% and 11°C to 20.5°C for outdoor stations, respectively.
Conclusion: The obtained results illustrated the rate of I/O is 0.33 CFU. Therefore, based on I/O rate contaminate have an outside source. Also, environmental factors may significantly effects on the airborne fungi concentrations and should be managed to minimize airborne levels.

Keywords: Indoor, outdoor, airborne fungal, Hospital rooms, Khorramabad.

INVESTIGATING THE FREQUENCY OF VERO-TOXIGENIC ESCHERICHIA COLI IN URINE SAMPLES OF PATIENTS REFERRING TO IMAM REZA HOSPITAL, TABRIZ, BY CULTURE AND PCR METHOD

[*]Seyed Mohsen Aberoumandi, Mohammad Reza Saghatchi Zanjani, Kamal Moghadam
Department of Microbiology, Tabriz Branch, Islamic Azad University, Tabriz, Iran
Email: sm.aberoumandi@yahoo.com

Background: Urinary infections are the most common in terms of incidence following respiratory infections and go first in referral of adults to physicians. Like in other infections, in urinary infections, the physicians are forced to treat the infection before identifying the infection type and doing antibiotic sensitivity test. Therefore, they must have adequate information about infection agent and antibiotic sensitivity. This research aims to investigate the frequency of Verotoxigenic *Escherichia coli* (VTEC) in urine culture of patients referring to Imam Reza, Tabriz, and antibiotic sensitivity pattern in 1394.
Methods: In this study, 248 urine samples were cultured in microbiology lab in a strictly sterile form. The positive samples of *E.coli* were sent to the respective lab for PCR procedure.
Results: 24 samples were reported to have positive culture among which the greatest frequency was related to *E.coli*, 66.6% and the greatest sensitivity to antibiotic Nitrofurantoin was 100%. After PCR was done on *E.coli* samples, 6 serotypes were known to be VTEC.
Conclusion: *E.coli has* remained as the most common agent generating urinary tract infection. With the information obtained, it seems that experimental treatment with antibiotic Nitrofurantoin is suitable in patient.

Keywords: *Verotoxigenic Escherichia coli*, Antibiotic sensitivity, Urinary tract infection

EXPRESSION AND PURIFICATION OF NEW RECOMBINANT IMMUNOTOXIN CONTAIN OF DIPHTHERIA TOXIN AND GRANULOCYTE COLONY-STIMULATING FACTOR

Babavalian E, *Zeinoddini M[1], Saeeidinia AR[1]
Department of Bioscience and Biotechnology, Mallek Ashtar University of Technology, Tehran, Iran
E-mail: zeinoddini52@mut.ac.ir

Background:Immunotoxins is a new method to cancer therapy. Immunotoxins are a type of fusion protein that composed of two distinct segments .One moiety in order to target the cancer cells which consists mainly of antibody or cytokin. Second moiety is a toxin which can kill cancer cell derived from a bacterial or plant protein. The aime of this study is expression and purification of new recombinant immunotoxin containing the diphteria toxin (DT) and granulocyte colony stimulating factor (G-CSF) for development of blood cancer therapy.
Methods: New immunotoxin ,DT-GCSF, was produced in *E.coli* cells, strain *BL21 (DE3)* using pET expression system and purified with chelating sepharose fast flow column that charged with $NiSo_4$. The purity of DT-GCSF was confirmed by SDS-PAGE and western blot procedure using anti-$(His)_6$ and anti-GCSF antibody.
Conclusion: The his-tagged DT-GCSF was expressed successfully in *E.coli BL21 (DE3)* cells and purified by Ni-NTA affinity chromatography.

Keywords: Immunotoxin, diphteria toxin, granulocyte colony stimulating factor,purification.

THE SURVEY ON MICROBIAL QUALITY CHICORY DISTILLATED (CICHORIUM INTYBUS L.)

***Maryam Mirzazaki[1], Mohammad Faraji[2]**
1. Department of Phytochemistry and Essential Oils Technology, School of Pharmaceutical Chemistry, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran - Iran (IAUPS)
2. School of Food Industry and Agriculture, Department of Food Science & Technology, Standard Research Institute (SRI), Karaj P. O. Box 31745-139, Iran
Email: m.mirzazaki@gmail.com

Background: In order to best use from traditional medicine, world health organization suggested hygiene in making products and traditional healing methods. Considering the great importance of different types of drug distillates and different usage of traditional and industrial, the amount of microbial pollution in chicory distillated was studied in market samples which selected accidently and Laboratory sample.
Methods: In this method 6 Samples of traditional And industrial Chicory distillated, was selected From Tehran city and laboratory samples for microbial pollution, total count of microorganisms, *enterococcus*, coliforms, sulfate-reducing bacteria, *pseudomonas aeruginosa*, mold, yeast and was transferred to laboratory and were analyzed according 5272, 7724-2, 7725-1, 5353, 8869, 4207 standard numbers of Iran by three times testing.
Results: Based on the results some of herbal waters, including traditional and industrial has exceeded the total count of microorganisms, but in traditional herbal waters, mold and yeast pollution has been seen and industrial *pseudomonas* pollution was observed in a case of herbal waters.
Conclusion: According to the results and the importance of this issue in the food industry economically and the possibility of disease due to the use by many of the chicory distillated, surveillance should be done more in various stages of preparation and distribution of these essences. Pasteurization, good packaging material and good hygiene in processing procedure are recommended.

Keywords: Chicory distillated, Pollution Microbial, Molds and yeasts, herbal waters

ASSESSMENT THE CYTOTOXICITY EFFECTS OF GOLD NANOAPRTICLES PRODUCED BY *BACILLUS CEREUS* IN HEPG2 CELL LINE

***Azadeh Rezaei[1], Parastoo Pourali[2], Behrooz Yahyaei[2]**
1. Department of microbiology, Neyshabur Branch, Islamic Azad University, Neyshabur, Iran.
2. Department of Medical Sciences, Shahrood Branch, Islamic Azad University, Shahrood, Iran.
Email: Azadehrezaei38@gmail.com

Background: Gold nanoparticles (GNPs) has different applications in the medicinal field. There are three methods for nanoaprticles production that are named chemical, physical and biological ones. Unlike the first two techniques, the biological one is non-toxic and environmental friendly. Although the properties of the chemically produced GNPs were explored however the properties of the biologically produced one are not understood. So recent study was conducted on the assessment the biological effects of the biologically produced GNPs.
Methods: *Bacillus cereus* was isolated from soil and identified by phenotyping and genotyping methods. The strain was cultured in Nutrient broth medium and after incubation and centrifugation, the supernatant incubated in the presence of Chloroauric acid at the final
Concentration of 1mmol. The color changed supernatant was used for spectrophotometery, X ray diffraction (XRD) and transmission electron microscopy (TEM) analysis. GNPs were washed and sterilized by tyndallization process and used for MTT assay. Changes in the morphology of the cells were seen under light microscope.
Results: Identification tests indicated the isolated strain was *Bacillus cereus*. Spectrophotometery and XRD proved the formation of GNPs and TEM images showed the
Particles were spherical with the sizes of 5-50nm. MTT assay have showed that GNPs had low cytotoxicity effects and this effect was dose dependent.
Conclusion: Discussion: The biologically produced GNPs can easily be produced, washed,
strelized and used in cell culture without any toxicity and at their nontoxic dose, there was no
Changes in the cell morphologies and can used in vivo in future studies.

Keywords: Cytotoxicity effects, Gold nanoaprticles, *Bacillus cereus*, HepG2 cell line

PHENOTYPIC AND MOLECULAR CHARACTERIZATION OF EXTENDED SPECTRUM BETA-LACTAMASE PRODUCING *KLEBSIELLA PNEUMONIAE* ISOLATED FROM KERMANSHAH MEDICAL CENTERS, IRAN

***Alisha Akya[1], Parisa Nejat[2], Azam Elahi[2]**
1. Microbiology Department, Nosocomial Infection Research Center, School of Medicine, Kermanshah University of Medical Sciences, Kermanshah, Iran.
2. Microbiology Department, Student Research Committe, School of Medicine, Kermanshah University of Medical Sciences, Kermanshah, Iran. Kermanshah, Iran.
Email: akya359@yahoo.com

Background: The aim of this study was the assessment of the antibiotic resistance and the frequency of ESBL producing among *K. pneumoniae* isolated from Kermanshah.
Methods: One hundred non–duplicate *K. pneumoniae* isolates were collected and confirmed by API-20E Kit. Antibiotic susceptibility testing was determined by disk diffusion method. Phenotypic confirmatory test (PCT) was performed using combination disk method. The genes of *blaCTX-M, blaCTX-M-1* group, *blaCTX-M-9* group, *blaTEM, blaSHV* and *blaPER* were investigated using PCR. Some PCR products were sequenced and analyzed by bioinformatics.
Results: Isolates showed the highest antibiotic resistance against betalactams and co-trimoxazole. Three isolates showed resistance to all antibiotics. Forty percent of isolates were ESBL producers. Survey of ESBL genes showed that 35%), 27% and 83% of isolates had *blaCTX-M, blaTEM* and *blaSHV*, respectively. However, *blaCTX-M-9* group and *blaPER* were not found.
Conclusions: Results indicated the use of extended-spectrum cephalosporins in this area need continuous surveillance. Resistant to carbapenems is an alarm for treatment and medication regimens in therapeutic centers of Kermanshah. Due to ht results, further genotypic analysis is recommended.

Keywords: Beta-lactamases, *Klebsiella pneumonia*, Nosocomial infections

EVALUATION OF ANTI-HBS TITER OF VACCINATED STUDENTS MEDICAL SCIENCE GUILAN IN (2013-2014)

***Sara Rasouli, Masumeh Anvari**
Department of Microbiology, School of Science, Rasht Branch, Islamic Azad University, Rasht, Iran
Email:k.rasouli46@yahoo.com

Background: Hepatitis *B virus (HBV)* infection is one of the most serious health problems worldwide. It has been estimated that almost one third of world's population has serological evidence of past or actual exposure to *HBV* and 350-400 million people are chronically infected.More than 780000 people die every year due to the consequences of *hepatitis B*.Unfortunately immunologic response to the vaccines is not perfect sometimes and it is necessary to examine the immune response. We monitored the persistence of antibody titres obtained post-vaccination of medical students.
Methods: In a cross-sectional study of 181 students that have been vaccinated against hepatitis B blood samples were obtained for assessing antibody titer of *HBV* by ELISA after collecting demographic data at the University of Medical Sciences, Guilan in 2014.Data were analyzed by SPSS software and presented with chi-square test.
Results: Among 181 participants, completed the three stages of vaccination against *HBV* and 64/7 % of participating in the study had adequate response against hepatitis.The percentage of anti-HBs seropositive subjects was obviously different in our Groups (I= under 5 years,II= 5-10 & III= over 10 years post-booster). As, anti-HBs seroprotection rates in I and II group were higher than pre-booster in Group III (100%, 81.8 % and 25.7% respectively, $p < 0.001$) There was no significant correlation between the immunity response and disease history, gender and other variables except on duration of vaccination ($p< 0.001$)
Conclusion: The presence of the immune memory is usually assessed by the antibody response to a challenge dose of vaccine. Previous studies have shown heterogeneous results. While some studies reported that 97–100% of individuals vaccinated 5–20 years before have shown an anamnestic response to a challenge, in others, only 48–62% had this response According to our findings health education and evaluation of immune responses against hepatitis in medical students is necessary

Keywords: vaccination, antibody, *hepatitis B,*medical students

STUDY ON HARD TICK SPECIES FOUND IN GOLPAYEGAN COUNTY, ESFAHAN PROVINCE, CENTER OF IRAN, DURING SIX MONTHS (AUTUMN 2014 AND WINTER 2015)

***Peyvand Biglari[1], Sadegh Chinikar[2], Hamid Belqeiszadeh[1], Masoud Ghaffari[3], Siavash Javaherizadeh[4], Sahar Khakifirouz[5], Tahmineh Jalali[5], Ahmad Ali Hanafi Bojd[6], Zakkyeh Telmadarraiy[6]**
1. School of Modern Medical Science, Biology Biosystematic Department, Islamic Azad University, Tehran Medical Branch.
2. The Head of Laboratory of Arboviruses and Viral Hemorrhagic Fevers (National Reference Laboratory), Pasteur Institute of Iran.
3. Chairman Veterinary office of Golpayegan, Isfahan Province, Iran
4. School of Paramedical Sciences, Clinical Laboratory Science, Islamic Azad University, Tehran Medical Branch.
5. Laboratory of Arboviruses and Viral Hemorrhagic Fevers (National Reference Laboratory), Pasteur Institute of Iran.
6. Department of Medical Entomology and Vector Control, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran
Email: peyvandbiglari@yahoo.com

Background: This study was conducted to determine tick infection rate of sheep, goats and cows at Golpayegan County in summer.
Methods: Ten villages were selected randomly and ticks were collected from different parts of the body of goats, cows and sheep. All collected ticks were transported to laboratory of medical entomology, school of public health, Tehran University of Medical Sciences for identification.
Results: In this study, total number of 123 ticks was collected. Approximately, 6.8% of the domestic animals were infected by ticks. All ticks were belonged to family Ixodidae and classified into 2 genera and 4 species. Totally, 56.1% of ticks were belonged to *Hyalomma genus; while* 43.90% of the ticks were *Haemaphysalis sulcata.* Interestingly, 1.63% of the samples were at nymph stage. The species of *Hyalomma* genus; including: *H. anatolicum* (41.47%), *H. asiaticum (*9.75%), H. *marginatum* (3.25%) were the most prevalent species.
Conclusion: Golpayegan is an area that is important for production of livestock and dairy products. A lot of livestock products are exported to other parts of Iran from this region annually; therefore considering the rate of pollution and safety factors on livestock are important issues for economy of the region and health of livestock keepers.

Keywords: Ticks, Golpayegan, livestock, Ixodidae, Iran

NUMERICAL ANALYSIS ON PERTUSSIS AND ARTI ANTIBIOTIC UTILIZATION

***Mohsen Miri[1], Ahmad Sadeghi[1], Pooran Noori[2]**
1. School of Industrial and Mechanical Engineering, Qazvin Branch, Islamic Azad University, Qazvin, Iran
2.School of Bahonar, Farhangian University, Tehran, Iran
Email: Mohsen_miri54@yahoo.com

Background: this study comprises 2 sections regarding *B. pertussis* as a usual cause of sporadic infants' disease and acute respiratory tract illness (ARTI) injection rate. Pertussis is an acute respiratory infection, widespread use of pertussis vaccine has decreased Pertussis cases but is still a cause of infant's mortality and increasing rate and prevalence of antibiotic utilization in children with ARTI should be noticed by practitioners.
Methods: patients visited in Bahoonar children hospital with predominant sign of cough without fever, exanthema or sore throat and wheeze suspected as pertussis by physicians and data for ARTI analysis was collected through questions from infants' parents. Decisions made according to the "lay of the land" so simple random sampling was conducted for sample size and population in spring 2015 based on the following formula:$n = \frac{\eta\sigma^2}{(\eta-1)D+\sigma^2}$ $where\ \mathcal{D} = \frac{B^2}{Z^2}$ and 232 samples examined.
Results: 15 infants admitted amongst them 3 cases confirmed as pertussis by culture. From 232 samples that parents responded about the occurrence of any cough during previous 7 days 95 cases had ARTI which 90 of them visited health care centers and antibiotics were utilized by 82 of affected infants.
Conclusion: vaccination doesn't provide life long immunity against pertussis and it should be suspected in infants under 3 months with apnea, gasping and cyanopathy and also antibiotic injection with ARTI cases is high in comparison with industrialized countries which should be demolished scientifically

Keywords: *Pertussis, ARTI, vaccination*

COMPARISON OF ANTIMICROBIAL RESISTANCE AND MOLECULAR CHARACTERISTICS OF HOSPITAL AND COMMUNITY ACQUIRED METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS ISOLATES COLLECTED FROM CLINICAL SPECIMENS

***Javid Sadeghi[1], Shahla Mansuri[2], Delara Lagosi[1], Leila Sadeghi[3]**
1. Department of Microbiology, School of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran
2. Department of Microbiology, School of Medicine, Kerman University of Medical Sciences, Kerman, Iran
3. Alzahra Medical Center, Tabriz University of Medical Sciences, Tabriz, Iran
Email: sadeghij@tbzmed.ac.ir

Background: In this study, the antibiotic resistance profile and molecular characteristics of CA- and HA-MRSA isolates were studied.
Methods: During March 2011 to February 2012, a total of 92 MRSA isolates were collected from clinical specimens (urine, wound, blood, bronchoalveolar lavage, skin and soft tissue, cerebrospinal fluid, body fluids) of inpatients and outpatients from three university hospitals in Kerman. MRSA isolates were screened by phenotypic tests and confirmed by presence of *mec*A gene. The classification of MRSA into HA- and CA-MRSA was carried out with CDC criteria.
Results: Among 92 MRSA isolates, 50(54.34%), 36(39.13%) and 6(6.52%) were HA, CA and unknown origin, respectively. The highest rates of HA- and CA-MRSA were obtained from wound and urinary infections with 17(18.47%) and 19(20.65%) isolates, respectively. All of the HA- and CA-MRSA isolates were sensitive to vancomycin and linezolid. SCC*mec* type III (37.08%) was predominant in HA-MRSA isolates, while in CA-MRSA isolates SCC*mec* type V (19.1%) was predominant. Totally, 53(57.6%) isolates were resistant to more than two antibiotics, from which 37(40.22%), 13(14.13%) and 3(3.26%) isolates were HA, CA and unknown origin, respectively.
Conclusion: Our results revealed that vancomycin and linezolid were the most effective antibacterial agents and erythromycin was the lowest effect against HA- and CA-MRSA isolates.

Keywords: Antibiotic resistance, HA-MRSA, CA-MRSA, SCC*mec*

EPIDEMIOLOGY OF TUBERCULOSIS IN THE PROVINCE OF EAST AZERBAIJAN IN 1392

Farhad Pouremamali
Health Education & Promotion Department, School of Health, Tabriz University of Medical Sciences, Tabriz, Iran
Email: pouremamalifarhad@gmail.com

Background: TB, an infectious disease threat and represents a wide spectrum of clinical disease caused by *Mycobacterium tuberculosis* complex is created. TB is the most common cause of death from infectious diseases every factor in the world, in the sequence of the global burden of disease based on DALY of tuberculosis in 1990 at the seventh and is expected in 2020 also in this category remain.
Methods: This study is a descriptive study based on information available at the Health Center of East Azarbaijan province was conducted. Data used in this study, the data provided in the health centers of the province, which, based on specific parameters such as age, sex, and type of TB (pulmonary and extra-pulmonary, etc.) extraction and analysis of data with statistical software Spss It was obtained.
Results: With regard to the inclusion and exclusion criteria of the study, a total of 260 patients were enrolled of which 144 persons of the population are women and 116 are men. The disease is divided into 4 degrees including 1 to 9 bacilli, tuberculosis degree +1, +2, and +3.
Conclusion: Tuberculosis is one of the oldest diseases that affect humans and is caused by the *Mycobacterium tuberculosis* complex. To achieve the objectives of the WHO, it is necessary to increase exploration activities in a timely and effective treatment of patients in each country takes, such as tuberculosis screening test for those at risk, new methods of diagnosis and treatment, the strategy of tuberculosis control program countries included.

Keywords: Tuberculosis, Epidemiology, East Azarbaijan

A STUDY ON ASSOCIATION BETWEEN IL-10(-819C/T) POLYMORPHISM AND HEPATITIS B INFECTION

Zohre Sharifi[1], *Farahnaz Bineshian[2], Mohammad Hasan Bagheri Mansoori[1]
1. Blood Transfusion Research Center, High Institute for Research and Education in Transfusion Medicine, Tehran, Iran
2. Department of Parasitology & Mycology, School of Medicine, Semnan University of Medical Sciences, Semnan, Iran
Email: fzbineshian@yahoo.com

Background: Therefore, the present study was to determine the effect of IL-10-819 polymorphism with chronic *HBV* infection in Iranian patients.
Methods: A total of 200 subjects (100 chronically infected hepatitis B patients and 100 blood
Donors) with an age range of 18-59 years were included in this study randomly. Genomic DNA was extracted from Buffy coat layer with using of salting out procedure.Allele Specific
Polymerase Chain Reaction Method was used for determining polymorphisms -819 (T/C) in the IL-10 gene promoter.Electrophoresis was performed on a arose gel 1.5 per cent for the detection of PCR products. Data were analyzed using Chi Square analysis.
Results: The frequency of Homozygote genotype IL-10 -819 (TT,TC,CC) was in patients with HBV 84%,12%,4% and 89%,10%,1% in healthy individuals respectively and no significant difference was observed between the two groups in terms of genotype (P=7،8). Variant of C allele frequency was in patients with *HBV* 10% and 6% in healthy individuals. There was no statistically significant difference between the two groups (P=7،6).
Conclusion: Our results showed that there was no correlation between polymorphism IL-10-
819(T/C) in control group and chronic Hepatitis B infection.

Keywords: Interleukin-10; Hepatitis B infection; polymorphism

CHRONIC HEPATITIS B VIRUS (HBV) INFECTION IN ASYMPTOMATIC BLOOD DONORS

Zohre Sharifi[1], *Farahnaz Bineshian[2]
1. Blood Transfusion Research Center, High Institute for Research and Education in Transfusion Medicine, Tehran, Iran
2. Department of Parasitology & Mycology, School of Medicine, Semnan University of Medical Sciences, Semnan, Iran.
Email: fzbineshian@yahoo.com

Background: The most common marker that is used for *HBV* infection diagnosis in blood donors is HBsAg. But other serologic markers of *HBV* are needed for detection of disease status and prevention from its spread. The aim of this study was to evaluate hepatitis B infection status in asymptomatic blood donors in Tehran.
Methods: In this cross-sectional study, 500 HBsAg positive samples were collected from all blood centers and tested for anti-HBc, HBeAg, anti-HBe and anti-HBs. All data were analyzed statistically using SPSS16.
Results: Out of 500 blood donors HBsAg positive, 7(1.4%) of them were positive for anti-HBs .Also, about 460 (92%) and 40 (8 %) of them were anti-HBe and HBeAg positive respectively.
Conclusion: The results this study showed that the majority of *HBV* infected blood donors were in chronic *HBV* infection phase. Therefore, these patients should be treated and monitored due to inactive disease may be active.

Keywords: anti-HBs, HBs Ag, blood donor, Chronic HBV, anti-HBe

ASSESSMENT OF EXPRESSION OF THE 65 KDA MANNOPROTEIN GENE CANDIDA ALBICANS IN BALB/C MICE.

MohammadHossien Yadegari[1], *Farahnaz Bineshian[2], Zohre Sharifi[3], Mohammadreza Akbari Eidgahi[2], Reza Nasr[2]
1. Department of Mycology, School of Medical Sciences, Tarbiat Modares University, Tehran, Iran
2. Department of Parasitology & Mycology, School of Medicine, Semnan University of Medical Sciences, Semnan, Iran.
3. Blood Transfusion Research Center, High Institute for Research and Education in Transfusion Medicine, Tehran, Iran
Email: fzbineshian@yahoo.com

Background: The aim of this study was to assessment of the expression of the 65 kDa mannoprotein gene Candida albicans in BALB/C mice.
Methods: Testing PCR using species-specific primers for the MP65 65 kDa gene was performed on all samples. After RNA extraction, cDNA synthesis was performed by the Maxime RT PreMix kit. Evaluation of gene expression of C. albicans MP65 was performed by using qReal-Time RT-PCR techniques. The 2-ΔΔCT method is used to analyze the relative changes in gene expression of MP65.For statistical analysis, Nonparametric Wilcoxon test was used by using SPSS version 16 software.
Results: Relative expression of Mp65 genes after Candida albicans injection into mice significantly was increased ($P < 0.05$).
Conclusion: The results of this study showed that significantly, Mp65 gene expression level of *C. albicans* after injection into mice 2.3 fold higher than was before injection. These results indicate that increasing the *Mp65* gene expression may be an early stage of the offensive that need further study.

Keywords: Genes, *Candida*, Molecular, Pathogen

AN IN VITRO STUDY ON ANTIMICROBIAL PROPERTIES OF ALLIUM NOEANUM REUT. EX REGEL : AN ETHNOMEDICINAL PLANT

[*]Azadeh Foroughi, Mohammad Mahdi Zangeneh, Noushin Kazemi, Akram Zangeneh
Microbiology Section, Pathobiology & Basic Sciences Department, Veterinary School, Razi University, Kermanshah, Iran
Email: dr.a.foroughi@gmail.com

Background: Increasing microbial resistance to chemical antibiotics and their presumptive side effects cause popularity of medicinal plants. Therefore, the purpose of this study was determination of antibacterial activity of *allium noeanum* Reut. ex Regel (Valek-e-souri in Persian and Sourane in Kurdish). To our knowledge, this is the first study on antimicrobial properties of the plant.
Method: Disk diffusion and agar well diffusion methods were used as screen tests. Macrobroth dilution method was applied to MIC determination. *S. aureus* and *E. coli* were chosen to survey. Alcoholic extract were diluted to 500, 250, 125, 62.5, 31.25 and 15.625 mg/ml.
Results: In agar well diffusion method, in 500 and 250 mg/ml dilutions, inhibitory zones were seen 10 and 9 mm in diameters for *S. aureus*, 12 and 10 mm for *E. coli*, respectively. In disk diffusion, in 500 and 250 mg/ml dilutions, there were 8 and 10 mm halos for *S. aureus* and 10 and 12 mm for *E. coli*, respectively. Kanamycin and Cephalexin were used as positive controls for *E. coli* (20 mm halo) and *S. aureus* (26 mm halo), respectively. 125 mg/ml was realized for both MIC and MBC about *S. aureus* but in case of *E. coli*, 62.5 and 125 mg/ml were observed as MIC and MBC, respectively.
Conclusion: A fine antibacterial property was seen in *allium noeanum* Reut. ex Regel alcoholic extract. Therewith, *E. coli* was more sensitive to the extract than *S. aureus*. It sounds agar well diffusion and disk diffusion methods have an equal value in plant antimicrobial screening tests.

Keywords: *Allium noeanum* Reut. ex Regel, Alcoholic extract, Antibacterial activity.

A SURVEY ON ANTIBACTERIAL ACTIVITIES OF ALLIUM ERIOPHYLLUM ALCOHOLIC EXTRACT: AN ETHNOMEDICINAL PLANT.

***Azadeh Foroughi, Mohammad Mahdi Zangeneh, Akram Zangeneh, Noushin Kazemi**
Microbiology sSection, Pathobiology & Basic Sciences Department, Veterinary School, Razi University, Kermanshah, Iran.
Email: dr.a.foroughi@gmail.com

Background: Because of some side effects and microbial resistance emerging followed by consumption of synthetic antibiotics, there is a general trend to consumption of plant medicines as natural compounds. Therefore, the aim of this study was determination of antibacterial activity of *allium eriophyllum* (Mountain garlic) known as Pichek/Picheke in Kermanshah province. To our knowledge, this is the first study on antimicrobial properties of the plant.
Method: Disk diffusion and agar well diffusion methods were used as screen tests. Macrobroth dilution method was applied to MIC determination. *S. aureus* and *E. coli* were chosen to survey. Serial dilutions were prepared to 500, 250, 125, 62.5, 31.25 and 15.625 mg/ml from alcoholic extract of the plant.
Results: In agar well diffusion method, no inhibitory zone was seen in any well but in disk diffusion, just in 500 mg/ml dilution, there were inhibitory zones in 17 mm and 15 mm in *E. coli* and *S. aureus*, respectively. Kanamycin and Cephalexin were used as positive control for *E. coli* (19 mm halo) and *S. aureus* (25 mm halo), respectively. About *S. aureus*, 250 mg/ml was clarified for both MIC and MBC. Also, in case of *E. coli*, 62.5 and 125 mg/ml were defined as MIC and MBC, respectively.
Conclusion: *Allium eriophyllum* has a good antibacterial effect on *S. aureus* and *E. coli* as representatives of pathogen bacteria. Moreover, the extract was more effective on *E. coli* than *S. aureus*. In addition, perhaps disk diffusion is more reliable method than agar well diffusion for antimicrobial screening test in plants.

Keywords: Allium eriophyllum, Alcoholic extract, Antibacterial activity

SCCMEC TYPING OF METHICILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS* ISOLATED FROM CLINICAL SAMPLES

***Akram Vafadarnejad, Ahmad Rashki**
1. Department of Biology, School of Basic Science, University of Zabol, Zabol, Iran
2. Department of Physiopathology, School of Veterinary Medicine, University of Zabol, Zabol, Iran
Email: akivafa@yahoo.com

Background: Methicillin resistant *S. aureus* (MRSA) is a major nosocomial pathogen that causes long-term hospitalization and mortality worldwide. Today, the use of molecular typing methods is essential for determining the relationship between strains to the source of nosocomial infections. In this study, the gene cassette chromosome *mec* (*SCCmec*) typing method was used to differentiate types and strains of methicillin-resistant S. aureus in clinical isolates.
Methods: In this study, One hundred isolates of methicillin-resistant S. aureus (MRSA) were obtained and the presence of *staphylococcal* cassette chromosome *mec* (*SCCmec*) types was investigated by Multiplex PCR technique.
Results: Of the 100 tested MRSA isolates, 5% were harbored *SCCmec* type I, 45%SCCmec type II, 30%, SCCmec type III, and 20% SCCmec type V. Nineteen isolates were not typeable.
Conclusion: The *SCCmec* type II and III were the most frequent types detected in hospital isolates.

Keyword: *SCCmec* typing, Methicillin resistant *S aureus*, *mecA* gene

THE FREQUENCY OF COLISTIN SUSCEPTIBILITY IN MDR P.AERUGINOSA

Reza Ghotaslou, *Mina Yekani, Mohammad Yousef Memar, Naser Alizadeh, Rahman Pormehrali
Department of Bacteriology and Virology, School of Medicine, Tabriz University of Medical Sciences, Iran
Email: mina_yekani71@yahoo.com

Background: *Pseudomonas aeruginosa* is one of the major pathogen responsible for nosocomial infections. Colistin is occasionally the only accessible active antibiotic against *P. aeruginosa.* The aim of this study was assessment of colistin susceptibility in MDR *p.aeruginosa* isolates obtained from different infection sites.
Methods: Ninety strains of clinically isolated *P. aeruginosa* were collected from different Hospital of Tabriz during 2014-2015. The disk diffusion susceptibility testing was performed according to the Clinical and Laboratory Standards Institute (CLSI) guidelines and MDR was defined as acquired resistance to at least one agent in three or more antimicrobial categories.
Results: In present study, MDR isolates were observed in 75.6% of all isolates with high frequency in wound specimens(31.1%) followed by blood (24.4%), trachea (18.9%), urine (17.8%) and peritoneal(7.8%). Among MDR isolates the highest prevalence of resistance to antibiotics was detected to aztreonam (60%) and followed by cefepime (58.9%), levofloxacin (57.8%) and the lowest resistance was observed to colisitin (0%) and followed by imipenem (35.6%) and amikacin (45.6%). All MDR and non-MDR isolates were susceptible to colistin.
Conclusion: The present study shows high frequency of MDR *P. aeruginosa* in clinically specimens. Clinicians may become obliged to experience drugs such as colistin regardless of their toxicity for treatment of infections caused by resistant *P. aeruginosa.*

Keywords: Colistin, *P.aeruginosa*, MDR

MULTILOCUS SEQUENCE ANALYSIS OF ANTIGENIC DETERMINANT GENES IN *BORDETELLA PERTUSSIS* VACCINAL AND ISOLATED STRAINS IN IRAN

***M. Asadipour[1, 3], M. Noofeli[2], R. Yari[3], Z. Samiee**
1.Department of Viral Vaccine Quality Control, Razi Vaccine and Serum Research Institute, Karaj, Iran
2. Department of Human Bacterial Vaccines, Razi Vaccine and Serum Research Institute, Karaj, Iran
3. Department of Biology, School of Sciences, Boroujerd Branch, Islamic Azad University, Boroujerd, Iran
Maryam.asadipoor1984@gmail.com

Background: *Pertussis* is an infectious respiratory disease which is mostly prevalent in newborn babies. Strain variation may play a role in the persistence of *B. pertussis* and was studied by sequencing of housekeeping and five genes coding for surface proteins of vaccinal and isolated clinical strains to evaluate the genotype variation level of domestically distributed strains and confirm the current status of *pertussis* incidence.
Methods: Ten clinical isolates of *pertussis* were collected from different provinces of the country then cultured on Bordet-Gengou and isolated; genomic DNA was extracted byphenol-chloroform method. Finally, PCR with specific primers was performed and confirmed by gel electrophoresis then the genes analyzed by sequencing and MLST method.
Results: Seven housekeeping genes analysis including *Adk, Pgm, Fum C, Tyr B, Gly A, Pep A* and *Icd* showed no change in thesequence of clinical and vaccinal strains with 100% homology. Moreover, *fim3* gene was observedin allclinical isolates. In addition, one of the vaccinal strains was containing fimbriae2 (*fim2*) geneand the other containing the fimbriae3 (*fim3*).Virulence gene profiles of *ptx, fim2, fim3, prn* and *fha* showed a low level of allelic variation.
Conclusions: MLST findings showed that the pathogenic strains had nosignificant changes in housekeeping genes. Genotype changes of the distributing strains are stillactively progressing events. However, the polymorphic status of isolates was relatively low, construction of an efficient and continuous surveillance systemto detect emergence of genotype variants and confirm interrelationship of genotype change with vaccine immunity is required.

Keyword: : Multilocus sequence typing (MLST), whole-cell vaccine, Vaccination, Polymorphism

COMPARISON OF HOUSEKEEPING GENES OF *BORDETELLA PERTUSSIS* IN CLINICAL ISOLATES AND VACCINAL STRAINS BY MEANS OF MLST

***M., Asadipour[1, 3], M. Noofeli[2], R. Yari[3], Z. Samiee**
1.Department of Viral Vaccine Quality Control, Razi Vaccine and Serum Research Institute, Karaj, Iran
2. Department of Human Bacterial Vaccines, Razi Vaccine and Serum Research Institute, Karaj, Iran
3. Department of Biology, School of Sciences, Boroujerd Branch, Islamic Azad University, Boroujerd, Iran
Maryam.asadipoor1984@gmail.com

Background: The purpose of this research was to identify and compare *pertussis* housekeeping genes in clinical isolates with the vaccinal strains.
Methods: In this study, ten clinical isolates of *pertussis* were collected from different provinces of the country. The isolates were cultured on Bordet-Gengou and isolated; next genomic DNA was extracted by phenol-chloroform method. Finally, PCR with specific primers was performed and confirmed by gel electrophoresis then the genes analyzed by sequencing.
Results: According to the results of the PCR with seven housekeeping primer pairs including *Adk, Pgm, Fum C, Tyr B, Gly A, Pep A* and *Icd* no change in the sequence of housekeeping genes in clinical samples was observed. Moreover, clinical samples and vaccinal strains showed 100% similarity in housekeeping genes and *fim*3 gene was observed in all clinical isolates. In addition, one of the vaccinal strains was containing fimbriae2 (*fim*2) gene and the other containing the fimbriae3 (*fim*3).
Conclusions: According to the MLST findings on clinical isolates and vaccine strains showed that pathogenic strains had no significant changes in housekeeping genes. Sequence analysis of virulence gene profiles of *ptx*, *fim*2, *fim*3 and *fha* to compare the clinical and vaccinal strains were also conducted.

Keyword: Multilocus sequence typing (MLST), virulence factors, *pertussis*, Housekeeping

STUDIES ON OPTIMIZATION INACTIVATING CONDITIONS FOR BORDETELLA PERTUSSIS BACTERIA WITH DIFFERENT CHEMICALS AND HEAT

Naser Mohammadpour Dounighi[1], *Fereshteh Shahcheraghi[2], Mehdi Razzaghi-Abyaneh[3], Mojtaba Nofeli[1], Hossein Zolfagharian[1]
1. Department of Human Vaccine and Serum, Razi Institute, Karaj, Iran
2 .Department of Microbiology, Pasteur Institute of Iran, Tehran, Iran
3 .Department of Mycology, Pasteur Institute of Iran, Tehran, Iran
Email: shahcheraghifereshteh@yahoo.com

Background: The whole cell (wP) vaccine is more cost–effective than the acellular pertussis (aP) vaccine. Moreover, a recent increase in pertussis incidence in countries where aP coverage is high and reports has indicated that wP vaccines provide better and longer-lasting immunity than aP vaccines. Thus, wP vaccines may continue to be used for the foreseeable future. There is a need to improve the currently available whole cell pertussis vaccine particularly with regard to reducing its toxicity as there is no doubt about the efficacy of this vaccine.
Methods: In this study for achieve optimal conditions to prepare very low toxic and high potent *B. pertussis* whole cell vaccine , different formulations (F1–F21) designed and effects of various chemicals (formaldehyde, glutaraldehyde and thimerosal) and heat for inactivation of organisms were investigated. The preparations made by inactivation of *B. pertussis* organisms with different concentrations of chemicals for variable periods and temperatures analyzed for mouse intracerebral potency and toxicity.
Results: The formulations F2, F4, F8, F12, F15 and F17 were passed specific toxicity among the 21 formulations. The potency analysis of mentioned formulations showed ED50 of selected formulations as a following order F17>F12>F8>F15,F4>F2 . The formulation F17 indicated higher ED_{50} (1:333) as compare to other formulations.
Conclusion: The results revealed that inactivating condition of F17 can be used for inactivating *Bordetella pertussis* bacteria in order to prepare wP vaccine.

Keywords: *Bordetella pertussis*, whole cell, potency, toxicity

PERIPLASMIC EXPRESSION AND ONE-STEP PURIFICATION OF *HEPATITIS B* CORE ANTIGEN IN ESCHERICHIA COLI

Malihe Sadat Hashemi Khah[1], *Hafez Heydari Zarnagh[2]
1.Department of Microbiology,Damghan Branch, Islamic Azad University, Damghan, Iran
2.Assistant Professor of Department of Clinical Biochemistry School of Medicine Sabzevar University of Medical Sciences
Email: **hafez1362@gmail.com**

Background: Hepatitis B infection is one of the leading causes of death in the world. Antibody against *hepatitis B virus (HBV)* core antigen (HBc-Ag) is one of the serological markers of present or past *HBV* infection. HBc is widely used for *HBV* infection detection. Expression of HBc often leads to the formation of insoluble inclusion bodies. Proper refolding of this protein is usually complex and time-consuming. This study was aimed to develop of a simple for expression and one-step purification of protein HBc in *E.coli.*
Methods: The codon optimized synthetic DNA encoding HBC was subcloned into BamHI/ECORI restriction site of pET22b expression vector to construct pET22b-HBc-His tag. The recombinant vector was transformed to chemically competent *BL21* cells and expression of HBc was was induced by IPTG. Antigenicity of the HBc-His tag protein was evaluated using ELISA after purifying the protein using osmotic shock and Ni-NTA affinity chromatography, then compared to commercial HBc antigen.
Results: The SDS-PAGE results indicated that HBC was successfully expressed and accounted for 15% of the total *E. coli* proteins. The results of gel scanning densitometry indicated that purity of purified HBc was greater than 90%. The results of HBc-His tag ELISA indicated that specificity of HBc reactivity was compatible to results of commercial HBc ELISA.
Conclusion: The expression of HBC by periplasmic method is a useful and easy to prepare hepatitis B core antigen. HBc expressed Periplasmic method able to detect antibodies in the serum of patients.

Keywords: *Hepatitis B virus*, Periplasmic expression, protein purification, HBcAg

REFOLDING AND PURIFICATION OF RECOMBINANT IMMUNOTOXIN DENILEUKIN DIFTITOX

Ebrahimi Bagha M[1], *Zeinoddini M[2], Saeedinia AR[2]
1. Department of Bioscience and Biotechnology, Mallek Ashtar University of Technology, Tehran, Iran
2. Department of Bioscience and Biotechnology, Mallek Ashtar University of Technology, Tehran, Iran
E-mail: zeinoddini52@mut.ac.ir

Background: Toxin-therapy that used targeted toxins is a new strategy for cancer therapy. This fusion protein that named immunotoxin (IT) is a biological substance containing two distinct sections (immune and toxin parts) covalently bond by specific linkers. Denileukin diftitox or ontak is the first commercial recombinant IT that contained truncated diphtheria toxin (DT) fused to human interlukine 2. The aim of this work is refolding and purification of recombinant denileukin diftitox.
Methods: pET-IDZ (pET 21 harboring of gene encoding of ontak) was transformed into BL21 (DE3) bacteria and then induced. Inclusion bodies (IB) solubilized using 8 M urea and refolding carried out by reduced /oxidized glutathione and l-arginine. The protein purification was accomplished by Q-sepharose chromatography system and purified protein analyzed using SDS-PAGE technique.
Results: The expression of the recombinant fusion protein confirmed using electrophoresis and western blot methods. Also after refolding and purification, the purity of IT determined above 95%.
Conclusion: The data was shown, refolding and purification of Ontak immunotoxin is suitable and this protein could be used for next stages of investigation.

Keywords: immunotoxin, diphtheria toxin, purification, refolding

EXPRESSION AND PURIFICATION OF IMMUMO-DOMINANT PEPTIDE DRIVED FROM GP46-II

Maryam Miyanabadi[1],*Samaneh Dolat Abadi[2], Hafez Heydari Zarnagh[3]
1.Department of Microbiology, Neyshabur Branch,Islamic Azad University, Neyshabur,Khorasan Razavi,Iran
2. Department of Biology, Neyshabur Branch, Islamic Azad University, Neyshabur, Khorasan Razavi, Iran
3.Assistant professor , Department of Clinical Biochemistry Sabzevar Univrsity of Medical Sciences
Email : S_Dolatabadi1436@yahoo.com

Backgrond: In this study we describe expression and purification of K55 as soluble form in E.coli cells.
Methods: Synthetic DNA encoding K55 was sub-cloned into pGEX-4t-1 expression vector and then transformed into chemically competent *E.coli* cells.Transform cells were moved to plates containing LB culture that has 100 µg/ml Ampicilin and the colonies with recombinant pelasmid were selected. The expression of K55 was induced using IPTG 1mM. Expression and solubility of K55 was evaluated by SDS-PAGE analysis.The recombinant protein was purifided using NI-NTA affinity chromatography.
Results: To delibration the protein expersson of recombinant K55, not transformed cells and transformed cells before induction and indused cells were analysed using SDS-PAGE. The results of gel scanning densitometry indicated that a band with a molecular weight 27 KDa was observed in samples induced while there was not in nottransformed bacteria and transformed before induction. The purity of purified protein using SDS-PAGE12% evaluated.The result of gel scanning densitometry indicated that purity of purified of k55 was greater than 90%.
Conclusion: gp46 and gp24 antigen of *HTLV-II* are most important identify people infected *HTLV-II* viruses. However due to structural similarity of this two antigen of other viruses such as *HTLV-I* detection tests creat false-pasitive result. The peptid fragment used for reducing false-positive results.

Keywords: *HTLV-II*, gp46-II, k55,expression,purification

APPLICATION OF BOTULINUM TOXIN FOR THE TREATMENT OF DISEASES ASSOCIATED WITH MUSCULAR TOPICAL SPASEM

Faeze Fakour
Department of Microbiology, MSc Student of Microbiology, Islamic Azad University, Neyshabur, Iran

Background: *Botulinum* toxin is a strong nerve-muscle inhibitor factor and through inhibiting the release of acetylcholine neurotransmitter from the peripheral nerve endings would cause proportional paralysis.Since acetylcholine is responsible for muscular contraction consequently *botulinum* toxin would function by inhibiting it.
Methods: The effect of toxin mechanism is defined where after injection it is absorbed by muscle and it located at the end of the nerves which transmission order of contraction to the muscles.At this site toxin would prevent the release of acetylcholine,as a result the order of contraction would not reach to the muscles and it would cause a temporary muscle paralysis which related on the diseases associated with muscle spasms due to the injection site,this paralysis could last from 3 up to 6 months and depending on the type of spasm booster may be needed.
Results: According to the recent researchs and experiments, the application of this toxin regarding the diseases associated with topical muscular spasm is determined.Among which Blepharospasm, Strabismus, Chronic migraine, Dystonia, cerebral palsy in children, oral and dental diseases, jaw-joint disorders and other diseases could be treated.Also it can be reduce facial wrinkles, dental and gum beautification and palms and armpits perspiration reduction.
Conclution: Due to performance of *botulinum* toxin regarding the inhibit acetylcholine, we expect by a temporary muscular paralysis at the injection site, we would find a resolution of the symptoms in diseases associated with topical muscular spasms and their treatment.

Keywords: *Botulinum* toxin, Neurotransmitter, Acetylcholine, Blepharospasm, Strabismus, Chronic migraine, Dystonia

EVALUATION OF FAECAL *COLIFORM* FROM POTABLE WATER IN SPECIFIC REGION OF SHIRAZ CITY

***Negar Rastegar[1], Nima Bahador[2]**
1. Department of Microbiology, Science and Research Branch, Islamic Azad University, Fars, Iran
2. Department of Microbiology, Shiraz Branch, Islamic Azad University, Shiraz, Iran
Email: rastegarnegar@yahoo.com

Background: Water is one of the most important and valuable natural resources for mankind. In the developing countries it is still the main root of several sicknesses in human being. Nowadays, these limited resources have been polluted with industrial solvents, sewage, fertilizers and microbial communities, which are seriously, threaten human life. Therefore the present study tried to isolate and identify some important pathogenic bacteria from water in wells in important region and populated area in Shiraz.
Methods: Totally 195 water samples has been collected from 15 wells in ٤ region during May to September 2015. Then presence of *Escherichia coli* were confirmed using national standard 3759, and they were evaluated using MPN method. The isolates were identified using biochemical tests and confirmed by APi kit 20 E. Then antibiotic susceptibility for the bacterial isolates was evaluated and the data were analyzed using some specific statistical analysis.
Results: The results indicated that, total coliform in September and June, fecal coliform in August were confirmed. The greatest one belong to Saadi – Kharameh road and then koohpayeh. The wells B, C (ghoran) H (haft tanan), I (boulevard boostan) and o (Sadi) have the least pollution. Results indicated that most of the isolates were resistant to ciprofloxacin and norfloxacin specially ciprofloxacin.
Conclusion: Although the organisms have been detected from some of the wells, evaluation and identification of pathogenic bacteria from water during the different seasons suggesting.

Keywords: *Faecal coliform*, resource of drinking water

COMPARISON OF THE EFFECTS OF RHUS CORIARIA AQUEOUS AND ALCOHOLIC EXTRACTS ON THE GROWTH OF SENSITTIVE AND RESISTANT STRAINS OF *CANDIDA ALBICANS* TO FLUCONAZOLE

Atena Behzadi Rad[1], *Mitra Salehi Sirjani[2], Mahboobeh Madani[1]
1. Department of Microbiology, School of Biological science, Falavarjan Branch, Islamic Azad University, Falavarjan, Iran.
2. Department of Microbiology, School of Biological science, North Tehran Branch, Islamic Azad University, Tehran, Iran.
mitra_salehi_microbiology@yahoo.com

Background: *Candida Albicans* is opportunistic fungus, can cause disease in humans and involve human organs following the host's immunological weakness. Drug resistance has led researchers to new antifungal drugs, especially herbal medicines. The objective of this study was to Comparison of the effects of *Rhus Coriaria* aqueous and alcoholic extracts on the growth of sensitive and resistant strains of *Candida Albicans* to Fluconazole.
Methods: The specimens were randomly taken from vaginal mucus and were cultured on SDA and Chrom Agar mediums. Then, Aqueous, ethanol and methanol extracts from *Rhus Coriaria* were prepared by maceration method with a concentration of 62.5, 125, 250, 500 mg/ml. Antifungal effect of extracts of this herb was evaluated on sensitive and resistant clinical strains of *Candida Albicans* to Fluconazole through Disk Diffusion. MIC and MFC was determined. Data was analyzed by Kruskal-Wallis statistical method.
Results: Results showed that methanol and ethanol extracts of *Rhus Coriaria* have inhibitory effect on sensitive and resistant strains of *Candida albicans* to Fluconazole. The methanol extract of *Rhus Coriaria* showed the greatest anti-fungal effect as well as the least MIC and MFC value. The effect of methanol extract of *Rhus Coriaria* on the lack of growth of *Candida albicans* strains was significantly greater than that in both the aqueous and ethanol extract of *Rhus Coriria* ($p<0.05$).
Conclusion: According to the results, the aqueous extract probably had no anti-fungal compounds, but alcoholic extract at high concentrations due to extracting antifungal compounds could be used in traditional medicine more broadly against sensitive and resistant *Candida albicans* yeast to Fluconazole.

Keywords: Antifungal, *Candida albicans*, Fluconazole

CONSTRUCTION AND EVALUATION OF HUMAN PAPILLOMAVIRUS GENOTYPE 18 PSEUDOVIRION IN 293FT CELL LINE

***Hengameh Sharifi[1], Hana Barzegar[1], Lida Langroudi[2], Arash Arashkia[3]**
1- MSc, Department of Cellular and Molecular Biology, Islamic Azad University of Pharmaceutical Branch
2- Technologist, Department of Virology, Pasteur Institute of Iran
3- Assistant Professor, Department of Virology, Pasteur Institute of Iran
Email: Hengameh_sharifi_22@yahoo.com

Background: In this research, is the synthesis of *HPV18* pseudovirions through expression of genes encoding *L1* and *L2* proteins of HPV18 in 293FT cell line and evaluation of the pseudovirions performance by packing a reporter gene (EGFP) and infect new cells with this structure.
Methods: At first *HPV18* plasmid was transformed into *E. coli* DH5α, and then was extracted and purified. pEGFP-N1 reporter plasmid was co-transfected to 293FT eukaryotic cell line with the p18 plasmid. Expression of *HPV18* pseudovirions in these cells was examined by fluorescent microscopy and flowcytometry. Pseudovirions produced was extracted by gel chromatography and purified. The 293FT cells were transduced with them. The transduction ability was detected by fluorescence and atomic force microscopy (AFM).
Results: co-transfection of P18 plasmid and pEGFP-N1 reporter plasmid into HEK 293FT cells was successful. Expression of *HPV18* pseudovirions was confirmed by fluorescence microscopy and flowcytometry and transduction of 293FT cells was successful.
Conclusion: The results showed that co-transfection of P18plasmid and pEGFP-N1 reporter plasmid in 293FT cell line leads to spontaneous assembly of Pseudovirions.

Keywords: *: Cervical cancer, virus-like particles, HPV18 pseudovirions*

Study ON ANTIBACTERIAL ACTIVITY OF *J.EXELCA, J.COMMUNIS, J.SABINA*EXTRACT FROM NATIVE REGION OF SEMNAN PROVINCE ON *HELICOBACTER PYLORI* AND COMPARE THEIR EFFECTS

***Somayeh Beyki[1], Nahid Rahimifard[2], Nasser Ebrahimi Daryani[3], Gholamreza Bakhshi Khaniki[4], Hossein Rostamzadeh[5], Shahram Shoeibi[2]**

1. Department of Agricultural Biotechnology, Payamnoor University, Tehran, Iran
2. Food and Drug Laboratory Research Center (FDLRC), Food and Drug Control Laboratories, (FDCLs), Ministry of Health (MOH), Tehran, Iran
3. Professor of GI Ward , Emamkhomeini Hospital, Tehran University of Medical Sciences and Health Services(TUMS), Tehran, Iran
4. Professor of Department of Agricultural Biotechnology Payamnoor University, Tehran, Iran
5. Drug and Poison Information Center(DPIC), Food and Drug Organization ,Semnan University of Medical Sciences and Health Services, Semnan,Iran
Email: beyki.s@gmail.com

Background: More than 50% of the world population is infected with *Helicobacter pylori.*The bacterium highly links to peptic ulcer diseases and duodenal ulcer, which was classified as a group I carcinogen in 1994 by the WHO. *Juniperus* of the most important conifer species native to iran.biological and pharmacological properties of this species is abundant.
Methods: After collecting the plants from two areas of the semnan province in the air dried and ground.The methanol extract were prepared using the percolation method. *Helicobacter pylori* samples isolated from patients with gastrointestinal disorders from Laleh & Emamkhomeyni hospital in Tehran. The samples were cultured on Colombia agar base plates with supplement.plates were incubated at 37^0c for 3-5days in a microaerophilicenvironment.The isolates that grown on plates were indentified by bacteriological tests.The antibacterial activity of 3species of *juniperus* against 11isolated*H.pylori* using Minimum inhibitory concentration in microplate and cup plate method.
Results: 11 *H.pylor*i was isolated from 62 endoscopic biopsies. All three *J.exelca, J.communis, J.sabina* extracts showed anti *Helicobacter pylori* in using both methods.
Conclusion: The methanolic extract of 3 species studied *Juniperus* may contain compounds with therapeutic activity and need more phytochemistry studies to identify the effective materials.

Keywords: *Helicobacter pylori-J.exelca- J.communis -J.sabina -* MIC-cup plate

PREVALENCE OF A FIMBRIAE ADHESION GENE AMONG ESCHERICHIA COLI ISOLATED FROM EDUCATIONAL HOSPITALS OF QAZVIN

***Fahimeh Babaei[1], Amir Peymani[2]**

1. Department of Microbiology, Zanjan Branch, Isiamic Azad University, Zanjan, Iran.
2. Qazvin University of Medical Sciences, Cellular and Molecular Research Center , Qazvin, Iran
Email:fahime.babai@gmail.com

Background: Uropathogenic Escherichia coli (UPEC) is one of the most important etiologic agent of urinary tract infection (UTI). The ability to attach to the host is essential step for phatogensitiy of organisms. A fimbriae adhesion is important virulance factor of uropathogen *Escherichia coli.*
Methods: In this study, 126 clinical isolation of E.coli collected from Qazvin hospitals. All the isolates were identified using biological and biochemical techniques. Then the amount of A fimbriae gene was determined with PCR method using specific primers. The PCR products were sequenced due to confirming the presence of the gene.
Results: The results shows that in overall, 13 isolates (10.3%) were positive in case of the presence of *afa* gene .All the isolates were containing clinical samples and often the patients from the internal (57.9%) and infection disease (23%) wards
Conclusion: This study shows that a considerable amount *afa* virulence gene were identified in the *Escherichia coli* isolates taken from hospitalized patients and which need more attention in our hospital settings.

Keywords: Uropathogen *Esherichia coli*, A fimbrial adhesion

BACTERIAL SOURCES OF NOSOCOMIAL INFECTIONS AT NEONATAL INTENSIVE CARE UNIT (NICU) OF MOBINI HOSPITAL IN SABZEVAR, IRAN

***Faezeh Haghighi[1], Hassan Salehipour[2], Mohammad Mohammad-Zadeh[1], Ali Hosseinzadeh[3], Morteza Haghighi Hasanabad[4]**

1. *Cellular and Molecular Research Center, Sabzevar University of Medical Sciences, Sabzevar, Iran*
2. *Department of Pediatrician, Sabzevar University of Medical Sciences, Sabzevar, Iran*
3. *Department of Epidemiology and Biostatistics, Sabzevar University of Medical Sciences, Sabzevar, Iran*
4. *Children & Pediatric Infection Diseases Research Center, Iran University of Medical Sciences, Tehran, Iran*

Email: FaezehHaghighi@hotmail.com

Background: The aim of the present study find out the bacterial sources causing nosocomial infections in order to prevent nosocomial infections in NICU of Mobini Hospital, Sabzevar.
Methods: In this study, the involving bacteria were identified by collecting samples from medical equipment available at NICU for example stethoscope, neonatal CPR bed, incubators. In addition, samples were collected from hands of hospital staff and mothers who regularly came in NICU to visit and breastfeed their babies, Expressed Breast Milk of mothers and NICU space for example section levels.
Results: The findings of this study suggested that among total 220 samples surveyed, the most common bacteria isolated from NICU were coagulase-negative staphylococci (57.14%), *Staphylococcus aureus* (22.85%), *Pseudomonas aeruginosa* (4.28%) and *Enterobacter cloacae* (4.28%). 15 samples had more than one type of microorganism that 13 cases included two types of bacteria and the other 2 cases had three types.
Conclusion: Our findings show that the neonatal intensive care unit of Mobini hospital has relatively high nosocomial infections. Incubators and stethoscopes were the most common risk factors at NICU. NICU is an area of great concern in terms of nosocomial infection, therefore, we need to design the special program to improve nosocomial infection control in hospital and preventive measures should be intensified.

Keywords: Neonatal Intensive Care Unit (NICU), *Staphylococcus aureus*, *Pseudomonas aeruginosa*, Bacteria

METHODS FOR DETECTING ENTEROHEMORRHAGIC *ESCHERICHIA COLI* (EHEC) O157:H7

***Masoume Hadavand[1], Hojat Es-Haghi[1]**

Department of Food and Drug, Shahid Beheshti University of Medical Sciences. Tehran, iran

Email: m.hadavand89@yahoo.com

Background: The contamination of food products by Shiga toxin-producing *Escherichia coli* (STEC) is a worldwide problem and can result in outbreaks of human disease. In most outbreaks, human illness is attributed to one of the top 7 STEC serotypes.
Methods: 1) The primary method is culture stool samples on sorbitol MacConkey agar (SMAC). 2) There is a method to evaluate the sensitivity and specificity of an intimin recombinant antibody (scFv-intimin) using immunofluorescence assay. 3) A multiplex real-time PCR (R-PCR) assay was designed and evaluated on the ABI 7700 sequence detection system (TaqMan) to detect enterohemorrhagic *Escherichia coli (EHEC) O157:H7* in pure cultures, feces, and tissues.
Results:1) in first method non-Sorbitol-fermenting colonies can be confirmed as *E. coli* and serotyped with O157 antibody and has demonstrated sensitivity of only 50 to 80%. 2) in second method the scFv-intimin detected typical *EPEC*, atypical *EPEC*, and *EHEC* isolates (100% sensitivity) with no detection of eae− isolates (100% specificity). 3) in third method three sets of primers and fluorogenic probes were used for amplification and real-time detection of a 106-bp region of the eae gene encoding *EHEC O157:H7*-specific intimin, and 150-bp and 200-bp segments of genes *stx1* and *stx2* encoding Shiga toxins 1 and 2, respectively.
Conclusion: By comparing above methods we can deduce that real-time PCR could be applied to rapid detection of very low levels of *EHEC O157:H7* In the shortest time.

Keywords: enterohemorrhagic *Escherichia coli*, real-time PCR

IN SILICO ANALYSIS OF MIR-1290 MOLECULAR ROLE AS A POTENTIAL PROGNOSTIC BIOMARKER IN GASTRIC CANCER INDUCED BY *HELICOBACTER PYLORI*

Laleh Ebrahimi Ghahnavieh[1], [*]Zhaleh Ebrahimi Ghahnavieh[2]
1- Department of Biology, Tehran-east Payame Noor University,Tehran, Iran
2- School of Medicine, Shahrekord University of Medical Sciences, Shahrekord, Iran
Email: l.ebrahimi@hotmail.com

Background: miRNAs can play as either oncogenes or tumor suppressors. miRNA expression could be modified by *H. pylori* infection; therefore, these can be used as biomarkers for gastric cancer. miR-1290, overexpressed in *H. pylori*-infected gastric tumors, would be a possible biomarker of gastric cancer diagnosis.
Methods: miRTarBase and miRWalk databases were used to predict the target genes of the miR-1290. The list of target genes was filtered by the UniGene database to identify the gastric cancer genes. Gastric expressed targetome of miR-1290 was selected for enrichment analysis in DAVID database.
Results: DAVID database including KEGG signaling pathways showed target genes were significantly involved in cancer pathways further MAPK signaling, TGF-beta signaling and tight junction pathways. Comprehensive analysis of the coordinate expression of miRNAs and mRNAs reveals that miR-1290 may play important role in the development of Gastric cancer.
Conclusions: These signaling pathways lead to insensitivity to anti-growth signals, proliferation, angiogenesis and also chemotherapy resistance by irregulation in cell cycle and P53 signaling pathway. However, limited studies on the role of *H. pylori* eradication in the impressed gene expression levels in gastric mucosa, such studies may reveal miRNAs as molecular markers involved in inflammatory processes and gastric malignancy progression.

Keywords: Gastric cancer, *H. pylori*, miR-1290, cancer signaling pathway.

INVESTIGATION OF THE ANTIBACTERIAL ACTIVITY OF AN AQUEOUS EXTRACT OF MEDICINAL MUSHROOM, TRAMETES VERSICOLOR, FROM IRAN

[*]Pardis Irankhahi[1], Hossein Riyahi[1], Alireza Ghassem Pour[2], Farzaneh Zandi[2], Parisa Savedoroudi[2], Somayeh Keypour[1], Saeed Ali Mousazadeh[4]
1. Bioscience School, Shahid Beheshti University, Tehran, Iran
2. Medicinal Plants and Drugs institute , Shahid Beheshti University , Tehran , Iran
3. Department of Forestry, School of Natural Resources, Mazandaran, Iran
Email: pardisirankhahi@yahoo.com

Background: *Trametes versicolor* is a medicinal mushroom that belongs to polyporaceae family, due to numerous medicinal properties is well-known in the world and has many uses in traditional medicine.
Methods: The aqueous extract was isolated from mycelium of *Trametes versicolor*, the polysaccharide and amino acid contents of aqueous extract was determined. Different concentrations of the crude extract have been used to evaluate its antibacterial activities against gram positive bacteria_ *Staphylococcus aureus*, and gram negative bacteria _ *Escherichia coli*.
The minimal inhibitory concentration (MIC) was determined as well.
Results: The polysaccharide contents in aqueous extract was found to be 64± 0.11 mg /g„ the amino acid content in *Trametes versicolor* aqueous extract was 20.20 ± 0.9 mg /g. MIC for *Staphylococcus aureus* was 2.25 mg/ml and MIC for *Escherichia coli* was 72mg/ml.
Conclusion: Aqueous extract of *T.versicolor* have high level of polysaccharide compounds, in addition to having antibacterial activity , this mushroom can be used in treatment of several disease.

Keywords: Polysaccharides, Polyporaceae, *Trametes*

ACCESSORY GENE REGULATOR DIVERSITY AND ANTIBIOTIC SUSCEPTIBILITY PATTERN IN *STAPHYLOCOCCUSEPIDERMIDIS* ISOLATED FROM BLOOD SAMPLES

Shahin Najar-Peerayeh[1], *Ali Jazayeri Moghadas[2]
1. Department of Bacteriology, School of Medicin, Tarbiat Modares University, Tehran, Iran
2. Department of Bacteriology and virology, School of Medicine, Semnan, University of Medical sciences, Semnan, Iran
Email: alijazayeri@semums.ac.ir

Background: Accessory gene regulator (agr)-mediated quorum sensing plays a central role in *staphylococcal* pathogenesis. It upregulates secreted virulence factors and downregulates cell surface proteins, thereby governing invasiveness of *staphylococci.* agr phenotype and expression considerably influence the chronicity of an infection. Certain agr classes have been associated with specific clonal complexes, disease syndromes and intermediate-susceptibility to glycopeptides. It is also being investigated as a prophylactic and therapeutic target. This investigation try to determine diversity of accessory gene regulator and antibiotic susceptibility pattern in *Staphylococcus epidermidis* isolated from blood samples of intensive care unit patients, Tehran, Iran.
Methods: Coagulase negative *Staphylococci* (n=135) were isolated from blood samples of intensive care unit patients in one of teaching hospitals, Tehran, Iran. Of which 50 *Staphylococcus epidermidis* were identified by conventional bacteriological tests. Antibiotic susceptibility test has been done according to CLSI guideline. Different types of agr have been detected by specific PCRs
Results: agr typeI was the most frequent (48%), agr typeII identified in 10%, agr typeIII identified in 7%, and 18% of isolates were identified as untypeable. Susceptibility to vancomycin and linezolid were (100%), while resistance to erythromycin and tetracycline were 56% and 60% respectively.
Conclusion: frequency of agr type I was significantly higher than similar studies, while other agr groups do not show significant differences with similar studies. Susceptibility to vancomycin and linezolid did not show significant difference with other investigations, while susceptibility to trimethoprim-sulfamethoxazol was significantly higher than other studies, and susceptibility to tetracycline was significantly lower than other studies.

Keywords: *Staphylococcus epidermidis*, antibiotic susceptibility, agr

MULTIPLE LOCUS VARIABLE-NUMBER TANDEM REPEAT ANALYSIS AND DIVERSITY IN ACCESSORY GENE REGULATOR IN *STAPHYLOCOCCUS EPIDERMIDIS* ISOLATED FROM INTENSIVE CARE UNIT PATIENTS

Shahin Najar Peerayeh[1], *Ali Jazayeri Moghadas[2], Mehrdad Behmanesh[3]
1. Department of Microbiology, School of Medicin, Tarbiat Modares University, Tehran, Iran
2. Department of Bacteriology and Virology, School of Medicine, Semnan, University of Medical Sciences, Semnan, Iran
3. Department of Genetic, School of Medicin, Tarbiat Modares University, Tehran, Iran
Email: alijazayeri@semums.ac.ir

Background*: Staphylococcus epidermidis* is the most common bacteria isolated from the human skin, it also identified as human flora, as well as opportunistic pathogen and causes nosocomial infections associated with medical devices.
Methods: A cross-sectional study was conducted on 59 *S. epidermidis* collected from blood, urine, tracheal and wound samples, Tehran, Iran. *S. epidermidis* was identified by conventional bacteriological tests. Diversity of *agr* were detected by specific PCRs, MLVA has been performed based on previously described primers.
Results: Different types of *agr* frequency were as follow: type I: 49%, type II: 17%, type III: 17%, untypeable: 17%. MLVA typing method detects six clonal complexes including 49 different genotypes. Clonal complex 1 included 33 isolates out of 59 (56%). The most frequent of *agr* type in this clonal complexes was type I, this type was more frequent in two other clonal complexes too.
Conclusion: In 59 investigated *S.epidermidis*, six clonal complexes and four Singleton isolates were distinguished. Clonal complex 1 included more than half of isolates. Such clonal complex indicates that *S.epidermidis* should be established in intensive care unit of the hospital. *agr* type I was more frequent than other types.

Keywords: *Staphylococcus epidermidis*, *agr*, MLVA

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POLYMORPHISM IN CYAA GENE OF BORDETELLA PERTUSSIS STRAINS ISOLATED FROM THE NASOPHARYNGEAL OF PATIENTS WITH SUSPECTED PERTUSSIS DURING 2008-2012 IN IRAN

Maryam Hosseinpour, *Fereshteh Shahcheraghi, Nazanin Jannesar Ahmadi, Vajiheh Sadat Nikbin
Pertussis Reference Laboratory, Department of Bacteriology, Pasteur Institute of Tehran, Iran
Email: shahcheraghi@pasteur.ac.ir

Background: Adenylate cyclase toxin (ACT) of *Bordetella pertussis* which causes whooping cough is a secretion toxin that plays a role in microorganism pathogenesis. ACT belongs to the repeat in toxin family of pore-forming toxins, which require post translational acylation to lyse eukaryotic cells. Before using ACT as a vaccine component, its properties should be fully characterized, including its potential for antigenic variation. Therefore, the purpose of this study is to determine allelic variation of ACT.
Methods: We examined 37 positive culture samples of isolated from nasopharyngeal of samples collected in 2008-2012. These strains have also been identified by biochemical tests. *CyaA* gene in strains of *B. pertussis* were amplified using specific primers by PCR method. Then were sent for sequencing.
Results: Our results showed that the dominant allele of *cyaA* gene is *cyaA2*.
Conclusion: ACT is protective in mouse studies and because of the stability of its immunodominant region, it may be suitable as a component in generation of new acellular pertussis vaccines (ACVs). ACT has not been used as a component of ACVs, although ACT enhance phagocytosis and has adjuvant effects. In addition, ACT is being investigated for use in multipurpose vaccines, by exploiting its ability to deliver foreign epitopes to antigen-presenting cells. Few studies have been done on the effects of adenylate cyclase toxin on the human immune system and pathogenesis of *B. pertussis*. *CyaA* gene polymorphism has not been seriously investigated in the world and there is little information in this field.

Keywords: Polymorphism, *Bordetella pertussis*, Adenylate Cyclase Toxin, Whooping Cough

THE FREQUENCY OF GENES *AAC* (3) *IIA - ANT* (2 '') *IA - A* (3*) IV - APH* (3 ') IA IN *ESCHERICHIA COLI* URINARY ISOLATES RESISTANT TO AMINOGLYCOSIDES CLINICS IN KERMANSHAH

***Tara Faraji[1], Alisha Akya[2]**
1. *Azad university of Sanandaj, Iran*
2. *Associate professor. of Medical Microbiology, Nosocomial Infection Research Center, Kermanshah University of Medical Sciences, Kermanshah, Iran*
Email: tara.faraji68@gmail.com

Background: The aim of this study was detecting the the aim of this study was detecting the *ant (2'')* -Ia - aac (3) *IIa - aac* (3) *IV - aph* (3 ') Ia, genes among aminoglycoside resistant clinical isolates of *E. coli* using PCR method.
Methods: In this study, 310 patients were selected. After confirmation of the isolates by biochemical tests, antimicrobial susceptibility test was performed by the disk diffusion method for these antibiotics: Gentamicin, Tobramycin paper disks considering CLSI principles. At the end, 67 isolates resistant to aminoglycosides Chromosomal DNA was also extracted and PCR method was used to detect the *Ant* (2'') - Ia - *aac* (3) *IIa - aac* (3) *IV - aph* (3 ') *Ia*, genes.
Results: Results of disk diffusion showed that The highest resistance among isolates were related to tobramycin 36(% 53.8) and also gentamicin 28(% 41.8). Among 67 isolates resistant to aminoglycosides The prevalence of aminoglycoside resistant genes in the resistant isolates were: (*aac* (3) *IIa*) gene 44(% 65.7) that highest rate prevalence was among them And other genes (ant (2 '') *Ia - aac* (3*) IV -aph* (3 ') *Ia*) were 29(% 43.3), 28(% 43.8), 30(% 44.8), respectively. And also between the gene *aph* (3)-*Ia* res*istance* to gentamicin was a significant relationship, 36(% 53.8) p=0.05
Conclusion: Tracing the transfer routs among different bacteria very important as there is a high prevalence of resistance toward aminoglycoside antibiotics due to its transfer among bacteria by transferable elements such as transposons and plasmids. We also saw
There is coordination among the results of this study and other studies, So that Maynard et al in 2004 showed that 33% of the human isolates with resistance gene *aac* (3) *-IIa* were. Jacobson and colleagues studied 120 isolate *Escherichia coli* in 2007, 52 isolates (3/43) percent for the presence of gene *aac* (3) *-IIa* reported positive

Keywords: Aminoglycoside Resistance, *Escherichia coli*, Urinary tract infection, *aac*(3)*IIa - ant*(2'')*Ia – aac*(3)*IV –aph*(3')*Ia*

EFFECT ANTIBACTERIAL OF METHANOL EXTRACT LICHENS ASPICILA VAGRANT, ACAROSPORA STRIGATA ON BACTERIA ISOLATED URINARY TRACT INFECTIONS AND MEDICAL LABORATORY AND HOSPITALS IN ILAM

Mitra Chalabzardi
School of Sciences, Ilam University, Ilam, Iran
E-mail: mitrachalab@yahoo.com

Background: the use of lichens in the traditional medicine of old days it was customary in many countries and in the treating of diseases such as yellow fever, gout, seizures ،convulsions،bacterial infections. Urinary tract infections is one of the most common of diseases infectionof Webster and outpatient patients around the world's.[1,2] the purpose of this study antimicrobial effect of methanol extract 2 lichen species (aspicila vagrant,acarospora strigata) on bacterial generador Urinary tract infections done.
Methods lichens collected from different parts of ilam province methanol extract which were prepared using the soxhlet device. after preparing various concentrations of extract agar diffusion method and disk diffusion effect on bacteria isolated urinary tract infections MIC and MBC determined for them Gentamicin and Tetraciclina seen as a positive control were compared andof dimethyl sulfoxide(dmso)10% was used as a negative contro
Results: the result research s showed of The study of bacteria Proteus highest sensitivity and *Staphylococcussa* prophyticus and entero bacter least sensitive ratio acarospora strigata and *E.coli* Most sensitive and Proteus lowest sensitivity ratio lichen aspicila vagrant and amount MICand MBC for acarospora strigata respectictively100 mg/ml ،400 mg/ml and MICand MBC for aspicila vagrant respectictively200 mg/ml ،800 mg/ml.
Conclusion: extract the lichens Can be used as antibacterial as products used in the treatment of urinary tract infections Caused by bacteria

Keywords: antibacterial ,aspicila vagrant ,urinary tract infections

DETERMINE ENZYME BETA- LACTAMASE VEB BY PCR IN ISOLATES *ESCHERICHIA COLI* ISOLATED FROM URINARY TRACT INFECTIONS IN HOSPITALS IN Ilam, Iran

Mitra Chalabzardi
School of Sciences, Ilam University, Ilam, Iran
E-mail: mitrachalab@yahoo.com

Background: The purpose of this study Determine *VEB* gene By PCR In isolates *Escherichia coli* Isolated from Urinary Tract Infections in hospitals in Ilam
Methods: a total of 170 strains of *E.coli* were isolated from samples urinary tract in hospitals ilam collecting and then with bioshimyai tests were confirmed. 14 antibiotic susceptibility was determined by disk diffusion method finally testing combined disk detec ESBL producing strains and MIC of strains to antibiotic CAZ and CTX by microbroth dilution method. finally، ampc producing strains were detected by PCR. the antibiotic resistance of the isolated strains was to antibiotics include antibiotics: cephalotin %50, ceftriaxone %17/58, cefotaxime% 23/52, cefazolin% 29/41, ceftazidime 17%/64, cephalexin %25/29, ciprofloxacin% 21/17, trickomtaksasul %18/23, gentamicin% 8/8, erythromycin% 6747, imipenem% 25/29, amikacin 10%, amoxicillin %70/58, tetracycline% 71/17 performed.
Results: the result research s showed that *E. coli* 170 strain 90 strains (%52/94) to be ESBL producing that among these 39strains(%43/33) in strains. Beta-Lactamase positive producing enzymes VEB.
Conclusion: The indiscriminate use of antibiotics to treat of bacterial infections to its resistance. ESBL detection in laboratory Limiting The use of beta-lactam antibiotics and Use of antibiotics inhibitors beta- Lactamase performance to the performance of the antibiotics to preserve as much as possible

Keywords: VEB, PCR, *Escherichia coli*

THE STUDY OF ANTIFUNGAL ACTIVITY OF *BACILLUS SUBTILIS* ISOLATED FROM ISFAHAN AGAINST CANDIDA SPECIES

Shirin Naghdifar[1*], Mahboobeh Madani[1], Ali Mohammad Ahadi[2]
1- Department of Microbiology, Falavarjan Branch, Islamic Azad University, Isfahan, Iran
2- Department of Genetics, Shahrekord University, Shahrekord, Iran
Email: Sh_naghdifar88@yahoo.com

Background: *Candidiasis* is opportunistic infection which containing a member of the genus *candida.* The emergence of antimicrobial resistance, coupled with the availability of fewer antifungal agents with fungicidal actions, prompted this study. In this research evaluation of antifungal activity of *Bacillus subtilis* isolated from Isfahan against *Candida* species were done.
Methods: Total of 150 samples (soil, air and surface) from Isfahan were prepared. Isolation and purification of bacteria from samples were conducted on NA medium. Inhibitory effect of obtained bacteria were evaluated against *Candida albicans*, *C. glabrata*, *C. tropicalis*, *C. parapsilosis*, and *C. krusei* using inhibition zone on SDA medium. In this regard, fungal suspensions equal to 0.5 Macfarland were inoculated on SDA medium and then bacterial suspensions (equal to 0.5 Macfarland) were spotted on the center of plates. These plates were incubated at 30 °c for 48 hours. Identification of inhibitory bacteria was done using biochemical tests and molecular method.
Results: According to results, the bacteria with the most inhibition zone against *candida* species was *Bacillus subtilis.*
Conclusions: In view of emerging drug-resistant *candida* species, *Bacillus subtilis* can be used in the treatment of *candida* infections.

Keywords: *Candida species*, Inhibitory bacteria, *Bacillus subtilis*

ISOLATION AND CHARACTERIZATION OF *BACILLUS ATROPHAEUS* FROM SOIL AND EVALUATION OF ITS ANTIFUNGAL ACTIVITY AGAINST FUSARIUM OXYSPORUM AND MUCOR HIEMALIS

Shirin Naghdifar[1*], Mahboobeh Madani[1], Ali Mohammad Ahadi[2]
1- Department of Microbiology, Falavarjan Branch, Islamic Azad University, Isfahan, Iran
2. Department of Genetics, Shahrekord University, Shahrekord, Iran
Email: Sh_naghdifar88@yahoo.com

Background: Fungi are important for human because of infections and producing toxic metabolites. Antifungal activity has been detected in many bacterial genera such as *Bacillus*.
Lipopeptide antibiotic produced by *Bacillus*, suppresses the growth of pathogens.
So natural habitats and their useful components on inhibition of pathogenic fungi is important. The aim of this study was isolation and characterization of inhibition bacteria from soil and evaluation of its antifungal activity against *Fusarium oxysporum* and *Mucor hiemalis.*
Methods: Total of 50 soil samples from different parts of Isfahan were prepared. Fungal spores (1×10^4 cfu/ml) aseptically were placed on the SDA medium and isolated bacteria (0.5 Macfarland) were streaked perpendicularly on plate with the distance of 0/5 to 3cm from fungi. Plates were incubated in 30 °c for 96 hours and examined at each time for inhibition of the growth of the fungi. For identification of inhibitory bacteria, the cultural, morphological, biochemical and colony-PCR were done.
Results: Results showed the strongest inhibitory bacteria against *Fusarium oxysporum* and *Mucor hiemalis* was *Bacillus atrophaeus.*
Conclusions: According to this research, *Bacillus atrophaeus* isolated from Isfahan can produce metabolites with inhibitory effect against *Fusarium oxysporum* and *Mucor hiemalis* and be useful as bioremediations.

Keywords: Antifungal, *Bacillus atrophaeus, Fusarium oxysporum*, *Mucor hiemalis,* colony-PCR

AN EPIDEMIOLOGICAL SURVEY ON COCCIDIOSIS IN DOMESTIC RABBITS IN SAQQEZ CITY, NORTH WEST OF IRAN, 2015.

Reza Abdolah Nezhad
Department of Microbiology, School of Basic Science, Urmia Branch, Islamic Azad University, Urmia, Iran
Email: reza.abd1368@yahoo.com

Background: Coccidiosis is a highly contagious sporozoal infection in rabbits. It is caused by *Eimeria* species. The species that affect rabbits are rarely a zoonotic danger to humans, while economic damages threaten their owners. Epidemiologic studies as the first step of recognizing and controlling parasite contamination and non-existence of Attributable documentary information about the extent of Eimeria contamination among domestic rabbits in Saqqez city, carrying out this study was necessary
Methods: This is a cross sectional study that has been done partly on 142 domestic rabbits from Saqqez City, (from February to Aprill 2015). Feces were examined microscopically for the presence of *Eimeria spp*. oocysts with using direct and sheather's flotation method. Demographic parameters such as: age, disease symptoms, common species and sexual distribution rate in the host were obtained and analyzed by SPSS V. 21.
Results: Occurrence of coccidiosis was 57.04%. Contamination in immature rabbits was more than mature rabbits and this relation was significant ($p<0.05$). Seven different species of Eimeria were recognized. *E. magna* (43.66%), *E. flavescens* (35.21%), *E.media* (27.46%), *E. intestinalis* (19.72%), *E. exixua* (13.38%), *E. irresidua* (7.75%), *E. perforans* (2.82%). Some species of *Eimeria* had a significant relation with symptoms of coccidiosis like: diarrhea and weight reduction ($p<0.05$), while sexuality showed no significant relation with coccidiosis ($P>0.05$).
Conclusion: Regarding to high rate of coccidiosis, the prevention of coccidial infection in domestic immature rabbits is generally the best course of action. Incoming animals should be quarantined and tested.

Keywords: Coccidiosis, domestic rabbits, Saqqez

A SURVEY ON MIDWIFERY STAFF'S KNOWLEDGE ABOUT TOXOPLASMOSIS IN URMIA CITY NORTH WEST OF IRAN 2015.

***Reza Abdolah Nezhad[1], Shiva Moloudi[2]**
1. Department of Microbiology, School of Basic Science, Urmia Branch, Islamic Azad University, Urmia, Iran
2. Department of Parasitology, Hygiene Center Laboratory, Bokan, Iran
Email: reza.abd1368@yahoo.com

Background: Care and prevention from infection will have a very important role in health of mother and fetus. Thus, training about the importance of the caring ways from mother against toxoplasmosis, is one of the most important tasks of midwifery stuff.
Methods: This cross-sectional study performed in 2014, in order to assess the knowledge of 109 person of Urmia's midwifery staff about Toxoplasmosis. Data collection tool was a researcher made questionnaire. The collected data was analyzed by SPSSV.21.
Results: Just 22.02% of respondents were able to answer correctly to all of the questions. 61.47%, 47.71%, 44.95%, 40.36%, 11.01%, 7.34% of participants were familiar to pathogen, transmission ways, complications of toxoplasmosis, and prevention of infection, final and intermediate host respectively. Book was the main information source (69.72%) of midwives. Majority of aware people about the disease (79.17%), were under 2 years of working experience. Education level had no significant effect on information about toxoplasmosis ($p>0.05$). But work experience and the source of information about the toxoplasmosis had a significant relationship with information about the infection.
Conclusion: Considering the importance of toxoplasmosis in pregnancy. It expected midwifery staff have more knowledge about clinical symptoms, transmission ways, complications and how to prevent them. For this purpose, implementation of retraining workshops and booklets for top experience midwives recommended.

Keywords: Urmia, Midwifery Staff, Toxoplasmosis

AN EPIDEMIOLOGIC SURVEY ON THE PREVALENCE OF GIARDIASIS AMONG CHILDREN OF BOKAN CITY, NORTH WEST OF IRAN, 2014.

***Reza Abdolah Nezhad[1], Shiva Moloudi[2]**
1. Department of Microbiology School of Basic Science, Urmia Branch, Islamic Azad University, Urmia, Iran
2. Department of Parasitology, Hygiene Center Laboratory, Bokan, Iran
Email: reza.abd1368@yahoo.com

Background: *Giardia lambelia* is an intestinal protozoan parasite in human and vast range of vertebrates which has great importance in medical parasitology and general sanitary in developing countries. Regarding the importance of epidemiologic studies as the first step of recognizing and controlling parasite contamination and nonexistence of attributable documentary information about the *Giardia lambelia* infection prevalence among under 6 years old children in Bokan city, carrying out this study was necessary.
Methods: This is a cross sectional study that has been done partly on 370 children between 2 and 6 years old of Bokan city who referred to the laboratory of hygiene center of Bokan from 06.July until 23.August 2014. Stool specimens were examined microscopically for the presence of *Giardia lambelia* cysts and trophozoites with using direct and formalin-ether concentration methods. In this study, demographic parameters were registered and analyzed by SPSS V.21.
Results: According the results, the amount of Giardiasis was partly high (15.41%). Age, weight, parents' education and residental status had a significant relation with Giardiasis (P<0.05) while sex and symptoms showed no significant relation with Giardiasis (P>0.05).
Conclusion: In recent decade, with the promotion of awareness, and public health and facilities in urban and rural population, the prevalence of Giardiasis in children is also diminished. With continuing education and health assessment, especially in children, we can monitor the infection and treat at risk population and prevent the outbreak of Giardiasis in in the shortest possible time.

Keywords: Bokan, Epidemiologic survey, Giardiasis, Children

A SURVEY ON THE PREVALENCE OF CRYPTOSPORIDIOSIS AMONG DIARRHEIC CALVES IN BOKAN CITY, NORTH WEST OF IRAN, 2014.

***Reza Abdolah Nezhad[1], Kaveh Ahmadi[2], Komar Hoseynzadeh[2]**
1. Department of Microbiology, School of Basic Science, Urmia Branch, Islamic Azad University, Urmia, Iran
2. Veterinary Medicine Graduated, Department of Pathobiology Group, School of Veterinary Medicine, Urmia Branch, Islamic Azad University, Urmia, Iran
Email: reza.abd1368@yahoo.com

Background: Cryptosporidiosis is caused by the zoonotic protozoan parasite of the genus *Cryptosporidium*, causes diarrhea in humans and many other species of animals. A wide range of animals including mammals, birds, reptiles, fish and rodents play an important role in the parasite transmission. Aim of this study was to determine *Cryptosporidium* infection in diarrheic calves for first time in Bokan district.
Methods: This is a cross sectional study that has been done partly on 200 diarrheic calves of Bokan city West Azarbaijan province which was conducted in spring and summer of 2014. After concentration of oocyst with sheather's flotation method, all of slides were stained with modified Ziehl-Neelsen's acid fast method and were studied microscopically on the basis to oocyst detection. All of informations analyzed by SPSS V. 21.
Results: According to the results, the amount of *cryptosporidial* infection was 19.50 % (39 samples out of 200) of studied calves. Statistical analyses on age of calves showed that the maximum rate of the infection 53.85% (21/39) in animal with age <1month as a significant relation with *cryptosporidiosis* (P=0.017). While sexuality showed no significant relation with cryptosporidiosis (P=0.694).
Conclusion: *Cryptosporidiosis* may be a major epidemiological importance in Bokan district and suggests that diarrheic calves may be distribute the infection for other animals and even for humans too.

Keywords: *Cryptosporidiosis*, Bokan, Diarrheic calves

FREQUENCY OF TOXOCARA EGGS IN SOIL SAMPLES OF PUBLIC PARKS OF SAQQEZ CITY, NORTH WEST OF IRAN, 2015

Reza Abdolah Nezhad[1]*, Shiva Moloudi[2]
1. Department of Microbiology,School of Basic Science, Urmia Branch, Islamic Azad University, Urmia, Iran
2. Department of Parasitology, Hygiene Center Laboratory, Bokan, Iran
Email: reza.abd1368@yahoo.com

Background: Toxocarosis is a zoonotic disease caused by the larval stage of *Toxocara canis (T. canis*) and/or Toxocara cati (T. cati), two worldwide distributed roundworms which are parasites of canids and felids, respectively. Infections of humans occur through ingestion of embryonated eggs of Toxocara spp. and the subsequent migration of larvae, particularly to liver, lungs, muscles and brain, which causes Visceral Larval Migrans (VLM) and Ocular Larval Migrans (OLM).
Methods: A total of 130 samples of soil collected from total 11 existing playgrounds and public parks in Saqqez in April and May 2015. Soil samples were collected from 10- 15 distinct sites in the same area. All of samples were examined by modified flotation method.
Results: According to the results, 37 soil samples out of 130 (28.46%) were found to be contaminated with the *Toxocara* eggs. The number of observed *Toxocara* eggs in each microscopic field was varied from 1-6.
Conclusion: Because of the relatively high contamination of parks of Saqqez city with *Toxocara* eggs and the potential risk of the infection to humans, preventive measures and further studies should be implemented in this area. In addition, the local population should regularly be informed about the potential of acquiring zoonotic infections, adverse effects of toxocariasis on their children and methods of prevention and control of the disease.

Keywords: *Toxocara*, Saqqez, Soil

PREVALENCE OF CONSTITUTIVE AND INDUCIBLE RESISTANCE TO CLINDAMYCIN IN STAPHYLOCOCCI ISOLATES FROM HAJAR AND KASHANI HOSPITALS IN SHAHREKORD, 2014

Safiyeh Abbasi
Student's Research Committee, Shahrekord University of Medical Sciences, Shahrekord , Iran
Email:*safiyehabbasi@rocketmail.com*

Background: Resistance to clindamycin (CL) in *Staphylococcus aureus* is both constitutive and inducible. In the present study, the prevalence of the constitutive and inducible resistance to CL was investigated by disk diffusion and double-disk diffusion (D-test) methods. Constitutive and inducible clindamycin resistance in *staphylococci* is in two forms. This study aimed to investigate the prevalence of constitutive and inducible resistance to clindamycin in *Staphylococcus aureus* strains isolated from patients in Shahrekord Hajar and Kashani hospitals in 1393.
Methods: The disk diffusion method is performed in such a way that a disk of erythromycin is placed near clindamycin disk on plate Mueller Hinton agar. When the isolate induced the resistance to erythromycin and clindamycin, a zone sensitivity of D-shaped is created. In this study, all *S. aureus* and methicillin-resistant coagulase-negative were tested for induction of the antibiotic resistance.
Results: In200 cases of *Staphylococcus aureus* and coagulase-negative *Staphylococci* the induction tests were carried out that among them, four D + and four D-isolates were observed.
Conclusion: This study suggests that erythromycin-induced resistance could be a correct method for diagnosis of resistance to clindamycin in *Staphylococcus aureus*isolates.

Keywords: Clindamycin, Constitutive resistance, Erythromycin, *Staphylococcus*, Inducible resistance

BILATERAL ILIOPSOAS ABSCESSES CAUSED BY *KLEBSIELLA PNEUMONIAE*

Seyed Ali Dehghan Manshadi[1], Mohammad Reza Salehi[1], *Omid Reza Hosseini[2], Seyed Reza Hosseini[2]

1. Department of Infectious Diseases and Tropical Medicine, Imam-Khomeini Hospital Complex, Tehran University of Medical Sciences, Tehran, Iran.
2. Resident of Infectious Diseases and Tropical Medicine, Tehran University of Medical Sciences, Tehran, Iran
Email: omidrezahosseini@yahoo.com

Background: Iliopsoas abscess is the collection of pus in iliopsoas muscles. Treatment of most cases needs surgical drainage along with antibiotic therapy.
Methods: We introduce an uncommon case of bilateral iliopsoas abscesses that managed with antibiotic treatment without any surgical intervention.
Results: A 60-year-old man presented to our clinic with fever, chills and abdominal pain that had progressed gradually from 2 months ago. Remarkable findings in physical examination were fever, abdominal tenderness, an induration in right inguinal region and scrotal swelling. Vertebral column was also deformed due to a falling that had occurred 10 years earlier. An abdominal and pelvic ultrasonography revealed abscess in right lower quadrant of abdomen with extension to scrotum. Abdominal and pelvic CT scan confirmed bilateral iliopsoas abscesses that extended inferiorly to pelvic fossa and scrotum and spondylodiscitis of T12 and L1 vertebras. Treatment with ceftriaxone and vancomycin started empirically. As Ceftriaxone-sensitive *Klebsiella pneumonia* was isolated from blood cultures, vancomycin was discontinued. Fever disappeared after 3 days and abdominal pain recovered in 6 days. A control CT scan after 10 days revealed significant decrease in size of abscesses. We discharged him after 14 days with oral cefixime. In our follow-ups, iliopsoas abscesses disappeared completely.
Conclusions: *Staphylococcus aureus*, *Streptococcus* species and *Mycobacterium tuberculosis* are common isolated bacteria in iliopsoas abscesses. However, *Klebsiella pneumonia* and other gram negative bacilli can also cause these abscesses.

Keywords: Iliopsoas Abscess, *KLEBSIELLA PNEUMONIAE,* Spondylodiscitis, *Ceftriaxone*

FILAMENTOUS FUNGI AND MYCOTOXINS IN CHEESE

***Ahmad Nasrollahzadeh[1], Morteza Khomeiri[2], Alireza Sadeghi[2], Mahdi Kashaninejad[2]**

1. MSc Student of Food Microbiology, Department of Food Science and Technology, Gorgan University of Agricultural Sciences & Natural Resources, Gorgan, Iran.
2. Department of Food Science and Technology, Gorgan University of Agricultural Sciences & Natural Resources, Gorgan, Iran
Email: Ahmadnasrolahzade@ yahoo.com

Background: Mycotoxins are secondary metabolites have been reported to be carcinogenic, tremorogenic, haemorrhagic, teratogenic, and dermatitic to a wide range of organisms and to cause hepatic carcinoma in human.
Methods: In this study, we searched for articles in Google Scholar, Scince Direct databases using keywords such as : fungal spoilage, cheese fungal spoilage, mycotoxin of fungal and foodborne pathogens. Related articles were mostly published during 1993-2014.
Results: Finding indicated that important fungi growing on solid, soft and semi-solid cheeses include *Penicillium, Aspergillus, Cladosporium, Geotrichum, Mucor* and *Trichoderma*. The most common mycotoxins which are stable in cheese are citrinin, penitrem A, roquefortine C, sterigmatocystin and aflatoxin. On the other toxin that may occur in the cheese can be cyclopiazonic acid, ochratoxin A is noted. Sterigmatocystin most significant and ochratoxin A and aflatoxin M1 are the most dangerous toxin found in cheese.
Conclusion: Cheese is very susceptible to the growth of mold and mycotoxins are produced. Although several approaches to control or detoxified mycotoxins there is, But the effects of these methods are limited and in addition some limited use. It is clear that the best way to avoid mycotoxins in cheese, is to prevent the growth of mold.

Keywords: Mycotoxins, Cheeses, susceptible, mould

SURVEY ANTIFUNGAL ACTIVITY OF *LACTOBACILLUS* ISOLATED FROM CHAL AGAINST MOLD PENICILLIUM CHRYSOGENUM AS ONE OF THE MICROBIAL SPOILAGE OF CREAM CHEESE

***Ahmad Nasrollahzadeh[1], Morteza Khomeiri[2], Alireza Sadeghi[2], Mahdi Kashaninejad[2]**
1. MSc Student of Food Microbiology, Department of Food Science and Technology, Gorgan, University of Agricultural Sciences & Natural Resources, Gorgan, Iran.
2. Department of Food Science and Technology, Gorgan University of Agricultural Sciences & Natural Resources, Gorgan, Iran
Email: Ahmadnasrolahzade@ yahoo.com

Background: The purpose of this study was to evaluate the antifungal properties of Lactobacillus strains isolated from the Chal against mold *Penicillium chrysogenum* as one of the cheese corruption and the possibility of its use as a biological preservative in cheese.
Methods: Among the samples that had previously isolated from Chal by biochemical methods were identified as Lactobacillus, 3 isolates 6, 7 and 17 were selected. Isolates antifungal activity examined against mold *Penicillium chrysogenum* as one of the corruption indicators Cheese by using method Overlay.
Reslts: After experiments using method Overlay, it was found that all three isolates *Lactobacillus* (formerly biochemical methods as *Lactobacillus brevis*, *Lactobacillus alimentarius* and *Lactobacillus gasseri* were identified respectively) have property strong antifungal (creating clear zones of inhibition).
Conclusion: Due to the harms of synthetic preservatives and carcinogens in food production as well as the tendency of consumers to food without chemical preservatives, can from this isolated *Lactobacillus* of Chal Due to production of antimicrobial compounds and properties of the immune system as biological preservatives used in cheese and other dairy products.

Keywords: *Lactobacillus*, Chal, antifungal, *Penicillium chrysogenum*

PURIFICATION OF Brucella VirB12 AS A SOLUBLE RECOMBINANT PROTEIN FROM INCLUSION BODIES

Nour Amir Mozafari[1], Gholam Reza Irajian[1], *Shiva Mirkalantari[2]
1. School of Medicin, Microbiology Department, Iran University of Medical Sciences, Tehran, Iran
2. School of Medicin, Bacteriology and Virology Department, Semnan University of Medical sciences, Semnan, Iran
Email: Sh.Mirkalantari@gmail.com

Background: The over-production of *Brucella* VirB12 recombinant protein in *E. coli* results in the formation of inclusion bodies composed of insoluble aggregates of the expressed protein. Inclusion bodies were formed in the cytoplasm. Insoluble aggregates of misfolded protein lacking biological activity and should be converted to soluble protein for exhibiting the desired activity. Aim of this study was to make solubilize inclusion bodies of *Brucella* VirB12 recombinant protein.
Methods: Pure inclusion bodies prepared by low speed centrifugation after cell lysis. The residue of membrane fraction was removed by Triton X-100. The sample loaded on column and wash with 20mMTris-HCl, 0.5 M NaCl, 5 mM imidazole, 6 M guanidine hydrochloride, 1 mM 2-mercaptoethanol pH 8.0. Change the buffer to 20 mMTris-HCl, 0.5 M NaCl, 20 mM imidazole, 1mM 2-mercaptoethanol, 6 M urea pH 8.0. Refolding of the bound protein was performed using a linear 6–0 M urea gradient. Eluted refolded recombinant protein using a linear gradient starting with 20 mMTris-HCl, 0.5M NaCl, 20mM imidazole, 1 mM 2-mercaptoethanol pH 8.0 and ending with the same buffer including 500 mM imidazole.
Results: The recovery of the VirB12 purified protein of inclusion body with this procedure was 70%.
Conclusion: This study enabled purification of *Brucella* VirB12 protein as a soluble protein with a correct folding for future research.

Keywords: Inclusion body, VirB12 recombinant protein, *Brucella*, Soluble protein, protein purification

RELATION BETWEEN *HELICOBACTER PYLORI* WITH REPEATED ABORTION AND NEURAL TUBE DEFECTS

***Mohammadreza Poshtibani[1], Samin Nahavandi[1], Parviz Orang[1], Karimullah Ghasemi Germi[2]**
1. Department of Biology, School of sciences, University of Mohaghegh Ardabili, Ardabil, Iran
2. Assistant professor, Department of Biology, School of Sciences, University of Mohaghegh Ardabili, Ardabil, Iran
Email: Poshtibanim@yahoo.com

Background: *Helicobacter pylori* is one of the most common human infections and about half of the world population are infected with this bacteria.with this bacteria in our country is more than 70%. Repeated abortion and neural tube defects (NTD) in Iran is higher than world standard.
Methods: In this study with search about phrases of *Helicobacter pylori*, gastric intrinsic factor, vitamin B_{12}, repeated abortion, pregnancy, Homocysteine and neural tube defects in the bases of ScienceDirect, PubMed, Google scholar and SID published articles to the English and Persian language was evaluated in relation with the effects of pollution with *H. pylori* in the repeated fetus abortion and NTD.
Results: According to the studies, in the case of infected people with *H. pylori*, this bacteria cause the gastric atrophy that it leads to the acid and gastric intrinsic factor. Since the gastric intrinsic factor is the important factor in vitamin B_{12} attraction, level of vitamin B_{12} reduces in these people, and shortage of vitamin B_{12} increases repeated abortion in women too. Shortage of group B vitamins like vitamin B_{12}, B_6 and B_9 increases the level of blood Homocysteine that this increment in blood will increase the risk of abortion in pregnant women. Shortage of vitamin B_{12} has important role in outbreak of NTD after vitamin B_9.
Conclusions: According to the study, if women infected with *H. pylori*, become pregnant are more susceptible to abortion and NTD outbreak in fetus.

Keywords: *Helicobacter pylori*, Repeated abortion, neural tube defects, vitamin B_{12}

ANTIFUNGAL EFFECTS OF AQUEOUS, METHANOLIC & CHLOROFORM EXTRACTS OF DIONYSIA REVOLUTA BOISS. BELONGING TO PRIMULACEAE FAMILY

Niloofar Mashhadi[1], *Nahid Rahimifard[2], Saeed Mohammadi Motamed[3], Babak Pourakbari[4]
1. Pharmaceutical Sciences Branch, Islamic Azad University (IAUPS), Tehran, Iran.
2. Food and Drug Laboratory Research Center (FDLRC), Food and Drug Control Laboratories (FDCLs), Ministry of Health (MOH), Tehran, Iran.
3. Pharmacognosy Department, School of Pharmacy, Pharmaceutical Sciences Branch, Islamic Azad University (IAUPS), Tehran, Iran.
4. Pediatrics Infectious Diseases Research Center, Tehran University of Medical Sciences, Tehran, Iran.
Email: nahidrahimifard@gmail.com

Background: The aim of this the present study was to evaluate the in vitro antifungal effects of three Dionysia revoluta Boiss. Extracts belonging to the family Primulaceae (aqueous, methanolic & chbelon chloroform) against four fungal species including *Aspergillus niger*, *Aspergillus fumigatus*, *Candida albicans* and *Candida krusei.*
Methods: The extracts were prepared by maceration method. Pre-evaluation of the anti fungal effect was utilized by cup-plate technique and then minimum inhibitory concentrations of the extracts were determined by agar-well diffusion, broth microdilution and disc diffusion methods according to NCCLS. Raw data of antifungal effect was analyzed and compared by GraphPad Prism 5 software using two-way ANOVA and Bonferroni post test.
Results: All three types of extracts (aqueous, methanolic & chbelon chloroform) whit difference in polarity showed significant and remarkable In vitro antifungal effects. The Aqueous extract was the most effective one and had higher MIC value. The Aqueous extract has the most effects on *Candida albicans* and *Candida krusei.*
Conclusions: This present study shows that different extracts of Dionysia revoluta Boiss.

Keywords: Antifungal; Dionysia revoluta; *Aspergillus niger; Aspergillus fumigatus; Candida albicans; Candida krusei*

DETECTION OF SCAF GENE TO IDENTIFY ISOLATED *STAPHYLOCOCCUS AUREUS* FROM CLINICAL RESPIRATORY SYSTEM INFECTIONS IN ISFAHAN

***Santa Babadi Orehgani[1], Zahra Bamzadeh[2], Hassan Momtaz[3]**

1. Department of Microbiology, School of Basic Sciences, Shahrekord Branch, Islamic Azad University, Shahrekord, Iran.
2. Associate Professor, Department of Microbiology, School of Basic Sciences, Shahrekord Branch, Islamic Azad University, Shahrekord, Iran.
3. Associate Professor, Department of Microbiology, School of Veterinary Medicine, Shahrekord Branch, Islamic Azad University, Shahrekord, Iran.
Email: santa.babadi@yahoo.com

Background: Respiratory system infection is a prevalent infectious disease in the world that caused by attack several bacteria such as *Staphylococcus aureus* to the upper respiratory system. According to the genomic diversity of species and strains of *Staphylococcus aureus* infections and increased antibiotic resistance, rapid detection of *Staphylococcus aureus* in nosocomial infections is essential to reduce the transfer and spread of this pathogen. The aim of this study was identify the *Staphylococcus aureus* using *scaF* gene in respiratory system infection.
Methods: The study was conducted on 100 isolates of *Staphylococcus aureus* separated from respiratory specimens of patients from three large hospitals of Isfahan in 2014. First, *Staphylococcus aureus* isolates were confirmed using biochemical and diagnostic tests. Following DNA extraction, *scaF* gene was amplified by polymerase chain reaction using gene specific primers. The results of PCR were examined by gel electrophoresis.
Results: The *scaF* gene was present in all studied isolates that were 52% of the male and 48% female.
Conclusion: Although different genes can be used to identify *Staphylococcus aureus* isolates in various infections but couldn't detect all strains of them. While using the *scaF* gene not only detect specific strains, also because of the lack of Similar gene in *Staphylococcus epidermidis* and other species can be used for the definitive diagnosis of *Staphylococcus aureus* infections. The present results can be verified on the issue.

Keywords: Respiratory system infections, *Staphylococcus aureus*, *scaF* gene.

THE PREVALENCE OF PANTON-VALENTINE LEUKOCIDIN (PVL) GENE AND DETECTION OF THE ANTIBIOTIC RESISTANCE PATTERN IN *STAPHYLOCOCCUS AUREUS* ISOLATED FROM CLINICAL RESPIRATORY SYSTEM INFECTIONS IN ISFAHAN

***Santa Babadi Orehgani[1], Zahra Bamzadeh[2], Hassan Momtaz[3]**

1. M.Sc., Department of Microbiology, School of Basic Sciences, Shahrekord Branch, Islamic Azad University, Shahrekord, Iran.
2. Associate Professor, Department of Microbiology, School of Basic Sciences, Shahrekord Branch, Islamic Azad University, Shahrekord, Iran.
3. Associate Professor, Department of Microbiology, School of Veterinary Medicine, Shahrekord Branch, Islamic Azad University, Shahrekord, Iran.
Email: santa.babadi@yahoo.com

Background: The aim of this study was the prevalence of *pvl* gene and detection of the antibiotic resistance pattern in *Staphylococcus aureus* isolated from clinical respiratory system infections in Isfahan.
Methods: The study was conducted on 100 isolates of *Staphylococcus aureus* separated from respiratory specimens of patients from three large hospitals of Isfahan in 2014. First, *Staphylococcus aureus* isolates were confirmed using biochemical and diagnostic tests. Following DNA extraction, *pvl* gene was amplified by polymerase chain reaction using gene specific primers.
Results: In 14 strains of total studied samples (14%), *pvl* gene was positive. The highest rates of antibiotic resistance of *Staphylococcus aureus* strains were seen with oxacilin (100%) while the lowest sensitivity was observed with vancomycin (14.3%). The prevalence of *pvl* gene in MRSA strains were 14.1% respectively, while this prevalence were 12.5% in MSSA strains.
Conclusion: Regarding to the production of Panton-Valentine Leukocidin leads to severe and lethal diseases caused by these bacteria, also regarding to the high frequency of *pvl* gene in MRSA strains, early diagnosis and proper treatment must be considered for the prevention of disease progress.

Keywords: Respiratory system infections, *Staphylococcus aureus*, antibiotic resistance pattern, *pvl* gene.

THE ANTIBACTERIAL EFFECT OF AQUEOUS EXTRACT OF ALLIUM SATIVUM AGAINST MULTIDRUG - RESISTANT *STAPHYLOCOCCUS* AUREUS IN VITRO

***Samaneh Kazemi[1], Masoumeh Ayazi[2], Leila Asadpour[3]**
1. Vice-Chancellor of Research and Technology, Guilan University of Medical Sciences, Rasht, Iran
2. Young Researchers and Elite Club, Rasht Branch, Islamic Azad University, Rasht, Iran
3. Department of Veterinary Medicine, Islamic Azad University Rasht Branch, Rasht, Iran
Email: kazemi_samane@ymail.com

Background: The aim of this study was assess the antibacterial effect of *Allium sativum* aquatic extract against multidrug resistant (MDR) *S. aureus*.
Methods: In this descriptive study, a total of 30 *S. aureus* isolates including 19 MDR isolates were collected from state hospitals in Rasht. The bacteria susceptibility to seven selective antibiotics including Vancomycine (30 µg), Methicilline (5µg), Amoxicillin (25 µg), Amoxi-Clav (30 µg), Cefazolin (30 µg), Cefalexin (30 µg) and Gentamycin (30 µg) was measured by disk diffusion method. Antibiotics were provided from Padtan Teb company (Iran). Antimicrobial activity of fresh *Allium sativum* juice (50 µl) was evaluated using agar well diffusion method. Both the minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) of an aqueous extract of *Allium sativum* was determined.
Results: All of the MDR bacterial samples were found sensitive to the *Allium sativum* juice. The zone of inhibition was varied between 40-55 mm. MIC for each bacterial sample became positive at 6.25 to 12.5% vol/vol and MBC were evaluated between 25 to 50% vol/vol.
Conclusion: As the incidence of MDR *S. aureus* is increasing throughout the world, this study indicate that *Allium sativum* has a high antibacterial effect on MDR *S. aureus* and therefore, supports the use of *Allium sativum* as a herbal remedy. Other evaluations considering the effects of various herbal extracts as antibacterial agents, as well as in vivo examination of these extracts, are required to provide a natural, cost-effective and viable alternative for the traditionally less effective antibiotics which are normally used.

Keywords: Plant Extracts, Anti-Bacterial Agents, *Staphylococcus aureus*

THE FREQUENCY OF URINARY TRACT INFECTION AND THE ASSESSMENT OF BACTERIA RESISTANCE AND SENSITIVITY TO ANTIBIOTICS IN INFERTILE FEMALES IN QOM CITY

Reza Tabatabaei Qomi[1], Mohsen Sheykhhasan[1], Naser Kalhor[1], *Mahdieh Ghiasi[1]
1. Laboratory of Stem Cell, The Academic Center for Education, Culture and Research, Qom, Iran.
Email: mahdieh.ghiasi@yahoo.com

Background: A urinary tract infection (UTI) is a condition where one or more parts of the urinary system (the kidneys, ureters, bladder, and urethra) become infected. UTIs are the most common of all bacterial infections and can occur at any time in the life of an individual.
Methods: In this study, samples were collected through Midstream clean catch method and then cultured on the EMB and blood agar medium using standard loop and incubated for 24 hr in 37°C. In next step, antibiogram by disk diffusion method (Kirby-Bauer Test) was established on each positive sample and finally, the results were analyzed.
Results: *E. coli* (58.70 %) was the most common organism. The most frequent antibiotics resistance pattern observed was amoxicillin (75%). The highest sensitivity rate was recorded to the chloramphenicol antibiotic (33.83 %).
Conclusion: This study shows a high prevalence of *Escherichia coli* in pregnant women in our population. The results reveal that pregnancy does not increase the risk of getting a UTI, but it can increase the risk of developing a serious infection that could potentially harm the mother and fetus. Hence, getting of UTI during pregnancy has a dangerous consequences on women and their pregnancy. Thereupon before the start treatment for infertility, it seems essential that all of the candidates do urine test and ensure the absence of infection in the urinary tract.

Keywords: *urinary tract infections, Escherichia coli, amoxicillin*

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CHLAMYDIA TRACHOMATIS INFECTION IN IRANIAN WOMEN- A SYSTEMATIC REVIEW AND META-ANALYSIS

***Amjad Ahmadi[1,2], Rashid Ramazanzadeh[1,2], Fariba Farhadifar[3], Samaneh Rouhi[1, 2, 4], Daem Roshani[3]**

1. Department of Microbiology, Kurdistan University of Medical Sciences, Sanandaj, Iran
2. Cellular & Molecular Research Center, Kurdistan University of Medical Sciences, Sanandaj, Iran
3. Social Determinants of Health Research Center, Kurdistan University of Medical Sciences, Sanandaj, Iran
4. Student Research Committee, Kurdistan University of Medical Sciences, Sanandaj, Iran
Email: microbiology90@gmail.com

Background: *Chlamydia trachomatis* is a bacterial infection of the genital tract in women. Up to 80% of *C. trachomatis* (CT) infection in women is asymptomatic. There is some documents showed role of *C. trachomatis* infection in spontaneous abortion.
Methods: According to PRISMA guidelines this study was performed. 75 publications articles that were published Google scholar, PubMed, ISI Web of Science, Biological abs, Iranmedex, SID and Scopus databases (1986-2015) by using the Keywords: CT and progeny, CT and preterm delivery, CT and fertility, CT and infertility, CT and abortion were applied. Inclusion criteria were research articles with full text and articles with abstract in English.Statistical analyses were performed using R and STATA version 11.2.
Results: Sample size was 1302 persons in 24 included articles. From 1986 to 2015, the lowest rate of prevalence was in 2010- 2011 (2 (3.9%)) and the highest prevalence rate was in 2009 (408(69.39%)) in North of Iran. Fixed effects for different part of Iran (South, North, East, West) was Pooled proportion = 0.13 (95% CI = 0.12 to 0.14) and for samples (Cervical, Vaginal, Urine, Bloody) was Pooled proportion = 0.14 (95% CI = 0.12 to 0.14).
Conclusion: results in this study showed a prevalence of CT infection in Iranian women; in different regions of Iran. Infected women play an important reservoir at their sexual active for transmission and untreated women are possibly at risk of developing sequels. So sensitive tests such as PCR based method can be used for detection of genital CT infection.

Keywords: *Chlamydia trachomatis*, Iranian Women, Systematic Review, Meta-analysis

NALC MUTATIONS IN PSEUDOMONAS AERUGINOSA STARINS ISOLATED FROM GUILAN HOSPITALS

***Fatemeh Hakimi[1], Najmeh Ranji[2], Mohammad Faezi[3]**

1-Department of Microbiology, School of Science, Rasht Branch, Islamic Azad University, Rasht, Iran
2- Department of Genetics, School of Science, Rasht Branch, Islamic Azad University, Rasht, Iran
3-Department of Microbiology, School of Science, Lahijan Branch, Islamic Azad University, Lahijan, Iran
Email: saba.hakimi69@gmail.com

Background: Overproduction of *MexAB-OprM* system in *pseudomonas aeruginosa* may lead to significant multidrug resistance in clinical isolates. *NalC* inactivation is a reason of *MexAB-OprM* upregulation. In the present study, we evaluated *nalC* mutations in multi-drug resistant strains of *Pseudomonas aeruginosa* in patients (between the years 1393 to 1394) from Guilan hospitals province).
Method: *Pseudomonas aeruginosa* isolated from burned patients were identified using standard methods. Drug susceptibility and MIC were determined from 50 clinical samples. 11 ciprofloxacin resistant strains were isolated and PCR-Sequencing was carried out after DNA extraction.
Results: MIC range in resistant strains were between 64 to 1024µg/ml. In the resistant strains mutations G71E and/or S209R in *nalC* gene were determined by PCR-sequencing.
Conclusion: *NalC* inactivation is a reason of upregulation of *MexAB-OprM*. It seems that in quinolone resistant strains of *Pseudomonas aeruginosa* in Guilan were partly developed by *nalC* mutations.

Keywords: *MexAB-OprM, nalC, Pseudomonas aeruginosa*, quinolone resistance.

USE OF STATIC MAGNETIC FIELD AS A TOOL TO QUANTIFY THE SPORULATION OF *FUSARIUM OXYSPORUM*

Saba Khadivpour, Mahboobeh Madani,*Maryam Khademi Dehkordi
Department of Microbiology, Falavarjan Branch, Islamic Azad University, Isfahan, Iran.

Email: khademi@iaufala.ac.ir

Background: *Fusarium oxysporum* is a fungal pathogen that attacks many important plants. Some strains produce exceptionally high concentrations of the phytotoxin Fusaricacid. In this research growth and sporulation of Fusarium oxysporum were studied under a static magnetic field.
Methods: *Fusarium oxysporum* was cultured on Potato dextrose agar medium (PDA). The applied flux densities were 10 and 100 mT for various times. Four times were applied for 10mT (20, 40, 60 and 720 minutes) and three time for 100mT (20, 40, 60 minutes). Sporulation level was evaluated by counting number of spores. Experiments were done in triplicate.
Results: Maximum and minimum time of sporulation for 10mT were after 20 and 40 and for 100mT were after 20 and 60 minutes respectively.
Conclusion: There is a potential for the application of the physical method (static magnetic field) to limit the sporulation of Fusarium oxysporum.

Keywords: *Static magnetic field, Fusarium oxysporum, Sporulation*

GYRA MUTATIONS IN CIPROFLOXACIN RESISTANT STRAINS OF *PSEUDOMONAS AERUGINOSA* IN GUILAN HOSPITALS

***Forough Rahnamay Roodposhti[1], Najmeh Ranji[2], Leila Asadpour[3]**
1-Department of Microbiology, School of Science, Rasht Branch, Islamic Azad University, Rasht, Iran
2. Department of Genetics, School of Science, Rasht Branch, Islamic Azad University, Rasht, Iran
3.Department of Veterinary Science, Islamic Azad University, Rasht Branch, Rasht, Iran
Email: foroughseven@yahoo.com

Background: *Pseudomonas aeruginosa* is a gram-negative bacterium that continues to be a major cause of opportunistic nosocomial infections. In *pseudomonas aeruginosa*, several quinolone resistance mechanisms have been proposed. The aim of this study investigation of *gyrA* mutations in drug resistant *pseudomonas aeruginosa* isolated from burned patients in Guilan hospitals by PCR-sequencing.
Methods: In this study, forty-five *pseudomonas aeruginosa*, isolated from different clinical samples identified by biochemical tests. The antibiotic resistance and susceptibility of strains was determined by Kirby Bauer method and then PCR-sequencing was carried out to assess gyrA mutations in drug resistant strains.
Results: The highest resistance for ciprofloxacin (CP) was seen in 1024 μg/ml. sequencing was done in part of the gyrA gene and the mutation T83I and D87Y was found in some strains.
Conclusions: Several mechanisms is responsible for antibiotic resistance in *pseudomonas aeruginosa*. Quinolones act by inhibiting the target enzymes DNA gyrase (*gyrA* and *gyrB*), subsequently inhibit DNA replication. Mutation in gyrase could be develop quinolone resistance. In this study has been revealed that quinolone resistance is associated with mutations in *gyrA*. It seems that gyr*A* mutations play important role in ciprofloxacin resistance development in Guilan.

Keywords: *gyrA, Pseudomonas aeruginosa*, quinolone resistance.

COMPARISON OF LEVEL OF BIFIDOBACTERIA IN HUMAN BABIES AND ADULTS

Shadi Khonsari, Mayuran Suganthy, Manika Choudhury, Azra Pachenari
Department of Natural Sciences, School of Science and Technology, Middlesex University, London, United Kingdom

Background: *Bifidobacteria* are among the first microorganisms that colonise humangastrointestinal tract. They are believed to play important rolesin human health by protecting against intestinal infections, enhancing the function of immune system, andimproving certain metabolic disorders.*Bifidobacteria* are the dominant bacteria in intestinal tract of breast-fed babies, while their population is lower in babies that are bottle-fed. However after few months their level in bottle-fed babies reaches that of breast-fed babies. As human ages the level of this bacterium reduces due to several reasons such as consumption of antibiotics, stress, diet and different therapies.The aim of this study was to quantify and compare the population of *bifidobacteria* in faecal samples from infants of less than 2 year old and adults of above 40 years to shed light on the level of reduction of this bacterium in gastrointestinal tract as human ages.In addition the impact of factors such as diet, weight, type 2 diabetes, drinking and smoking on the level of bifidobacteria in adults, and effect of diet and mode of delivery on bifidobacteria in babies was investigated.
Methods: Faecal samples from 10 babies and 10 adults were received in three different occasions diluted and cultured on BIM-25, a selective medium for *bifidobacteria.* Identification of *bifidobacteria* was confirmed by demonstration of presence of enzymeFructose-6- phosphate phosphoketolase.
Results: The results revealed that the level of *bifidobacteria* in adults varied from10^6 to 10^7CFU/ml and in babies from 10^9 to 10^{11} CFU/ml.
Conclusion: We conclude that combination of several factors affect the level of *bifidobacteria* in the gut. For example in adult population combination of age, diet, weight, health, and possibly other factors such as life style altogether play an important role on the level of bifidobacteria, while in babies combination of mode of delivery, type of milk baby is fed, health, age may determine the level of *bifidobacteria* in the gut.

Keywords: *Bifidobacteria*, Bactria

DETECTION OF ANTIBIOTIC-RESISTANT *ACINETOBACTER BAUMANNII* IN PATIENT'S BED

Zahra shamsizadeh[1], Mahnaz Nikaeen[1]*, Seyed Hamed Mirhoseini[1], Bahram Nasr Isfahani[2]
1. Department of Environmental Health Engineering, School of Health, Isfahan University of Medical Sciences, Isfahan, Iran
2. Department of Microbiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
E-mail: nikaeen@hlth.mui.ac.ir

Background: *Acinetobacter baumannii* has emerged as an important nosocomial microorganism which can cause a variety of infections including pneumonia, meningitis, septicemia, and urinary tract. This study was conducted to investigate the presence of antibiotic-resistant *Acinetobacter baumannii* in patient's bed as a potential transmission route of *Acinetobacter* in hospital environments.
Methods: A total of 24 Samples were taken from patient's bed in intensive care unit, internal and surgery wards of two hospitals during a period of 8 months and analyzed for the presence of *Acinetobacter baumannii.* Suspected colonies were verified by a PCR assay for the presence of blaOXA-51 gene. Antibiotic resistance of *Acinetobacter baumannii* isolates to gentamicin, ceftazidime and imipenem were examined by antimicrobial disc diffusion.
Results: *Acinetobacter baumannii* was detected in 25% of samples and a total of 24 *A. baumannii* were isolated. *Acinetobacter baumannii* isolates showed the highest antimicrobial resistance to imipenem (22 isolates) followed by ceftazidime and gentamicin. The results also showed that a high percent of isolates were multidrug resistance.
Conclusion: The results of this study revealed that patient's bed could act as a potential route for transmission of *Acinetobacter baumannii* in hospital environments.

Keywords: *Acinetobacter baumannii,* antibiotic resistance, hospital, patient's bed

EFFECTS OF CO-EXPRESSION OF CYTOPLASMIC CHAPERONE ON EXPRESSION OF RECOMBINANT HUMAN NERVE GROWH FACTOR

Seyedeh Mahdieh Sadat, *Mohammad Barshantashnizi, Zahra Hajihassan
Department of Life Sciences Engineering, School of New Sciences & Technologies, University of Tehran, Tehran, Iran
Email: mbarshan@ut.ac.ir

Background: The Nerve Growth Factor (NGF) is a member of neurotrophic factors which involves in survival, differentiation and growth of neurons. NGF has three disulfide bonds in its native structure. Therefore, because of its oxidative atmosphere, prokaryotic expression of recombinant NGF should be done via periplasm. In many cases, co-expression of molecular chaperones facilitates the secretion of the recombinant proteins to the periplasmic space enhances the protein solubility, whereas sometimes it destabilizes structure of the recombinant protein structure and reduces survival of the host cells.
Method: Three chaperone sets including Trigger Factor (TF), GroEL-GroES (GroELS) and Trigger Factor-GroEL-GroES (TF/GroELS) were co-expressed in a pairwise manner with an expression vector (PET39b) carrying recombinant nerve growth factor (rhNGF) gene in *E.coli* BL21 (DE3). Total protein was extracted by urea and the periplasmic fraction was prepared by osmotic shock in presence of lysozyme and PMSF. Expression of the recombinant NGF gene as a fusion protein was confirmed using Dot blot technique and concentration of the expressed NGF was determined and compared by analyzing the SDS-PAGE bands. Finally, the biological activity of the rhNGF was tested using PC12 cells.
Result: The results reveal that over-expressing of cytoplasmic combination of molecular chaperone containing TF can promote secretory production of rhNGF. Moreover, the rhNGF showed full biological activity when compared to commercial recombinant human nerve growth factor.
Conclusion: Our data suggest that co-expression of cytoplasmic chaperones with recombinant nerve growth factor might be an efficient approach to produce a proper quantity of active rhNGF for further clinical studies.

Keywords: nerve growth factor, molecular chaperones, recombinant proteins, co-expression

MOLECULAR IDENTIFICATION OF *ENTEROCOCCUS FAECALIS* AND EVALUATION OF MULTIPLE DRUG RESISTANCE IN ISOLATED STRAINS FROM CLINICAL SAMPLES IN HOSPITALS AND HEALTH CENTERS OF MARAND AND TABRIZ CITY, IRAN

***Abolfazl Jafari Sales[1], Behboud Jafari[2], Abolfazl Gorbani[3]**
1-Msc Student of Microbiology, Department of Microbiology, Ahar branch, Islamic Azad University, Ahar, Iran
2. Assistant professor, Department of Microbiology, Ahar branch, Islamic Azad University, Ahar, Iran.
3. Associated professor, Department of Animal Science, Shabestar Branch, Islamic Azad University, Shabestar, Iran.
Email: a.jafari_1392@yahoo.com

Background: This study aimed to determine multiple resistance in *Enterococcus faecalis* strains isolated from clinical samples in hospitals and health centers of Marand and Tabriz City.
Methods: 200 *Enterococcus* samples were collected from hospitals and health centers of Marand and Tabriz. *Enterococcus* species were identified by common standard phenotype and PCR methods. Susceptibility test to antibiotics was performed based on standard diffusion method CLSI. Drug resistance (MIC) was performed by E-test method on vancomycin-resistant samples.
Results: Of 200 isolate samples, 100 *Enterococcus faecalis* samples were identified. Susceptibility test results to antibiotics showed that *Enterococcus faecalis* had highest resistance to peniciline (83%), *tetracycline (43%) and* ciprofloxacin (41) and the highest susceptibility to *linezolid (87%), Imipenem (85%) and Teicoplanin (70%).*
MIC for vancomycin-resistant samples was ranging 32 to 256 μg. Multiple drug phenotype (resistance to three or more than three antibiotic classes) was observed in 30 strains.
Conclusion: The resistance to some antibiotics and high resistance to vancomycin are considered in *Enterococcus faecalis* strains as the selection of good treatment for infections by *Enterococcus* is reduced.

Keywords: *Enterococcus faecalis*, vancomycin-resistance *Enterococcus,* Multiple drug resistance

HIGH POTENTIAL APPLICATION IN TELLURITE BIOREMEDIATION BY *STAPHYLOCOCCUS XYLOSUS*

Mahboubeh Soleimani Sasani
Department of Microbiology, School of Biological Science, Shahid Beheshti University, Tehran, Iran
Email: ma_soleimani@sbu.ac.ir

Background: Potassium tellurite (K_2TeO_3) has long been recognized as toxic to eukaryotic and prokaryotic cells. Researchers documented the ability of some bacteria to reduce this toxic salt to elemental tellurium (Te^0) that is insoluble and found as black deposits in selective media. Its toxicity has been mainly related to the generation of reactive oxygen species (ROS).
Methods: 84 strains were isolated from industry wastes. Minimum inhibitory concentration (MIC) values determined with a concentration ranging from 25 to 6858 µg/ml potassium tellurite using spread plate method. A Gram-positive cocci strain can tolerance equal to 6604 µg/ml concentrations of K_2TeO_3. Reduction of tellurite to elemental tellurium determined with spectrophotometric measurement method and sodium diethyldithiocarbamate trihydrate reagent (DDTC, A_{340nm})
Results: halophilic Gram-positive cocci isolated from textile waste according to *16S rRNA* gene sequencing belong to *Staphylococcus xylosus* strains display tellurite-resistance and reduction with 40^0C as their optimal growth temperature. Maximum elimination in 24h observed in pH 6 - 8 , 400 mM NaCl , and 50 RPM under aerobic conditions. *S.xylosus* using the spectrophotometric technique eliminate 0.4mM of potassium tellurite in 24h.
Conclusion: resistant to tellurite and a high level of tellurite reduction by *S.xylosus* might be interesting for an application in the field of bioremediation.

Keywords: tellurite, bioremediation, bioreduction

A SEROLOGICAL STUDY ON CHOLESTEROL, HDL AND LDL CHANGES AMONG THE PEOPLE INFECTED WITH AMOEBIASIS IN ARDABIL, IRAN

Isa Behboudvand, *Mohammad Taghi Ahad, Keyvan Rajabalizadeh
Department of Biology, Ardabil Branch, Islamic Azad University, Ardabil, Iran
Email: mot_ahadi@iauardabil.ac.ir

Background: *Entamoeba histolytica* is a protozoan parasite of the gastro-intestinal tract of humans. This parasite infects approximately 50 million people worldwide, annually. It is the third most common cause of death from parasitic infections in the world. About 90% of infections are asymptomatic and only 10% produce a spectrum of disease varying from dysentery to amoebic liver abscess. In some studies, cholesterol has been reported to be a growth promoting factor of *E. histolytica*. This study was conducted in order to determine the serum levels of cholesterol, HDL and LDL among the patients with amoebiasis in Ardabil, Iran.
Methods: In suspected cases of *E. histolytica* infection, stool examination was requested. *E. histolytica* cases were identified using wet mount method. Of 532 suspected cases which were examined, 29 cases were positive for *E. histolytica*. Then the serum levels of Cholesterol, HDL and LDL were measured in 29 infected persons and 29 non-infected persons (the control group) using BT3000 Autoanalyzer. Finally, the data were analyzed by SPSS 22.
Results: The results showed significant decrease in the levels of cholesterol , HDL and significant increase in the levels of LDL among patients infected with *E. histolytica* as compared to the healthy control group(cholesterol Sig.<0.001, HDL Sig.= 0.023 and LDL Sig.<0.001).
Conclusion: The conclusion was that, there were significant differences in serum lipids profiles, between experimental and control groups. There may be some factors or enzymes, which allow the parasite to break up and consume lipid/ cholesterol.

Keywords: *Entamoeba histolytica*, cholesterol, HDL, LDL

BIODEGRADATION OF PHENANTHRENE AND NAPHTHALENE IN REFINERY SOIL

Sahragard, Parvaneh[1], *Hooshiyar Mansooreh[2]
1.Department of Biology, Branch Darab, Payam nor Unaivesity, Darab,Iran
2.Department of Chemistry, & Applied and Scientific University, Iran
Email: Hooshiyarmansooreh@gmail.com

Background: At the present century, scientists for many years are looking for away to remove contaminants from the soil and water environments.
The purpose of this research is to isolate and to identify hydrocarbons degrading bacteria from Shiraz Refinery soil.
Method: In this study, nutrient agar (NA), Mineral salt agar (MM2) wse used as basic cultures.
Using the Techniques Replica plating, we transferred colonies on Nutrient agar surface to the MM2 agar.
For spraying hydrocarbons on the MM2 agar surface we used Spray plating Technique. Finally we have identified different bacterial genera by using biochemical tests and morphological study.
Results:Upon examination on morphological studies and biochemical tests, it is determined that these strains belong to bacterial genera as follows: *Bacillus, Corynebacterium, Staphylococcus, Streptococcus, Klebsiella, Escbersia, Acinetobacter, Alcaligenes, Shigella .Enterobacter* It is also discovered that these bacteria can break down Biphenyl, Naphthalene, Camphor, Phenenthrene The results showed that, 93.3% Naphthalene Phenanthrene 53.3%, decomposition were isolated and they were identified among the bacteria genera. *Bacillus* was 48.8% of the bacterial population and accounted as the most dominant bacterial genus.
Conclusion: Statistical analysis showed that there is a significant relationship with the level of 0.05 among the station, the numbers, and the diversity of gram-positive bacteria.

Keywords: Degrading , Bioremediation, Refinery , soil

THE EVALUATION OF AFLATOXIN M1 CONTAMINATION IN RAW MILK (UNPASTEURIZED) USING ELISA METHOD

***Mazaher Ghorbani, Arman Rostamzad, Javad Hamedi**
Department of Microbiology, School of Science, University of Ilam, Ilam, Iran
Email: ghorbanimazaher68@gmail.com

Background: The B1 aflatoxin is the most poison aflatoxin that produces via fungi species in farm diet, and transferred to kidney and liver and under biochemical and hydroxylation reaction converted to M1 aflatoxin. This toxin contaminated human via milk and in liver and kidney had strong carcinogenic effects.
Methods: Out of 98 samples of unpasteurized milk collected in Ilam city from December 2013 to January 2014 during 3 mounts period. All samples transferred to microbiology laboratory in Ilam University and centrifuged at 3000rpm for 10m. The supernatant that was discard and skim milk was taken for competitive ELISA for detecting of M1 aflatoxin.
Results: Of 98 samples, 68 samples (69.38%) didn't show contamination with M1 aflatoxin and 30 samples (30.6%) were contaminated to M1 aflatoxin. The mean contamination was 18.1 ppt in 5 samples (5.1%), the M1 aflatoxin concentration was higher than Kodex standard and in 93 samples (94.89%), the rate of contamination were less than Kodex standard. In other hand the rate of M1 aflatoxin in all samples was less than maximum limitation of tolerance (100 ppt) in Iran.
Conclusion: The contamination to M1 aflatoxin in Ilam is less than tolerance limitation in Iran.

Keywords: M1 aflatoxin, raw milk, ELISA

CHEMICAL COMPOSITION AND ANTIMICROBIAL ACTIVITY OF THE EXTRACT FROM *ANTHEMIS COELOPODA BOISS. VAR. COELOPODA* STEM AND ROOT

Reyhaneh Abolhassani Chimeh[1], Abdolhossein Rustaiyan[2]*, Setareh Haghighat[3]
1. Department of Microbiology, Pharmaceutical Sciences Branch and Pharmaceutical Sciences Research Center, Islamic Azad University, Tehran-Iran (IAUPS)
2. Department of Chemistry, Science and Research Branch, Islamic Azad University, Tehran, Iran
3. Department of Microbiology, School of Advanced Sciences & Technology, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran - Iran (IAUPS)
Email: arustaiyan@yahoo.it

Background: Plants are able to make compounds with important biological effects such as antibacterial activity. Therefor investigation about antibacterial activity of plants as a nature source been considered.
Methods: The quality and quantity of hexane extract from *Anthemis coelopoda* Boiss. Root and stem by GC/MS explains. The antibacterial activity of the chloroform extract of *Anthemis coelopoda* Boiss. Root and stem evaluated by cup plate method and disc diffusion method against four bacterial strains including: *Staphylococcus aureus* (ATCC: 25923), *Bacillus subtilis* (ATCC: 1720), *Escherichia coli* (ATCC: 1399) and *Salmonella typhi* (ATCC: 1639). Finally minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) values by microdilution method were determined.
Results: The yields of the root and stem on dry weight basis was 1%. Twenty-tow components in root and stem (95%) were identified. The major components including: Ascorbic acid 2, 6-dihexadecanoate (32.1%), 1,2Benzenedicarboxylic acid, bis (2-methylpropyl) ester (14.8%), Trioctylamine (6.08%). maximum inhibition zone (12 mm) of extract was obtained against *Staphylococcus aureus* and *Bacillus subtilis*, at concentration of 6mg/ml and The best result of MIC and MBC was for *Bacillus subtilis* at the concentration of 0.187 mg/ml and 0.375 mg/ml.
Conclusion: our result obtained indicate that several compounds in root and stem of this plant identified by GC/MS analysis that showed principal factors for significant antibacterial, antioxidant and other activities. Also according our trials *Anthemis coelopoda* Boiss. can be considered as a natural source of antibacterial effects.

Keywords: Anthemis coelopoda Boiss.var.coelopoda, GC/MS, antimicrobial, root and stem

STUDY OF ANTIFUNGAL ACTIVITY OF AQUEOUS AND HYDROALCOHOLIC EXTRACTS OF PORTULACA OLERACEA L. ON *ASPERGILLUS FLAVUS*, *ASPERGILLUS NIGER* AND *CANDIDA ALBICANS*

Elham Amiri[1], Nahid Rahimifard[2]*, Behrooz Janat[3], Shahram Shoeibi[2], Neda Amiri[4]
1. Department of Food Industry, School of Agriculture, Varamin-Pishva Branch, Islamic Azad University, Varamin, Iran
2. Food and Drug Laboratory Research center (FDLRC), Food and Drug Control Laboratories,(FDCLs), Ministry of Health (MOH), Tehran , Iran
3. Halal Research Center (IRI), Food and Drug Administration, Tehran, Iran.
4. Department of Food Industry, School of Agriculture, Damghan Branch, Islamic Azad University, Damghan, Iran
Email: nahidrahimifard@gmail.com

Background: We decided to investigate the antifungal effect of aqueous and hydroalcoholic extracts of the aerial parts of the plant against *Aspergillus flavus*, *Aspergillus niger* and *Candida albicans* fungi based on minimum inhibitory concentration (MIC).
Methods: The plant was dried and powdered after gathering from the greenhouse of the plant bank of the National Center of Genetics and Biological Reserves of Iran, and using maceration method its ethanolic and aqueous concrete extracts were procured. After concentrating, the resulting extracts were stored in clean vials at refrigerator temperature. Four concentration levels of each extract, including 33, 16.5, 8.25, and 4.125 mg/ml, were selected. The MIC was determined using microplate dilution method.
Results: The highest inhibitory effect of ethanolic extract of *Portulaca oleracea L.* against *Aspergillus flavus*, *Aspergillus niger*, *Candida albicans* fungi was observed at 33 mg/ml concentration. The aqueous extract of *Portulaca oleracea L.* in the studied concentrations showed no inhibitory effects on the growth of the above-mentioned fungi.
Conclusion: The ethanolic extract of *Portulaca oleracea L.* plant has considerable antifungal effect and it can be used as a proper alternative to synthesized preservatives that microbial resistance to them is increasing day-by-day.

Keywords: *Portulaca oleracea L., Aspergillus flavus*, *Aspergillus niger*, *Candida albicans*, MIC

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EFFECT OF MUCIN ON BIOFILM FORMATION BY CLINICAL STRAIN OF *H. PYLORI*

***Bahareh Attaran, Tahereh Falsafi**
Department of Microbiology, School of Biological science, Alzahra University, Tehran, Iran
Email: attaranb@yahoo.com

Background: To understand the effect of mucin on biofilm formation of *H. pylori*, we tested the effect of mucin on biofilm formation in vitro.
Methods: A biofilm forming *H. pylori* strain selected by screening of *H. pylori* isolates obtained from patients with chronic infection was taken for this study. To evaluate the effect of native mucin on biofilm formation, it was tested under various experimentally conditions. In the first condition, the whole porcine mucin sterilized by gamma irradiation (dose of 3.5 kGy) was added to the culture medium (0.005 g/l). In the second method, Plates (96-well) were coated with 1 mg/well of mucin, and washed three times with PBS- 0.1% Tween 20, after overnight incubation at 37°C. Quantitative detection of biofilm was performed by staining of plates by crystal violet also TTC (2,3,5 Triphenyl tetrazolium chloride), followed by and measurement of OD by ELISA reader at 505 nm.
Results: In the plates treated by mucin, an additive effect was observed for adherence of bacterial cells to the wells of the plate. The OD in the wells treated by mucin was significantly ($P< 0.05$) higher in comparison with the non-treated plate. Also a difference ($P< 0.05$) was observed between in brucella broth supplemented with mucin and brucella broth without mucin.
Conclusion: These results indicate the relative importance of mucin in increasing the biofilm formation by *H.pylori*, reflecting its similar effect *in vivo*.

Keywords: *Helicobacter pylori*, chronic infection, biofilm, mucin

ANTIMICROBIAL RESISTANCE PATTERNS OF BACTERIA ISOLATED FROM PATIENTS WITH NOSOCOMIAL INFECTIONS AT TEHRAN HOSPITALS

Hamed Abdolghafoorian[1*], Fatemeh Fallah[2], Seddigheh Rafie Tabatabaei[2]
1. Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Pediatric Infection Research Center (PIRC), Mofid Children Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran
Email: hamedabdolghafoorian@gmail.com

Background: Nosocomial infections constitute a global health problem, leading to a high rate of morbidity and mortality. The aim of this study was to determine the most prevalent bacterial pathogens causing nosocomial infections and their antimicrobial resistant profiles in hospital admitted patients.
Methods: A total of 539 samples were obtained from 3 hospitals in Tehran, Iran from November 2014 to April 2015. Nosocomial infections were defined as a culture – proven infection, which occurred more than 48 hours after admission. Antimicrobial susceptibility testing was performed using disk diffusion method according to Clinical and Laboratory Standards Institute (CLSI) guidelines.
Results: Most prevalent bacterial pathogens causing nosocomial infections were found to be *Staphylococcus aureus*, *Pseudomonas aeruginosa*, and *Acinetobacter baumannii* with 98, 75 and 198 isolates, respectively. Cefepim and Meropenem were found to be the most effective antibiotics for nosocomial infections caused by *Staphylococcus aureus* with only 1 resistant isolate. Resistance to Gentamicin and Amikacin and susceptibility to Cefepim was the highest amongst *Pseudomonas aeruginosa* isolates which is in consistent with the fact that cephalosporins remain useful agents for management of nosocomial infections caused by *Pseudomonas aeruginosa*. *Acinetobacter* isolates showed lower susceptibility rates to Imipenem and Ciprofloxacin with 189 and 187 resistant isolates; however 155 isolates were susceptibile to Co-trimoxazole and Ceftazidime. The high resistant rate amongst *Acinetobacter baumannii* to carbapenems is likely consequence of heavy empirical usage of these antibiotics.
Conclusion: Future regional epidemiological data on antimicrobial resistance patterns will be required to implement strict national antibiotic policies to restrict the spread of these resistance bugs.

Keywords: Nosocomial infections, antimicrobial resistance, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Acinetobacter baumannii*.

EFFECT OF PROBIOTICS ON HUMAN HEALTH

Hajar Yousefi
Department of Food Science and Technology School of Agriculture, Isfahan University of Technology, Isfahan, Iran
Email: yousefi_shokouh@yahoo.com

Background: Probiotics are the live microorganisms that, when administered in adequate amounts, confer a health benefit on the host. There are several evidences supporting potential clinical applications of probiotics in the prevention and treatment of diseases.
Methods: Infections of the urogenital tract in women has been associated with the absence of lactobacilli in the vagina. The organisms associated with bacterial vaginosis include a variety of anaerobic gram-negative rod-shaped bacteria. Complications arising from bacterial vaginosis include increased risk of sexually transmitted diseases including human immuno deficiency virus and elevated risk of preterm birth.Coronary heart disease is one of the major causes of death. One of the major preventative strategies for treatment of the disease is to manage blood cholesterol.Some human pathogenes exist in multi-cellular known as biofilm that increased tolerance to host immunological defenses.
Results: Probiotics can colonize the vagina, displace and kill pathogens including *Gardnerella vaginalis* and *Escherichia coli*, and modulate the immune response.Probiotic bacteria can influence hepatic cholesterol synthesis and/or the redistribution of cholesterol from the plasma to the liver. Probiotic bacteria interfere with cholesterol absorption from the intestine by deconjugating bile salts, preventing reabsorption or by directly assimilating cholesterol. EPS produced by probiotics can prevent biofilm formation by a wide range of Gram-negative and-positive pathogens. This property can lead to the development of novel food-grade adjuncts for microbial biofilm control.
Conclusion: Today it is accepted that daily intake of probiotics contributes to improving and preventing diseases. Therefore, probiotics have been widely used in therapeutic applications.

Keywords: Probiotics, Disease, Therapeutic applications.

THE PREVALENCE OF *TEM*, *SHV* AND *CTX-M* B-LACTAMASE GENES IN *KLEBSIELLA PNEUMONIAE* STRAINS ISOLATED FROM URINE SAMPLES COLLECTED FROM UNIVERSITY HOSPITALS

Amin Dehghan Banadkouki[1], *Hengameh zandi[2], Gilda Eslami[3], Ali Dehghan Banadkouki[4]
1. MSc Student of Medical Microbiology, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
2. Assistant Professor in Department of Medical Microbiology, Research Center For Molecular Identification of Food Hazards, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
3. Assistant Professor in Department of Medical Parasitology and Mycology, Research Center For Molecular Identification of Food Hazards, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
4. BSc of Laboratory Science, Laboratory of Imam Khomeini Hospital, Karaj, Iran
E.mail: hengameh_zandi@yahoo.com

Background: The aim of this study was to determine the prevalence of the *TEM*, *SHV* and *CTX-M* β-lactamase genes in *Klebsiella pneumoniae* strains isolated from urine samples of four university hospitals in Karaj and Yazd.
Methods: In this descriptive-sectional study, from December 2013 to August 2014, 130 isolates of *Klebsiella pneumoniae* were collected from hospitalized patients with urinary tract infections and identified by biochemical tests. Antimicrobial susceptibility test was evaluated by standard disk diffusion method (Kirby-Bauer) that has been recommended by the CLSI. MIC of ceftazidime was determined by E.test method. The confirmatory combination disk test was used to characterize the presence of ESBLs. Detection of bla_{TEM}, bla_{SHV} and bla_{CTX-M} were analyzed by multiplex PCR and DNA sequencing.
Results: the highest rate of resistance was belonged to amoxicillin (100%) and cefotaxime (41.5%) respectively and the lowest rate of resistance was for meropenem (3.8%) and ertapenem (3.8%). 46 (35.4%) isolates were identified as ESBL producers. *TEM*, *SHV* and *CTX-M* genes were detected in 41 (31.5%), 46 (35.4%), 46 (35.4%) isolates, respectively.
Conclusion: The results of this study show the high prevalence of antibiotic resistance and ESBLs production. So it is necessary for screening of ESBLs in clinical samples by laboratory.

Keywords: *Klebsiella pneumoniae*, ESBLs, Multiplex PCR

PHENOTYPIC AND MOLECULAR CHARACTERIZATION OF EXTENDED-SPECTRUM B-LACTAMASE PRODUCED BY *KLEBSIELLA PNEUMONIAE* STRAINS ISOLATED FROM URINE SAMPLES COLLECTED FROM KARAJ UNIVERSITY HOSPITALS

Amin Dehghan Banadkouki[1], Gilda Eslami[2], Hengameh Zandi[3]*, Ali Dehghan Banadkouki[4]
1. MSc student of Medical Microbiology, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
2. Assistant Professor in Department of Medical Parasitology and Mycology, Research Center For Molecular Identification of Food Hazards, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
3. Assistant Professor in Department of Medical Microbiology, Research Center For Molecular Identification of Food Hazards, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.
4. BSc of Laboratory Science, Laboratory of Imam Khomeini Hospital, Karaj, Iran
E.mail: hengameh_zandi@yahoo.com

Background: The aim of this study was to determine the phenotypic and molecular characterization of extended-spectrum β-lactamase producing *Klebsiella pneumoniae* strains isolated from urine samples in Karaj university hospitals.
Methods: In this descriptive-sectional study, from December 2013 to August 2014, a total of 65 isolates of *Klebsiella pneumoniae* were collected from hospitalized patients with urinary tract infections and identified by biochemical tests. Antimicrobial susceptibility tests were evaluated by standard disk diffusion method (Kirby-Bauer) recommended by the CLSI. MIC of ceftazidime was determined by E.test method. The combination disk test was used for confirm the presence of ESBLs. Detection of sequences coding for bla_{TEM}, bla_{SHV} and bla_{CTX-M} were performed with multiplex PCR and DNA sequencing.
Results: The highest rate of resistance was belonged to amoxicillin (100%) and the lowest rate of resistance was for meropenem (4.6%) and ertapenem (4.6%). 32 (49.2%) isolates were identified as ESBL producer and bla_{TEM}, bla_{SHV} and bla_{CTX-M} were detected in 30 (46.2%), 32 (49.2%), 32 (49.2%) isolates, respectively.
Conclusion: The results showed that the prevalence of ESBL producing strains among clinical isolates has been increasing. Advance drug resistance surveillance and molecular characteristics of ESBL producing isolates are necessary to guide the appropriate antibiotic use.
Keywords: *Klebsiella pneumoniae*, Urinary tract infection, ESBL

THE PREVALENCE OF PREVALENCE OF SUPERANTIGENIC TOXIN GENES IN CLINICAL ISOLATES OF STAPHYLOCOCCUS AUREUS IN AHVAZ

Atefeh Fahmideh[1*], Shohreh Zare-Karizi[1], Dr. Maryam Eidi[1], Omid Hosseini[2], Pelin Aslani Menareh bazari[1]
1. Departman of Biology, Islamic Azad University (varamin-Pishva Branch), Tehran, Iran
2. Shahid Beheshti University of Medical Sciences, Central 4367Lab, Tehran, Iran
Email: Fahmideh.atefeh@gmail.com

Background: The purpose of this study was assignment *seo*, *sen*, *sep*, *seq*, *ser* and *sel* enterotoxin genes frequency in *S. aureus* isolates from Ahwaz.
Methods: This study was performed on 231 isolates of *S. aureus*. Blood, urine, abscess, ulcer, mucus, and trachea samples were collected from patients admitted to Sina, Abuzar, Arya, and Golestan hospitals. At first, *S. aureus* strains were detected by biochemical assays (Gram staining, catalase, Slide coagulase test, Tube coagulase test, Manitol fermentation, and heat resistant nuclease). To detect *seo, sen, sep, seq*, *ser* and *sel* encoding genes in *S. aureus* isolate DNA extracted. The mentioned genes were amplified by multiplex PCR, while *16S rRNA* considered as internal control.
Results: Among the 231 studied strains of *S. aureus*, the frequency of *seq*, *seo*, *sep*, *sen*, *ser* and *sel* were 23.17%, 8.94%, 13%, 4.06%, 4.87% and 4.87% respectively. The most commonly detected toxin was *seq* gene, while *sen* gene has the lowest.
Conclusions: This assay offers a very specific, quick, reliable, and inexpensive alternative to conventional PCR assays used in clinical laboratories to identify various *staphylococcal* toxin genes.

Keywords: *Staphylococcus aureus*, Enterotoxin, multiplex PCR

DETERMINATION OF GENETIC DIVERSITY IN *UROPATHOGENIC ESCHERICHIA COLI* BY RAPD METHOD

***Hossein Ali Abdi[1], Ahmad Rashki[2], Zahra Rashki Ghalehnoo[3]**
1. Department of Biology, School of Basic Science, University of Zabol, Zabol, IR Iran
2. Department of Physiopathology, School of Veterinary Medicine, University of Zabol, Zabol, IR Iran
3. Departments of Microbiology and Parasitology, School of Medicine, Zabol University of Medical Sciences, Zabol, Iran
Email: genetics60@gmail.com

Background: Uropathogenic *Escherichia coli* (UPEC) is the most important cause of urinary tract infections (UTIs). The vast majority of UTIs are caused by a large, genetically heterogeneous group of *E. coli*. Random amplified polymorphic DNA (RAPD) is a very useful technique for typing the genomes of bacteria, and it has been used to characterize microorganisms.
Methods: In this study, 100 *E. coli* isolates were collected from patients with UTI in Zabol, Iran teaching hospitals. All colonies were confirmed as *E. coli* by conventional biochemical testing, DNA was extracted from the *E. coli* isolates by boiling lysis. RAPD method was used to genetically characterize these isolates. The primers used were 2H (5-AAGCTTCGACTGT-3) and 3H (5-AAGCTTGATTGCCC-3). DNA patterns of UPEC were compared using NTSYSpc 2.1 software.
Results: The molecular masses of the fragments obtained with the 3H and 2H primers ranged between 100 and 5000 bp. Results obtained by means of RAPD showed different profiles of genomic DNA. These molecular profiles were highly reproducible, allowing the analysis of different genotype profiles by means of a dendrogram.
Conclusions: In conclusion, it may be suggested that the RAPD technique may provide a rapid, low cost, simple and powerful tool to study the clonal epidemiology of rapid *Escherichia coli* infections.

Keywords: Uropathogenic *Escherichia coli,* urinary tract infections, RAPD.

EFFECT OF CULTURE FILTRATES OF *PSEUDOMONAS AERUGINOSA* ON NODULATION OF SINORHIZOBIUM MELILOTI IN ALFALFA ROOTS

***Fatemeh Erfani Jahed[1], Mahboobeh Nakhaei Moghaddam[2], Mohammad Mahdi Forghanifard[1]**
1. Department of Biology, Damghan Branch, Islamic Azad University, Damghan, Iran
2. Department of Biology, Mashhad Branch, Islamic Azad University, Mashhad, Iran
Email: erfaniii22@yahoo.com

Background: Due to the use of *Pseudomonas* species as a biological fertilizer to strengthen the legume family of plants, the aim of this study was to evaluate the effects of culture filtrates of *P. aeruginosa* on nodulation of *Sinorhizobium meliloti* in alfalfa roots in vitro.
Methods: *Sinorhizobium meliloti* bacterias were collected from alfalfa root nodules and were identified by using biochemical tests.*P. aeruginosa* ATCC 1074 was cultured in nutrient broth. The suspension was centrifuged at 2500 rpm. Supernatant was transferred to a sterile tube using a 0.22 µm syringe filter. Finish Peat media (without nitrogen) containing different concentrations of culture filtrate of *P. aeruginosa* were prepared. Sterile seeds of alfalfa variety Hamadani were grown in the tubes. After appearing of hairy roots, 1 ml of bacterial suspension was added and tubes were kept for 1 month in the same conditions of temperature and light.Culture filtrates of *Pseudomonas aeruginosa* was not added to the control tube.Formation of nodules in the treated plants, their number and size were compared to controls.
Results: In this research 15 isolates of *sinorhizobium meliloti* were collected.All of the isolates were oxidase and catalase positive,no gelatinase and amylase.As indicated, by increasing concentrations of culture filtrate of *P. aeruginosa* in tubes, the number of nodules decreased in the roots of alfalfa plants and at higher concentrations node is not formed.
Conclusions: The results of this research showed that by increasing the culture filtrate of *P. aeruginosa*, the number of nodules decreased in the roots of alfalfa plants. A negative impact on the symbiosis was seen at higher concentrations of culture filtrate that led to the absence of nodules in alfalfa roots.

Keywords: *Pseudomonas Aeruginosa*, *Sinorhizobium meliloti*, Symbiosis, Alfalfa

POSSIBLE ACCOSIATION BETWEEN MALE INFERTILITY AND CHLAMYDIA TRACHOMATIS AND MYCOPLASMA GENITALIUM INFECTION

***Reyhaneh Karimian[1], Raoul Roghanian[2], Zahra Etemadifar[1]**
1. Msc Student, Department of Biology, School of Science, University of Isfahan, Isfahan, Iran
2. Department of Biology, School of Science, University of Isfahan, Isfahan, Iran
Email: Rj.Karimian@gmail.com

Background: The aim of this study was to determine the prevalence of *C.trachomatis*, *M.genitalium* in semen samples of 50 male partners of infertile couples and 50 male partners of fertile couples.
Methods: In this study 50 semen samples were collected from Fertility & Infertility Center in Isfahan. Also, 50 semen samples were collected from healthy individual, as control. Male samples were analyzed according to the World Health Organization guidelines. Specimens were examined for the presence of *M.genitalium* and *C.trachomatis* by PCR.
Results: Among 50 samples collected from infertile men, 4 and 2 were infected with *C.trachomatis* and *M.genitalium*, respectively. Samples belong to the healthy individual showed 2 and 2 positivity for *C.trachomatis* and *M.genitalium*, respectively.
Conclusion: These results showed that there is a relationship between infertility and *C.trachomatis* infection. On the other hand, based on findings in this study, there was no association between *M.genitalium* and infertility but yet the importance of genital tract microorganisms as an etiologic factor in male infertility is still a controversial topic.

Keywords: *Chlamydia trachomatis, Mycoplasma genitalium,* male infertility

COMPARISON OF ORDINARY VERMIWASH AND ENRICHED VERMIWASH TREATED WITH HERBAL EXTRACT AND AQUA-BIO FERTILIZERS

***Minoo Foroozandeh[1], Mohammadreza Davari[2], Marjan Varmazyar[2]**
1. Biology Department, Malayer University, Malayer, Iran
2. Agricultural Department, PNU, Arak, Iran
Email: minoo.for105@gmail.com

Background: Vermiwash acts as a plant tonic and helps to reduce many plant diseases and it is potential application in sustainable development for agriculture and biotechnology.
Methods: Enriched vermiwash is a mixed bio fertilizer contains vermiwash enriched with aquarium and bioreactor (nitrosomonas, nitrobacter and nitrospira) water which increase amount of macronutrients particularly nitrogen and herbal (aloe vera and nettle) extracted by mountain microorganisms in half proportion. There were two different vermiwash units with same material inside, but one of them irrigated with water enriched with aqua-bio water. In addition, second component mixed with herbal extracts obtained from biological reaction with mountains effective microorganisms. All materials and methods used are permitted in organic agriculture rules enacted by International Federation of Organic Agriculture Movement (IFOAM).
Results: The results showed increase in cellulose enzyme, hetero-nitrobacteria, total kjeldahl nitrogen and total dissolved solids of enriched vermiwash in comparison with ordinary one. However, the ordinary vermiwash showed more content of electrical conductivity and coliform compared with enriched vermiwash. In the present experimental values of available phosphate and potassium and organic carbon were approximately same in both treatments.
Conclusion: It revealed that the chemical and biological quality of vermiwash can be increased with adding mountain effective microorganisms, herbal extract and aqua-bio liquid.

Keywords: Aloe vera, bio fertilizer, effective microorganisms and nettle.

COMPOSITION AND ANTIMICROBIAL ACTIVITY OF THE ESSENTIAL OIL OF OPSICARPIUM INSIGNIS MOZAFF. (APIACEAE)

Asra Bakhshizade[1*], Ali Sonboli[2], Atousa Aliahmadi[2]
1. Department of Phytochemistry and Essential oil Technology, School of Pharmaceutical chemistry, Parmaceutical Sciences Branch, Islamic Azad University, Tehran-Iran (IAUPS).
1. Medicinal Plants and Drug Research Institute, Shahid Beheshti University, Tehran, Iran.
Email: a_parastoo77@yahoo.com

Background: Monotypic jenus of *Opsicarpium* Mozaff belongs to Apiaceae and contains just *Opsicarpium insignis* Mozaff species in Iran.
Methods: In this study, aerial parts of the plant were collected in Lorestan province. Essential oil (EsO) of the plant was extracted by Clevenger apparatus and was analyzed by GC and GC-MS technique. Antimicrobial activity of EsO was assessed by determination of minimum inhibitory concentration (MIC) as recommended by clinical and laboratory standard institute (CLSI). Microbial strains were as follow: *Staphylococcus aureus* (ATCC 25923), *Streptococcus epidermidis* (PTCC 1435), *Escherichia coli* (ATCC 25922), *Bacillus subtilis* (PTCC 1023), *Enterococcus faecalis* (ATCC 29212), *Pseudomonas aeruginosa* (PTCC 1430), *Klebsiella pneumonia* (clinical isolate), *Aspergillus niger* (Lab Isolate), *Candida albicans* (ATCC 10231) and *Saccharomyces cerevisiae* (Lab Isolate). Chlorampenicol used as standard antibiotic.
Result: 52 different substances were identified by GC and GC-MS techniques. Limonene (17.9%), α-Pinene (17.5%), 1,1,4,4-tetramethyltetralin-2,3-dione (8.1%), δ-3 carene (8.0%) , germacrene B(7.9%) and α-copaene (7.7%) were the major constituent of assessed EsO. The results showed that the lowest MICs against studied bacteria were 0.312 mg/ml for *B. subtilis* and *S. epidermidis*, and 1.25 mg/ml for *S. aureus*. All Gram negative bacteria were inhibited in concentrations ≥5 mg/ml. *Candida albicans* strain was inhibited in 2.5 mg/ml of EsO, while other tested fungi were inhibited in concentrations ≥5 mg/ml.
Conclusion: EsO of *Opsicarpium insignis* Mozaff has relatively good activity against Gram positive bacteria and moderate potency as inhibitor of Gram negative bacteria and fungi.

Keywords: Essential oil,*Opsicarpium insignis* Mozaff, Limonene, Antimicrobial, *Baciluss subtilis, Escherishia coli*

PRODUCTION AND PURIFICATION OF RABBIT'S POLYCLONAL ANTIBODY AGAINST EXOTOXIN A-FLAGELLIN OF PSEUDOMONAS AERUGINOSA

Jaafar Majidi[2*], Asghar Tanomand[2,3], Mahin Salimi[1,2]
1. Department of Microbiology, Islamic Azad University, Ahar Branch, Tabriz, Iran
2. Department of Immunology and Immunology Research Center, Tabriz University of Medical Sciences, Tabriz, Iran.
3.Maragheh School of Medical Scieneces,Tabriz, Iran
E-mail: jmajidiz@yahoo.com

Background: Polyclonal antibodies are important reagents utilized in a variety of experimental techniques in many fields of biomedical research. *Pseudomonas aeruginosa* has a variety of intrinsic and acquired resistance to antibiotics and also Flagellin and Exotoxin A are the main virulence factors of *Pseudomonas aeruginosa*. The aim of this study was production and purification of polyclonal IgG against exotoxin A-flagellin.
Methods: In this research, we raised polyclonal IgG to a exotoxin A-flagellin in rabbit. The IgG fraction was purified by Ion- Exchange Chromatography. Indirect ELISA was used to determine the optimum titer of IgG in rabbit sera.
Resuls: This recombinant protein can be used as a usefull antigen to stimulate the immunity response of rabbit and Ion Exchange Chromatography is one of the best methods to purifying this recombinant protein. The purity of IgG preparations was about 95%.
Conclusion: The produced antibody has many applications in reaserch, clinic and education. This purified polyclonal antibody can be used for immunotherapy and monitoring of *P. aeruginosa* infections.

Keywords: Recombinant Protein, *Pseudomonas aeruginosa,* Indirect-ELISA, IgG

TUMOR NECROSIS FACTOR-α 308G/A POLYMORPHISM AND RISK OF TUBERCULOSIS IN AZERI POPULATION OF IRAN

Mohammad Asgharzadeh[1], *Sajjad Ghorghanlu[2], Hossein Samadi-Kafil[3], Fatemeh Khaki-Khatibi[4], Jalil Rashedi[1], Mahya Pourostadi[5]

1. Department of Laboratory Sciences, Paramedical School, Tabriz University of Medical Sciences, Tabriz, Iran.
2. Biotechnology Research Center, School of Advanced Medical Sciences, Tabriz University of Medical Sciences, Tabriz, Iran.
3. Drug Applied Research Center, School of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran.
4. Department of Clinical Biochemistry, School of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran.
5. Infectious Disease and Tropical Medicine Research Center, Tabriz University of Medical Sciences, Tabriz, Iran.
E–mail: Ghorghanlu@yahoo.com

Background: TNF-α -308G/A polymorphism may alter the expression of TNF-α, therefor this polymorphism can affect the immune response to *Mycobacterium tuberculosis*. The aim of this study was to investigate the association of TNF-α -308G/A single nucleotide polymorphism (SNP) with susceptibility to tuberculosis (TB) in the Azeri population of Iran.
Methods: The TNF-308G/A SNP was genotyped using the amplification refractory mutation system (ARMS)-PCR in 200 healthy control subjects and 124 tuberculosis patients.
Results: Allele frequency of TNF-α -308G/A polymorphism did not significantly differ between the control and patient groups (P-value= 0.058, Pc= 0.116). Furthermore, no significant difference was observed in the distribution of TNF-α -308G/A genotypes between controls and patients (*P-value*=0.102).
Conclusion: Our findings suggest that TNF-α -308G/A SNP is not associated with susceptibility to tuberculosis in Azeri population of Iran.

Keywords: Association, single nucleotide polymorphism, tuberculosis, tumor necrosis factor-α

THE PHENOTYPIC IDENTIFY OF BIOFILM FORMATION OF *STAPHYLOCOCCUS AUREUS* ISOLATES FROM MILAD HOSPITAL,TEHRAN

Pelin Aslani Menareh Bazari[1]*, Sahar Honarmand Jahromy[2], Shohreh Zare Karizi[2], Omid Hosseini[1], Atefeh Fahmideh[1]

1. Shahid Beheshti University of Medical Science, Central Laboratory, Tehran,Iran
2. Department of Biology, Islamic Azad University (varamin-Pishva Branch),Tehran,Iran
Email: aslani.pelin@gmail.com

Background: The aim of study was to investigate biofilm forming ability of *Staphylococcus aureus* strains isolated from patients in Milad Hospital, Tehran by phenotypic method.
Methods: 121 *Staphylococcus aureus* strains were recovered from clinical specimens of patients. Isolates were identified by culturing on blood agar, Mannitol salt agar, Gram staining, Catalase, cuagolase and DNase tests. Slime production was evaluated by cultivation of isolates on Congo Red Agar plates. The inoculated plates were incubated at 37^{O} C in aerobic conditions. EPS production was assessed by Indian ink staining of wet mount preparation of strains on CRA and light microscopic examination.
Results: 16(22.13%) strains had Black colonies with rough surface were considered as a positive slime production, 50(32.41%) had black colonies with smooth surface or red colonies with rough surface as intermediate and 55(45.55%) had colonies with smooth and round surface were indicative as negative slime production. Among isolates, 102(84.3%) showed a distinct halo transparent zone surrounding the linked cells similar to a capsule layer but 19(15.7%) showed no halo zone.
Conclusions: The results showed that most of strains had ability of EPS production that may be increased the adherence of bacteria on surface and lead to biofilm formation. We suggest that this method could be used as screening method for detection of positive biofilm strains.

Keywords*: Staphylococcus aureus* , Biofilm formation, CRA, PS production

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OCCURRENCE OF VIRULENCE FACTOR OF GELE IN *ENTEROCOCCUS FAECALIS* AND *ENTEROCOCCUS FAECIUM* COLLECTED FROM HUMAN SAMPLES IN TEHRAN-IRAN

Shiva Rostamzadeh[1], *Reza Mirnejad[2], Faramarz Masjedian[3], Somayyeh Saeidi[1]
1. Department of Microbiology, School of Advanced Sciences and Technology, Pharamaceutical Sciences Branch, Islamic Azad University, Tehran, Iran (IAUPS).
2. Molecular Biology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran.
3. Department of Microbiology, School of Medicine, Iran University of Medical Sciences, Tehran, Iran.
Email: mirnejad@bmsu.ac.ir

Background: Despite being the third most common nosocomial pathogen, our understanding on its virulence factors is still poorly understood. The current study was aimed to determine the prevalence of virulence gene of gelatinase (*gelE*) in *Enterococcus faecalis* and *Enterococcus faecium* by molecular method.
Methods: In this descriptive– cross sectional survey, 300 clinical specimens were collected from Baqiyatallah and Milad hospitals. After identification of isolates in species level using cultural and biochemical methods, in order to presence of *gelE* gene a couple of *gelE* primers were designed and the PCR was done.
Results: Among 300 clinical specimens obtained from Milad and Baqiyatallah hospitals 143 isolates were Enterococcus, in which, of 143 *Enterococcal* isolates, 128 (89.51%) and 15 (10.48%) were *E. faecalis* and *E. faecium*, respectively. Of 128 of *E. faecalis* isolates, 105 (82.03%) and of 15 *E. faecuim* isolates, 9 (60%) had *gelE* gene and produce gelatinase enzyme.
Conclusion: The results showed that most isolated strains from patients contain gelatinase gene and this enzyme play an important role in pathogenicity of *Enterococcus*. However, other factors can also play a role in developing diseases by these species.

Keywords: *Enterococcus faecalis*, *Enterococcus faecuim*, Gelatinase (gelE), Virulence factors

PSEUDOMONAS AERUGINOSA RESISTANCE PHENOTYPES AND PHENOTYPIC HIGHLIGHTING METHODS

***Somayeh Dastmozd[1], Rashid Ramazanzadeh[2] Mohammad Hosein Dareshiri[1]**
1. Student Research Committee and Microbiology Department, School of Medicine, Kurdistan University of Medical Sciences, Sanandaj- Iran
2. Cellular & Molecular Research Center and Microbiology Department, School of Medicine, Kurdistan University of Medical Sciences, Sanandaj- Iran
Mail: somaye_dastmozd@yahoo.com

Background: The purpose of this study was to evaluate the prevalence of ESBLs (Extended spectrum beta lactamases) and MβL (metallo beta lactamase) producing and multidrug resistant (MDR) in *P. aeruginosa* isolated from clinical specimens of patients.
Methods: This descriptive study was carried out on 60 non-replicate clinical isolates of *P. aeruginosa* from two hospital in Sanandaj in 2014. To detect possible ESBL production, combined disk synergy tests were performed with disks containing Ceftazidime, Cefpodoxime, Cefotaxime & Amoxicillin. Multidrug-resistant isolates were defined as those resistant to three or more classes of anti *pseudomonal* agents. The multidrug resistant *P. aeruginosa* isolates were screened for the presence of MβL by imipenem-EDTA disk method.
Results: The highest resistance rates from the isolated *P. aeruginosa* were shown against piperacillin, imipenem, cefotaxime, ceftriaxone, gentamicin, ceftazidime, aztreonam, and ciprofloxacin. 56.6% multi-drug resistant *Pseudomonas aeruginosa* isolates (N=34) were identified. 33.3% isolates (N= 20) were ESBL producers and 11.6% isolates (N= 7) were found to be Metallo beta lactamas resistant.
Conclusion: MDR, ESBL and MβL were examined the main resistance patterns of the strains evaluated in this study. Clearly, improved interpretation of antibiotic susceptibility tests is important for a better appreciation of the effect of antimicrobial agents on bacteria such as *P. aeruginosa*.

Keywords: *Pseudomonas aeruginosa*, Multi-drug resistance, ESBL, MβL

THE EFFECT OF AQUATIC AND ETHANOLIC EXTRACT OF MALVA SYLVESTRIS ON CANDIDA COLONIZATION IN LIVER AND KIDNEY IN *CANDIDA* ALBICANS INFECTED MICE

***Shirin Hajyani[1], Mehrdad Modaresi[2], Mahboobeh Madani[1]**
1. Department of Microbiology, Islamic Azad University, Falavarjan Branch, Isfahan, Iran
2. Department of Physiology, Islamic Azad University, Isfahan (Khorasgan) Branch, Isfahan, Iran
Email: shirin_hajyani@yahoo.com

Background: Using pharmaceutical plants has been always one of the best ways to treat disease with less side effects. *Candida albicans* is on opportunist yeast which causes two groups of topical and superficial infection. Therefore, finding herbal extract with effective matters can be useful in preparing drugs. The goal of this research was studying the effect of aquatic and ethanolic extract of *Malva sylvestris* on candida colonization and weight changes of liver and kidney in *Candida albicans* infected mice.
Methods: Ninety female mice from NMRI race from the weight of 25 to 30 gr were selected and divided randomly into nine groups with 10 members in each group. Groups were control /placebo/ candida and six *Malva sylvestris* + Candida groups (50,100 and 200 mg/kg). Control didn't receive any injection, placebo received normal salin injection. The extract was injected 10 times for 20 days. Infection was enforced in sixth day by peritoneum injection (1×10^6 cfu/ml concentration). After 23 days, the mice were sacrificed, liver and kidney were weighed by Digital scale, and the concentration of *Candida albicans* in these organs were evaluated by cultivation of three consequence dilution of tissue homogenized.
Results: Aquatic and ethanoilc extract of *M.sylvestris* reduced *Candida albicans* in liver and kidney homogenized significantly. Also, it reduced the weight of liver at control level.
Conclusion: Results showed that aquatic and etanolic extract of *M.sylvestris* caused treatment of *Candida albicans* infection in infected mice.

Keywords: *Malva sylvestris, Candida albicans, mice*

IDENTIFICATION OF NEW SULFUR COMPOUNDS OXIDIZING *RHODOCOCCUS* BY USING DGGE TECHNIQUE

***Fatemeh Nazari[1], Jamshid Raheb[1], Mohammad-Esmaeel Kafayati[1]**
National Institute of Genetic Engineering and Biotechnology, Tehran, Iran
Email: fatemehn30313@yahoo.com

Background: In this project, by using of DGGE technique, high-precision technique, were done to identify the bacteria isolated.
Methods: samples were collected of refinery and transferred to the laboratory at flasks containing mineral medium plus trace metal elements. Then within 4 weeks, the bacteria were aerated and were grown on solid mineral medium plus trace metal elements. The colonies appeared was transferred on the medium containing different percentages of thiosulfate then of growth capable bacteri, were identificated by genetically (universal PCR and DGGE, a molecular fingerprinting method,) and chemically analysis. Finally, to ensure of the ability of sightly strain, selected strain was grown in medium containing different percentages of sodium sulfide and sulfide and sulfite analysis done on it.
Results: that results showed, isolated strain of bacteri is a new strain of *Rhodococcus* that is able to degradation of sulfur compounds.
Conclusion: According to the studies were done, the identification of oxidizing sulfur compounds bacteria by using DGGE technique is for the first time in the world and has had no report in this regard.

Keywords: sulfur compounds, *Rhodococcus*, DGGE

THE ANALYSIS OF ANTIFUNGAL EFFECTS OF ETHANOLIC EXTRACT OF GREEN TEA LEAVES IN VITRO

Nazila Jalili, *Azar Sabokbar
1- MSc, Department of Microbiology, Karaj Branch, Islamic Azad University, Karaj, Iran
Email: sabokbar@kiau.ac.ir

Background: The present study is intended to examine the antifungal effect of ethanolic extract of green tea leaves on several epidemic pathogenic fungi in Iran in order to replace a medicinal herb with the existing chemical drugs.
Methods: Some varieties of fungi including *Aspergillus Flavus*, *Candida Albicans*, and dermatophyte fungi like *Epidermaphyton Floccosum*, *Trichophyton Mentagrophytes*, and *Microsporum Canis* prepared by Pasteur Institute of Iran were tested on standard serotype in vitro. To analyze the antifungal function of extracts, agar diffusion technique was employed by using measurement of diameter of non- growth halo as well as determination of Minimum Inhibitory Concentration (MIC), and Minimum Fungicide Concentration (MFC) through macro broth dilution test.
Results: The ethanolic extract did not affect on *Candida Albicans* and *Aspergillus Flavus* in agar diffusion technique and there was not halo of lack of growth even at the highest concentration level 500mg/ml. Under such a concentration, the rates of halo of lack of growth were obtained for *Epidermaphyton Floccosum*, *Trichophyton Mentagrophytes*, and *Microsporum Canis* as 26.5mm, 17mm, and 25.25mm, respectively. The rate of MIC = 250mg/ml was derived for *aspergillus flavus* and also MIC = 31.2mg/ml was acquired for dermatophyte fungi. On the other hand, the rate of MFC = 500mg/ml was obtained for *Aspergillus Flavus* and also MFC = 62.5mg/ml was acquired for dermatophyte fungi.
Conclusions: The findings from this study show that ethanolic extract from green tea leaves possesses antifungal effects on dermatophytes and *Aspergillus Flavus*.

Keywords: Antifungal Effects, Dermatophyte, Ethanolic Extract, Green Tea

MOLECULAR CHARACTERIZATION OF *ENTEROCOCCUS FAECALIS* ISOLATED FROM PATIENTS IN TEHRAN-IRAN

Somayyeh Saeidi1, *Reza Mirnejad2, Sara Masoumi3, Shiva Rostamzadeh1
1. Department of Microbiology ,School of Advanced Sciences & Technology, Pharmaceutical Sciences Branch Islamic Azad University, Tehran, Iran (IAUPS)
2. Molecular Biology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran.
3. Department of Microbiology Islamic Azad University Branch Varamin, Tehran, Iran.
Email: rmirnejad@bmsu.ac.ir

Background: This survey aimed to determine the drug resistance and molecular characterization of *E. faecalis* isolated from patients in Tehran-Iran.
Method: 125 isolated *E. faecalis* were identified up to species by culture methods and biochemical tests, among 400 specimens of Baqiyatallah and Milad hospitals. Pattern of antibiotic resistance was determined based on CLSI 2014 standards by disk diffusion method. Rep-PCR was done by proper primers in order to determine molecular types and strains genetics patterns.
Results: The result of antibiogram showed that 4, 1.6, 56, 87, 34, 87, 1.6, 41, 16, 7, 1.6, 18 percent of existing specimens, respectively, were resistant to Vanccomycin, Teicoplanin, Erhtyromycin, Quinupristin/dalfopristin, Ciprofloxacin, Tetracycline ,Linezolid, Fosfomycin, Chloramphenicol, Ampicillin, Nitrofurantoin and Gentamycin. Rep-PCR results showed, moreover, that isolated *E. faecalis* contain 10 various genetic patterns which were different with each other in each hospital and also these patterns are different from genetic-resistant to antibiotic with each other.
Conclusion: Due to differences in genetic patterns and patterns of drug resistance it is better using molecular techniques, bacterial been identified and determine antibiotic resistance and accordingly, antibiotics were administered appropriately.

Keywords: *Enterococcus faecalis*, Molecular typing, Rep-PCR

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PREVALENCE OF FECAL *ESCHERICHIA COLI* O- SEROGROUPS USING MULTIPLEX PCR METHOD IN ZABOL, SOUTHEAST OF IRAN

***Hossein Ali Abdi[1], Ahmad Rashki[2], Zahra Rashki Ghalehnoo[3]**
1. Department of Biology, School of Basic Science, University of Zabol, Zabol, Iran
2. Department of Physiopathology, School of Veterinary Medicine, University of Zabol, Zabol, IR Iran
3. Departments of Microbiology and Parasitology, School of Medicine, Zabol University of Medical Sciences, Zabol, Iran
Email: genetics60@gmail.com

Background: *Escherichia coli* can be serogrouped by determination of O-antigens, and some relationship exists between specific O-types and pathogenic behavior. There are little data about the prevalence of fecal *E. coli* O-serogroups in Iran. This study was performed to determine the distribution of the 12 principal O-serogroups among *E. coli* isolates collected from human feces in Zabol, southeast of Iran.
Methods: In this present study, a total of 94 *E. coli* isolates collected from patients attending teaching hospitals in Zabol, southeast of Iran. All colonies were confirmed as *E. coli* by conventional biochemical testing, DNA was extracted from the *E. coli* isolates by boiling lysis. The identification of O-serogroups (O1, O2, O4, O6, O7, O12, O15, O16, O18, O25, O75 and O157) were performed using Multiplex PCR method.
Results: Among studied *E. coli isolates*, 67 isolates (71.27%) were serogrouped successfully using Multiplex PCR. In this study O16 (17.02%), O6 (8.51%) and O18 (8.51%) serogroups in fecal *E.coli* had the highest presence rates of O-serogroups. Also other O-serogroups, including O1, O4, O7, O12, O25, O75 and O157 were observed in 6.5, 4.5, 6.5, 6.5, 2.5, 1.5 and 1.5% of fecal *E. coli* isolates, respectively.
Conclusion: This is the first report of O-serogrouping among fecal *E. coli* isolates in southeast of Iran by Multiplex-PCR. Further studies are recommended from other parts of Iran and on other O- serogroups.

Keywords: Fecal *Escherichia coli,* O-serogroups, Multiplex PCR.

ANTIFUNGAL ACTIVITY OF METHANOLIC EXTRACT AND HEXAN, CHOLOFORMIC, ETHYL ACETATE AND AQUEOUS FRACTIONS OF THE AERIAL PARTS OF *EUPHORBIA ESULA L. ON CANDIDA ALBICANS, CANDIDA KRUSEI, ASPERGILLUS NIGER* AND *ASPERGILLUS FUMIGATUS*

Fatemeh Safarian[1], *Nahid Rahimifard[2], Asiye Shojaii[3]
1. Doctorate of Pharmacy, Student of Pharmacy, Pharmaceutical Sciences Branch Islamic Azad University, Tehran- Iran (IAUPS)
2. Associate Professor of Microbiology, Food and Drug Control Laboratories (FDCL), Food and Drug Administration(FDA), Ministry of Health and Medical Education (MOH), Food and Drug Laboratories Research Center (FDLRC); Halal Research Center(HRC); water Health Research Center(WHRC); Cosmeticand Hygiene Research Center(CHRC);
3. Department of Pharmacognosi; School of Pharmacy; Pharmaceutical Sciences Branch; Iran University; Tehran- Iran
Email: rahimifn@yahoo.com

Background: With regard to prevalence of different side effects of chemical and synthetic medication, it is essential to research for new antifungal compounds so in this investigation, Antifungal activity of methanolic extract and n-hexan, cholоformic, ethyl acetate and aqueous fractions of the aerial parts of *Euphorbia esula L.* on *Candida albicans, Candida krusei, Aspergillus niger* and *Aspergillus fumigatus* has been studied.
Methods: *Euphorbi esula* is belonged to the family of Euphorbiaceae were collected from Arak. The plant samples were first dried and extracts were prepared by standard method maceration. The fractions were prepared by liquid - liquid extraction. The extract and fractions dried with Rotary evaporator. The dried concentrated extract were kept within glass vial under standard condition until used. All fungal spp included of *Candida albicans* (9239), *Candida krusei* (6258), Aspergillus *niger* (16404) and *Aspergillus fumigatus* (204305) were adapted of haboratory condition. Three to five days growth of each spp were used for half mac farland standard preparation. Inhibition effect of each concentration were examined using standard (Disk and Well) agar diffusion methods and microplate. Antibiotics include of AmphotericinB and Fluconazole were used for positive control.
Result: In all four fungal species, in all well plates and disk plate, all extracts were able to form inhibition zones. In disc diffusion method and well plate methods, methanolic extract and aquous fractions in concentration 2000mg/ml had significant antifungal activity (inhibition zone of 14mm) against four fungal strains.
Conclusion: the present study indicate that extract and fractions has considerable antifungal activity.
Keywords: euphorbia esula, candida albicans, candida krusei, aspergillus niger, aspergillus fumigatus

ISOLATION , BIOCHEMICAL AND MOLECULAR IDENTIFICATION OF *STREPTOCOCCUS THERMOPHILUS* FROM TRADITIONAL DAIRY PRODUCTS FROM ZANJAN

Samira Moghadam[3], Sahar Bahmani[1], Mohamad Reza Fazeli[2]

1. Research and Development Department, Zist takhmir Company, Tehran, Iran
2. Department of Microbiology, Pharmaceutical Science Branch , Tehran University, Tehran , Iran
3. Department of Microbiology, Pharmaceutical Science Branch, Islamic azad University, Tehran, Iran

Background: Probiotics are live microorganisms (in most cases, bacteria) that are similar to beneficial microorganisms found in the human gut. They are also called "friendly bacteria" or "good bacteria." Probiotics are available to consumers mainly in the form of dietary supplements and foods.

Methods: the bacterial strain *Streptococcus thermophilus* was known to promote gastrointestinal health. *Streptococcus thermophilus*, along with *Lactobacillus bulgaricus,* soon became the starter strains used to make yogurt. Today, these two probiotics are still used in the production of true yogurt. *Streptococcus Thermophilus* is a powerful probiotic strain that has well researched health benefits. This probiotic is often found in the colon and has many digestive, immunity & many other researched health benefits.

Results: A total of 20 samples of dairy products 10 samples Streptococcus Thermophilus were isolated with probiotic potential. The purpose of this research is isolation and indentification. *Streptococcus thermophilus* with probiotic potential of yoghurt milk and cheese.

Conclusion: To achieve this goal *Streptococcus thermophilus* by phenotypic methods Gram stain tests biochemical and physiological were isolated. All *Streptococcus thermophilus* strains were grown in M17 Broth and agar. To achieve this goal *Streptococcus thermophilus* by phenotypic methods Gram stain tests biochemical and physiological were isolated.and the basic indicators are probiotics resistance to acid, salt was evaluated.

A REPORT OF BRUCELLOSIS IN SANANDAJ CITY, IRAN

Samaneh Rouhi[1, 2, 3], Maria Abasi[4], *Saeed Salavati[1,2,3], Parisa Veysi[1], Shahin Ghahramani[1]

1. Student Research Committee, Kurdistan University of Medical Sciences, Sanandaj, Iran
2. Department of Microbiology, Kurdistan University of Medical Sciences, Sanandaj, Iran
3. Cellular & Molecular Research Center, Kurdistan University of Medical Sciences, Sanandaj, Iran
4. Laboratory Part, Toohid Hospital, Kurdistan University of Medical Sciences, Sanandaj, Iran
Email: salavati.saeed@yahoo.com

Background: *Brucella* is a gram-negative bacterium and intracellular parasite in blood. It is found in cattle populations. This bacterium is cause of brucellosis disease or Malta fever. Different methods for detection of this bacterium are including; Rose-Bengal, 2ME, Coombs, Wright and Complement fixation. The aim of this study was to a report of Brucellosis in Sanandaj City, Iran, during 4 month.

Methods: In this study, 126 patients (63 women and 63 men) serum specimens that collected in Toohid Hospital laboratory (December to March 2014) were used in Coombs Wright Brucellosis test (In this test, serum titer of ≥ 1:80 is positive for brucellosis).

Results: Results showed the, antibody titers of 1:80, 1:160, 1:320, 1:640 and 1:1280 were found in 64 (50.8%), 45 (35.71%), 12 (9.52%), 4 (3.17%) and 1 (0.8%) of patients, respectively.

Conclusion: Our study showed a positive titer of brucellosis in patients during 4 month. Since the *Brucella* is a zoonosis disease and it is transmitted by contaminated milk products by *Brucella*, direct contact and inhalation of aerosols with infected animal and human to human transmission, so persons should be more careful to prevent of brucellosis.

Keywords: *Brucella*, Brucellosis, Coombs Wright

COMPARING PROTEOMIC PROFILE OF *E.COLI* CELL CULTURED IN BATCH AND FED-BATCH MODE AT LATE EXPONENTIAL PHASE

Mahboubeh Sepehri[1,2], *Fatemeh Davami[2], Vahideh Samimi Fam[3], Amin Azimi[4], Bahareh Azarian[2]
1. Department of Molecular and Cellular Sciences, School of Advanced Sciences & Technology, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran -Iran (IAUPS).
2. Biotechnology Research center, Pasteur Institute of Iran, Tehran, Iran
3. Department of Microbiology, Islamic Azad University Rasht Branch, Rasht, Guilan, Iran.
4. Department of Biotechnology, School of Science, University of Tehran, Tehran, Iran
E-mail: f_davami@pasteur.ac.ir

Background: Achieving high cell density is the characteristic superiority of EnBase (a kind of fed-batch system) culture mode. In this culture mode cell growth is controlled and pH is constant during cultivation.
Methods: In this study, *E.coli* cells, producing a fab fragment, were cultivated in batch and fed- batch modes comparatively and harvested at the end of log phase. Then, the samples were prepared for proteomic profiling via using lysis buffer and sonication. Using two dimensional electrophoresis coupled with mass spectrometry, proteins and mechanisms involved in improved productivity, folding and solubility of fab fragment expressed in fed-batch and batch culture mode were identified.
Results: Identified proteins in fed-batch mode were effective in the destruction of metabolites, for access of energy and activating absorption of energy and mineral resources.whereas, the identified proteins in batch mode were active in the acidic environment and effective on cell growth.
Conclusion: Based on the achieved results, in fed-batch cultivation mode due to slow but continuous release of glucose and controlled growth a high cell density was obtained. Moreover, in this system of culture the synthesis of proteins was slow and therefore in soluble form. The batch culture mode, however, is glucose-saturated and due to aggregation of metabolites environment becomes acidic.

Keywords: *E. coli*, fed-batch culture, two dimensional electrophoresis, Enbase.

INVESTIGATION OF HTERT GENE EXPRESSION LEVELS IN TWO CELL LINES INFECTED BY HPV

Maryam Akhtari[1], Mahdi Kamali[2]*, Gholamreza Javadi[1], Seyedeh Razieh Hashemi[3]
1.Department of Genetics, Science and Research Branch, Islamic Azad University, Tehran, Iran
2. Nanobiotechnology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran
3. Department of Obstetric and Gynecology, School of Medicine, Baqiyatallah University of Medical Sciences, Tehran, Iran
Email:mehkamali@yahoo.co.uk

Background: Human papilloma virus is one of the any important factors in cervical cancer. Like many other cancers, telomerase gene expression was increased in cervical cancer. This enzyme is a reverse transcriptase that contains two common subunits: i) catalytic protein called hTERT and, ii) RNA sequence called hTR. Because hTERT expression is hardly found in any somatic tissues, so evaluation of hTERT assay is one of the crucial tools for characteristic of cancer cells.
Methods: In this investigation, Caski and Hela cancer cell lines were used which contain HPV16 and HPV18, respectively. Cell lines were cultured and totall RNA was extracted. Following normalisation agent GAPDH, hTERT expression level was determining by Real time PCR method.
Finally, hTERT levels in Hela and Caski cell lines, were compared quantitatively by t-Test using GraphPad statistic software.
Results: All results confirm that hTERT expression levels in Hela and Caski cell lines are significantly different (t=0.0319). Also these results were confirmed by Graphpad software.
Conclusion: The significant difference between hTERT mRNA expression levels reporterd here could be used as a tomor marker for HPV16 and HPV18 in cervical cancer. Quantitative measurment of hTERT mRNA level could be indicative of cancer cell diagnostic which may help in control of cancer proportion and management of cervical cancer treatment.

Keywords: HPV16, HPV18, hTERT

EFFECTS OF NATURAL ENVIRONMENTS ON QUORUM SENSING

Zahra Khalili[1], *Hasan Jalili[2]
1. MSc in biotechnology, Department of Life Science Engineering, School of New Sciences and Technologies, University of Tehran, Tehran, Iran
2. Assistant Professor, Department of Life Science Engineering, School of New Sciences and Technologies, University of Tehran, Tehran, Iran
Email: Hjalili@ut.ac.ir

Background: Quorum sensing is a type of chemical communication between microorganisms cells. Specific molecular signals exchange have main role in this communication. Beside population regulation, quorum sensing has effect on some microorganisms activities, such as: light emission, virulence, extracellular enzyme synthesis, swarming and bio film formation. The Signals have affected on gene expression.
Methods: In this review, by using 4 Keywords: quorum sensing, environmental effects, signal and mat, 120 articles were analyzed; and finally 50 articles from 2000 to 2015 were selected. According to the sources, The Signals have affected on gene expression. Therefore the signals have Induction effect. Environmental parameters were interfered on the signals efficacy. Microbial mats has a good model for correlation between bilateral effect of the signals and environmental effects.
Results: Quorum sensing signals under the influence of physical, chemical and biological factors in natural environment. The main cause in physical factors is the signal processing by move out of cells, and for chemical factors is the change of signal hydrophilic and solubility rate by adding functional groups. For biological factors can assume: signals change by different organisms symbiosis. Chemical factors have the important role among of physical, chemical and biological factors. Researchers can exquisite useful results from the survey between receptor and predictable geochemical and photochemical variable interaction. But type of microorganism has a main role in the mention interaction.
Conclusion: Quorum sensing between bacteria, has a significant role in some of activities such as: light emission, swarming, virulence, Extracellular enzyme production, biofilm formation, EPS secretion, motility, biodegradation and plasmid transfer. Therefore, it is hoped that done further studies about bilateral effect of the quorum sensing signals and environment.

Keywords: Quorum sensing, Environmental effects, Signals, Microbial mat

IDENTIFICATION AND ENUMERATION OF LISTERIA MONOCYTOGENES IN TRADITIONAL CHEESE IN ALBORZ PROVIENCE

***Zohreh Mashak[1], Soroush Esfandiari[1], Arash Soltani Borchaloee[1], Amirreza Saadati[2]**
1. Department of Food Hygiene, Karaj Branch, Islamic Azad University, Karaj, Iran
2. Shahid Beheshti Medical University ,Tehran,Iran
Email: mashak@kiau.ac.ir

Background: *Listeria monocytogenes* is a bacterial foodborne pathogen that found in soil and water and contaminated food animal origin such as meat and dairy products, and can cause listeriosis that is a problem in public health. It has been reported many outbreaks of listeriosis from consumption of dairy products, especially cheese.
In this study identification and enumeration of *L.monocytogenes* in traditional cheese of Alborz province investigated.
Methods: A total of 60 samples (100g) of traditional cheese were randomly collected from different retail stores in Alborz provience and immediately beyond the ice bag transported to the laboratory .25 g of each samples was homogenized in 225 ml Listeria Enrichment Broth (LEB) with potassium thiocyanate and nalidixic acid using a stomacher and incubated at 30°C/24h . A loopful from LEB was then streaked onto Listeria Selective Agar (LSA) with nalidixic acid and PALCAM, LSA supplemented with PALCAM, LSA supplement. Confirmatory biochemical and serological tests were then used for suspicious colonies.
Results: Of 60 samples: 3 (5%) positive for *L.monocytogenes* that 2 and 1 samples were in 4 and 1 group, respectively.
Conclusions: The contamination of whit cheese in Turkey (2008) was 8.23% but in Isfahan province (2015) it hasn't seen any Listeria in cheese, so in this study seems that improper pasteurization, cross contamination after pasteurization and abuse hygienic practices are problematic concerns in Listeriosis for public health.

Keywords : *Listeria monocytogenes* , Traditional cheese , Alborz province

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APPROACHES ON MANAGEMENT OF EMERGING AND REEMERGING ZOONOSES

***Zohreh Mashak, Valiolah Koohdar, Mohammad Fallahzadeh**
Department of food Hygiene,;Karaj Branch;,Islamic Azad University, Karaj ;Iran
Email:mashak@kiau.ac.ir

Background: In recent decades, changes in human and animal behavior , environmental changes(such as climate, deforestation, increasing greenhouse gases ,etc),globalization of food supply (world trading foods),international movements and travels of human and all type animals, promiscuous use of antibacterial and antiviral agents in medicinal care and prevention purposes and changes in health care and antigenic drift and shift changes and bioterrorism cause the increase of zoonotic emerging and reemerging disease. WHO/FAO/OIE joint has defined (2004) zoonotic emerging and reemerging disease as a zoonosis that newly has recognized or evolved, that has occurred previously but shows an increase in incidence or expansion in geographical or vector range.
These disease include such as Avian Influenza(H5N1),Bovine Spongiform Encephalitis ,Brucellosis ,leishmaniasis ,crime Congo hemorrhagic fever and etc. that have potentially serious human and animal health and economic impacts ,not only in nations but also internationally aspects .So the objectives for prevention and control of these zoonotic emerging and reemerging disease are :
-Education for veterinary and medicinal practitioners ,public health professionals
-Adoption of measures on the animal and welfare compartment(breeding at farm, movement ,etc)
-Developing vaccination and producing new vaccines
-Prevent zoonotic disease
-Protect the feed, food and water supplies from contamination
-Medicinal surveillance with monitoring in human and animals for new disease and agents
Conclusions: Infra structure development and applied research during inter and intra collaboration of different international organizations such as WHO/FAO/OIE joint and nationals such as committees including Ministry of Health and Medical Education with Veterinary organization, pasture institution and etc.

Keywords: Emerging and reemerging zoonoses; management approaches

PREVALENCE OF THE GENES ENCODING THE AMINOGLYCOSIDE MODIFYING ENZYMES AND BLA GROUPS IN CLINICAL ISOLATES OF SHIGELLA SEROGROUPS FROM HOSPITALS IN TEHRAN

***Kobra Salimian Rizi [1], Shahin Najar Peerayeh [1], Bita Bakhshi [1], Mohammad Rahbar [2]**
1. Department of Bacteriology, School of Medical Sciences, Tarbiat Modares University, Tehran, IR Iran
2. Department of Microbiology, Reference Health Laboratories Research Center, Deputy of Health ,Ministry of Health and Medical Education, Tehran, Iran
E-mail: Salimian.k@gmail.com

Background: We determined the transferability of the $bla_{CTX-M-15}$ by conjugation.
Methods: A total of 80 *Shigella spp.* isolates collected from four hospitals in Tehran during 2012-2013. *Shigella species* were identified by using standard biochemical tests and so the specific polyvalent *Shigella* antisera were used for serogrouping of *Shigella* isolates. Antibacterial Susceptibility was determined by disk diffusion and ESBL phenotype was confirmed by Combined Disk. The *blaTEM*, bla_{SHV}, $bla_{CTX-M-1}$, bla_{CTX-15} and aminoglycoside modifying enzymes genes were identified by PCR with specific primers. The transferability of the bla_{CTX-15} was tested by conjugation.
Results: It was observed that 80 clinical isolates that collected were from different sources. The prevalence of *Shigella* serogroups consist of 78.75% serogroup D, 13.75 % serogroup B, 5 % serogroup C, and 2.5 % serogroup A and 8.75% were not react with *Shigella* O polyvalent antisera. Maximal resistance in *Shigella* isolates was noticed against trimethoprim–sulfamethoxazole (61/25%) and tetracycline (53/75%). All of isolates were susceptible to imipenem**.** Ten (12.5%) isolates showed ESBLs phenotype. The frequency of the genes encoding the enzymes *TEM ،SHV ،CTX-M-1, CTX-M-15, ANT (2")-Ia, APH (3')-Ia, AAC (3)-IIa* and *AAC (6')-Ib in Shigella* isolates are 12.5% , 6.25%, 5%, 3.75% ,0%, 1.25%, 1.25% and 2.5% respectively. Two of ESBls producer isolates bearing AMEs, predominantly AAC 6')-Ib and some all ESBL- producers bearing bla_{CTX-15} gene. A conjugative plasmid containing of bla_{CTX-15} was found in two isolates.
Conclusion: This is the first report of the emergence of AMEs in *Shigella* in Iran.

Keywords: *Shigella* serogroups, *bla* groups, Aminoglycoside resistance, conjugation,

DETECTION AND MOLECULAR TYPING OF *BRUCELLA* SPECIES ISOLATES FROM HUMAN AND LIVESTOCK BLOOD SAMPLES USING PCR-RFLP ANALYSIS IN ISFAHAN

Seyed Shervin Shariatpanahi[1], Ebtehaj Pishva[2], *Rasoul Salehi[1]
1. Department of Genetics and Molecular Biology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
2. Department of Microbiology and Virology, Isfahan University of Medical Sciences, Isfahan, Iran
Email: r_salehi@med.mui.ac.ir

Background: This study is designed to evaluate the molecular epidemiology of Brucella spp from human and livestock in Isfahan province, central region of Iran in order to use the findings in efficient disease prevention programs.
Methods: One hundred ninety blood samples were collected from human and cattle with active brucellosis and 40 aborted ewes fetuses were collected and genotyped using PCR-RFLP technique, DNA polymorphisms such as the restriction patterns of the PCR-amplified omp2a and omp2b genes.
Results: The molecular characterization performed to assess the species and the biovar of the Brucella strains. Analysis of the 230 isolated examined in this study generated three unique RFLP profiles. One of the profiles was the most common being present in 134/180.
Conclusion: Our findings confirm abundance of B. melitensis, particularly biovar 1 in human and sheep are identical but *B. abortus* biovar 3 as the etiological agent of cattle brucellosis most frequently isolated in the Isfahan area.

Keywords: *Brucella*, brucellosis, molecular typing, omp2, PCR-RFLP

STUDY OF ANTI- BACTERIAL PROPERTIES OF SILVER NANOPARTICLES SYNTHESIZED FROM PLANTS EXTRACT LAVANDUOLIFA , SALVIA OFFICINALIS AND URTICA DIOICA OF IRAN

***Farnoosh Gholamhoseinpoor[1], Mohammad Navaderi[1], Sharareh Khorami Ruz [2]**
1. Young Researchers and Elite club, Azad university, Parand Branch, Parand. Iran
2. Microbiologist in American Hospital Dubi – oud Metha-po BOX5566
Email: Farnoshghp@yahoo.com

Background: Ziziphora tenuior L. (Lamiaceae) is an aromatic herb used for its medicinal values against fungi, bacteria. Micro propagation can be used for large-scale multiplication of essential oil producing plants thus avoiding an over-exploitation of natural resources. This work aims to develop a reliable protocol for the in vitro propagation of Z. tenuior, and to compare the antioxidant activity between in vitro propagated and wild plants.
Methods: Explants of wild plants were washed with water for 30 min. and treatment with 1% antifungal for 5 min, samples were washed three times with sterilized water. Final sterilization was done using 70% ethanol and 10% sodium hypochlorite for 5 min in the presence of few drops of Tween 20 ,2 Different ways to perform drug sensitivity tests . Disk diffusion (Kirby Bauer) Broth micro-dilution MIC - NCCLS reference method،E test ،The page Principles microbial counts (CFU).
Results: The results of this study showed that the extract has antibacterial Ziziphora city Esfarāyen high, even the impact of a number of antibiotics is more industrial. In contrast, it seems that this research is promising for the treatment and prevention of infections developing. While in Iran, few studies have been done on the production of antibacterial plants and due to the ecological diversity of other plants is likely to antimicrobial compounds.
Conclusion: our present investigation shows that micro propagation of Z. tenuior through in vitro is a reliable method for the rapidmultiplication of this species

Keywords: Minimum Inhibitory Concentration (MIC), Minimum Bactericidal Concentration (MBC), Leaf extracts, Ziziphora tenure l , *E-coli*

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DETECTION OF THE PAI III_{536} AND PAI IV_{536} PATHOGENICITY ISLANDS MARKERS AND ANTIMICROBIAL RESISTANCE PATTERNS OF THE CLINICAL UROPATHOGENIC AND COMMENSAL *ESCHERICHIA COLI* ISOLATES

***Ali Samei, Habib Zeighami, Fakhri Haghi**
Department of Microbiology, Zanjan University of Medical Sciences, Zanjan, Iran
Email: samei.a@outlook.com

Background: Pathogenicity islands comprise large genomic regions (10–200 kb) that are present on the genomes of pathogenic strains but absent from the genomes of nonpathogenic members of the same or related species. The aim of this study was to determine the distribution of the PAI III_{536} and PAI IV_{536} markers and antibiotic resistance profile of uropathogenic *E. coli* isolates from patients with UTI and commensal *Escherichia coli.*

Methods: 50 *E. coli* isolates obtained from the stools of 50 healthy and 150 uropathogenic *E. coli* from patients with urinary tract infection and admitted to hospitals of Zanjan. Identification of bacterial isolates was done on the basis of their cultural and biochemical characteristics. Bacterial DNA was extracted and then, The PCR assay used for amplification and detection of PAIs markers.

Results: The frequencies of the PAI III_{536} and PAI IV_{536} marker in uropathogenic and commensal *Escherichia coli* was 21.3% versus 0% and 98.7% versus 84% respectively. The most frequent resistance found against amoxicillin (70%). Imipenem showed the highest activity against isolates and only 2.7% of isolates were imipenem resistant.

Conclusion: High frequency of PAI IV_{536} in commensal isolates has led to the suggestion that may be a fitness island rather than a PAI and high presence of PAI III_{536} markers in UPEC isolates can be used as potential markers to aid in identifying of the UTIs. Comparison of recent study with previous studies showed that distribution pattern of this PAIs and antimicrobial resistance pattern were not similar and can vary according to geographical area.

Keywords: Pathogenicity islands, uropathogenic *Escherichia coli*, urinary tract infection, Antimicrobial resistance.

PHENOTYPIC FREQENCY OF VANCOMYCIN-RESISTANT ENTEROCOCCI (VRE) IN TEHRAN'S CLINICAL SPECIMENS

Sara Masoumi Zavaryani[1], *Reza Mirnejad[2], Shohre-hZare Karizi[1], Mohammad Rahbar[3], Abbasali ImaniFooladi[4], Somayyeh Saeidi[5]
1. Department of Microbiology Islamic Azad University Branch Varamin, Tehran, Iran.
2- Molecular Biology Research Center, Baqiyatallah University of Medical Sciences,Tehran,Iran
3. Antimicrobial Resistance Research Center, Tehran University of Medical Sciences, Tehran, Iran./ Department of Microbiology, Iranian Reference Health Laboratory, Ministry of Health and Medical Education, Tehran, Iran.
4. Applied Microbiology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran.
5. Department of Microbiology, School of Advanced Sciences and Technology, Pharmaceutical Sciences Branch Islamic Azad University,Tehran, Iran (IAUPS)
Email:mirnejad@bmsu.ac.ir

Background: This survey aimed to investigate phenotypic frequency of vancomycin-resistant Enterococci (VRE) in Tehran's clinical specimens.

Methods: In this survey 300 clinical different specimens were collected during 2014-2015 from Tehran's hospitals. In order to identify *Enterococci* in species level, specific primers were used. Antibiotic sensitivity test was done by disk diffusion method on Mueller Hinton agar medium using the standard guidelines issued by the clinical laboratories standards institute (CLSI) of 2014 about vancomycin and other antibiotics.

Results: Result of this study showed in144 identified *Enterococci,* there were (83/67%) *E.faecalis* and (10.14%) *E.faecium*. Among these isolates, there were 8 (5/55%) vancomycin-resistant isolates in which 6 isolates were *E.faecalis* and 2 isolates were *E.faecium* which were tetracycline-resistant.

Conclusion: The vancomycin- resistant incidence is increasing among isolated *Enterococci* such as *E.faecalis*. Since, resistance among strains is increasing, caution in antibiotic consumption is very important and it is essential to determinate antibiotic sensitivity test for these infections.

Keywords: Vancomycin-resistant Enterococci (VRE), Phenotypic, Antibiotic sensitivity test

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IDENTIFICATION OF THE LINEZOLID-RESISTANT *ENTEROCOCCI* IN CLINICAL SPECIMENS OF TEHRAN'S PATIENTS

Sara Masoumi Zavaryani[1], *Reza Mirnejad[2], Shohreh Zare Karizi[1], Abbasali ImaniFooladi[3], ParisaEslami[4], Nikta Sajjadi[5]
1. Department of Microbiology, Islamic Azad University Branch Varamin, Tehran, Iran.
2. Molecular Biology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran.
3. Applied Microbiology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran.
4. Department of Microbiology, Islamic Azad University Branch Gorgan, Golestan, Iran.
5. Department of Microbiology, Islamic Azad University Branch Damghan, Damghan, Iran.
Email:mirnejad@bmsu.ac.ir

Background: Linezolid, which was approved in Europe in 2001, is a kind of oxazolidinone antibiotic which is effective gram-positive cocci. Linezolid is used widely in clinical treatments including vancomycin-resistant *Enterococci*, but nonetheless, resistance in linezolid treatment for vancomycin-resistant *Enterococci* strains occurs rarely. Using phenotypic methods, this survey aimed to investigate linezolid-resistant *Enterococcus* strains' prevalence.
Methods: In this survey 300 clinical different specimens were collected during 2014-2015 from Tehran's hospitals. Using specific primers, identification of *Enterococci* in species level was done by PCR molecular method. According to the standard guidelines issued by the clinical laboratories standards institute (CLSI) of 2014 about linezolid and several specific antibiotics, this was done by using antibiotic sensitivity test on Mueller Hinton agar medium, by disk diffusion method.
Results: This study showed among 107 identified Enterococci, 2(1/86%) *E.faecalis* isolateswere resistant to linezolid. Linezolid-resistant isolates were sensitive to various antibiotics including ampicillin, vancomycin, teicoplanin and ciprofloxacin.
Conclusion: The results showed that the resistance incidence, among isolated *Enterococci* including *E.faecalis*, is still diagnosed. Thus, the linezolidshould be consumed cautiously and monitored over time. In order to prevent the linezolid resistance, moreover, worldwide precautionary and regulatory measuresshould be done.

Keywords: Linezolid, Vancomycin-resistant *Enterococci*, Phenotypic, Antibiotic sensitivity test

DETERMINING PROTECTIVE FACTOR OF PIGMENT SPECIES OF CLADOSPORIUM FUNGI AGAINST SUN RAYS, AS SUNSCREEN COMPOUNDS USING IN VITRO

Nasim Heydari
Department of Microbiology, Kerman Science and Research Branch, Islamic Azad University, Kerman, Iran
Email:abinilufar86@yahoo.com

Background: Pigment species of fungi has many applications in the chemical industry and medicinal, cosmetics and health products. Destruction of the ozone layer and the harmful sun rays that cause an increase in cancer rates, makes use of effective compounds with Absorption of UV harmful radiation that has Small skin and systemic effects, the main objective of this research is Estimating Protective factor of pigment species of Cladosporium fungi, as a natural source for UV absorption using in vitro.
Methods: Used fungi have olive green Colony color, and used from water Solvent and DMSO for pigments Extract. A solution containing pigment, Cleaned up by Membrane filters with0.22 Micron of Pore diameter. Then drying with Lyophilizator device, and 0.001 gram of resulting powders Soluble in 10 ml water and DMSO, and Absorption Measured with Spectrophotometer device in 200-700 nm wavelengths, and finally determining protective factor (SPF) for this.
Results: Ultraviolet absorption done with Pigment in studied Wavelengths, and maximum absorption is related to UVB in 210 nm that is the protective factor of U.V ray.
Conclusion: Due to the UV -absorbing chemicals used in Sun creams can have side effects. And the lack of proof for adverse effects, can Proposed to use Extracted pigments from a species of Cladosporium fungus as Ultraviolet absorption.

Keywords: microbial pigment, species of Cladosporium fungi, Ultraviolet ray, Sun cream SPF.

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BIOLOGY OF *MYXOBACTERIA* – AN UNDERESTIMATED GROUP OF ANTIBIOTIC PRODUCING BACTERIA

Joachim Wink
Microbial Strain Collection (MISG), Helmholtz Centre for Infection Research (HZI)

Background: The *myxobacteria* with the order *Myxococcales* (TCHAN, POCHON and PRÉVOT 1948) belong to the Gram negative *Proteobacteria* and have first been described in detail by Thaxter in 1892 in the Botanical Gazette. Most known myxobacteria occur in soil and frequently develop on decomposing plant material, the bark of living trees or animal dung. Both in nature and in the laboratory their presence may be detected through the appearance of fruiting bodies. Since the introduction of Epotilon as anticancer therapeutic on the market, the *myxobacteria* have their place in the group of industrial important bacteria. The biology of *myxobacteria* is mainly characterized by two features that are the gliding on surfaces without any locomotion organelles and the formation of fruiting bodies. *Myxobacteria* also have a high GC contend and very huge genomes with a size of about 10 Mb which correlates with their ability to produce many different secondary metabolites.
Methods: Until today the taxonomy of the *myxobacteria* is basing on the morphological features together with the *16S rRNA* sequence, in addition we have established a number of chemotaxonomic and molecular biological markers which can be used in myxobacterial taxonomy.
Reslts: A short overview on the history of *myxobacteria*, the fruiting body formation, its taxonomic classification and additional methods for characterization as well as their potential to produce bioactive compounds is given in this talk.
Concluison: see results.

Keywords: Antibiotics, *Myxobacteria*, Taxonomy

THE INVESTIGATION OF THE ANTIBIOTIC RESISTANCE PATTERN OF S.AUREUS AND *PS.AEROGINOSA* SEPARATED FROM BURN PATIENTS SKIN INFECTIONS IN IMAM KAZEM HOSPITAL IN ISFAHAN

Farzaneh Golabi[1], Monir Doudi[2], Mahboubeh Madani[2]
1. Department of Microbiology, Falavarjan Branch, Islamic Azad University, Falavarjan, Isfahan, Iran
2. Department of Microbiology, Falavarjan Branch, Islamic Azad University, Isfahan, Iran

Background: *S.aureus* and *Ps.aeroginosa* are the most common cause of infection in burn patients. The diagnosis of their antibiotic resistance pattern is an important guidance in the selection of a proper cure. The present study was done with the samples collected from burn patients in order to diagnose the species and proper antibiotic.
Methods: In this study, after sampling some burn patients' skin in Imam Kazem hospital, *S.au*reus and *Ps.aeroginosa* species were identified and purified by morphological and biochemical methods. Susceptibility to 14 antibiotics was recognized by Kerbi- baiyer method.
Results: The results of sensitiveness diagnosis test to antibiotics showed that among strains of *S. aureus*, the highest resistance to Vancomycin, Penicillin, Amoxicillin, Coamoxy Clavue Methicillin and Erythromycin antibiotics, and the highest sensitivies to Azrithromycin, Imipenem, Cephalexin, Ciprofloxacin, Cefotaxime, Gentamicin and Ceftazidime were observed. Also, among bacteria strains of *Ps.aeroginosa*, the highest resistance to Penicillin, Amoxicillin, Efloxacin, Cotrimoxazole, and Carbenicillin antibiotics, and the highest sensitivies to Tetracycline, Ceftriaxone, Gentamicin, Ciprofloxacin, Cefotaxime, Ceftazidime, Chloramphenicol and Imipenem antibiotics were observed.
Conclusion: The results of this study shows the high resistance of *S.aureus* and *Ps.aeroginosa* to different groups of antibiotics. Therefore, in order to control of infection and prevention of prevalence of resistant strains, a proper solution should be found.

Keywords: Antibiotic resistance, Burn wound, *S.aureus*, *Ps.aeroginosa*

FREQUENCY OF HEMOLYSIN(HLY)VIRULENCE GENE IN *ESHERICHIA COLI* COLLECTED FROM EDUCATIONAL HOSPITALS OF QAZVIN

Maryam Barikbin[1], *Amir Peymani[2]
1. Department of Basic Sciences and Medicine, Zanjan Branch, Islamic Azad University, Zanjan, Iran.
2. Cellular and Molecular Research Center, Qazvin University of Medical Sciences, Qazvin, Iran.
E- mail: a.peymani@gmail.com

Background: Urinary tract infection is a main pathogen in hospital and community- acquired infections. *E.coli* produce an extracellular exotoxin named alpha-hemolysin with cytolytic activity. Hemolysin production cause tissue damage and facilitate propagation of bacteria and excrete nutrients and may also alter host signaling pathways in the host. The purpose of this study was to determine the frequency of hemolysin *(hly)* factor in *E.coli* educational hospitals of Qazvin.
Method: In this cross sectional study, 126 isolates of *E.coli* were collected from educational hospitals of Qazvin. All isolates were identified using biological and biochemical techniques. The frequency of *hly* gene was determined with PCR method and sequencing. After receiving sequence results with Choromas application and then to analyze first the NCBI, blast and standard strains genes recorded in the gene bank alignment was perform.
Results: In this study, The clinical samples of urine were collected from patients admitted in internal (17.5%) and Infectious (7.1%) wards. Most of the sex containing many women 83.3%, and men 16.7% respectively. PCR assay showed that 40 isolates (31.7%) was positive for the presence of *hly* gene.
Conclusion: The finding of this study a conciderable rate of *hly* virulence factor in *E.coli* isolates obtane from hospitalized patients. Useful treatments and appropriate infection control strategy is essential for eradicating of these pathogens in studied hospitals.

Keywords: *Escherichia coli,* Urinary tract infection, *hly* Virulence gene, Polymerase chain reaction.

IDENTIFICATIAN OF *RHODOTORULA* SPECIES ISOLATED FROM SOIL USING MOLECULAR TECHNIQUES

Bahareh Mohammadi[1], *Mahboobeh Madani[1], Ali Mohammad Ahadi [2]
1. Department of Microbiology, Islamic Azad University, Falavarjan Branch, Isfahan, Iran.
2. Department of Genetics, School of Science, University of Shahrekord, Shahrekord, Iran.
Email: mmadani66@gmail.com

Background: Yeasts play a significant role in the nutrition industry, medicine, and biocontrol of plant pathogens. Lack of routine morphological and physiological procedures for identification of *Rhodotorula* spp. caused using molecular method. The main goal of this study was identification of *Rhodotorula* Species isolated from soil using molecular techniques.
Methods: In the present study, 50 yeast strains were isolated from soil and maintained on potato dextrose agar medium and stored at 4°C until needed. For preliminary identification of the isolates, each of the internal transcribed spacer 1 (ITS1) and ITS2 regions of ribosomal DNA (rDNA) was amplified separately, and the mixture of both amplicons was electrophoresed on agarose gels. For final discrimination of the selected isolates the entire ITS1-ITS2 was sequenced followed by BLAST analysis.
Results: As a result, 20 isolates were identified and belonging to the *Rhodotorula* genus. The species were *R.mucilaginos* (15), *R.glutinis* (2), *R.slooffiae* (2) and *R.minuta* (1).
Conclusion: So molecular methods is useful for the identification of yeast species such as *Rhodotorula.*

Keywords: Identification, *Rhodotorula* spp., PCR

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ISOLATION AND IDENTIFICATION OF AZOTOBACTER STRAINS FROM THE SOIL OF ESFARAYEN

[*]Farideh Vosoughi Motlagh[1], Mahboobeh Nakhaei Moghaddam[2], Nafiseh Sadat Naghavi[1]
1. Department of Biology, Falavarjan Branch, Islamic Azad University, Falavarjan, Iran,
2. Department of Biology, Mashhad Branch, Islamic Azad University, Mashhad, Iran,
Email: farideh.vosoughi@yahoo.com

Background: The aim of this study was to isolate *Azotobacter* bacteria from the region of Esfarayen and identify by biochemical and molecular experiments.
Methods: Samples were taken from depths of 0 to 30 cm of soil in Esfarayen. The samples were cultured in mannitol agar by dilution method. Bacteria were identified using biochemical diagnostic tests. Mannitol agar medium (without nitrogen source) was used for the growth and purification of *Azotobacter* isolates. Confirmative identification of bacteria was performed by colony PCR using specific primers of *nifH* gene.
Results: Of the 20 bacterial isolates, 12 were identified as *Azotobacter*. All isolates were Gram negative bacilli or coccobacilli, oxidase and catalase positive, motile, mucoid, and brown pigment producing bacteria. A band of DNA with the size of 700 base pair was observed in gel electrophoresis for all bacteria.
Conclusion: This study was the first report of identification of *Azotobacter* bacteria in Esfarayen. Identification of native *Azetobacter* strains in different regions of our country has an important role for the replacement of chemical fertilizers with the bio-fertilizers.

Keywords: *Azotobacter,* Colony PCR, *NifH*, Bio-fertilizer

STUDY OF MICROBIAL CONTAMINATION OF DILL DISTILLATE IN TRADITIONAL AND INDUSTRIAL SAMPLES

Sepideh Cheheltani[1], *Fakhri Sadat Hosseini[2], Neshat Saffarzadeh[1]
1. B.S. Student of Microbiology, Department of Biological Sciences, Alzahra University, Tehran, Iran.
2. Assistant Professor, Department of Biological Sciences, Alzahra University, Tehran, Iran
Email: F.hosseini@alzahra.ac.ir

Background: Herbal extracts have established an important part in drug–food products of plant origin. Considering the high level of consumption and the risk of microbial contamination of these products it is necessary to evaluate the microbial count. Since the use of dill distillate for its therapeutic effects has been increasing, the aim of this study is the microbial assessment of dill distillate in industrial and traditional establishments.
Methods: Twenty four industrial samples and 4 traditional samples of dill distillate were collected and tested according to national standards test methods. The data was analyzed and evaluated by SPSS software.
Results: *Pseudomonas aeruginosa* were found in 17% of industrial samples while the existence of other microorganisms was found to be negative. All traditional samples showed negative growth for Coliform bacteria, Sulfate-reducing Clostridia and mold but they were contaminated with *Pseudomonas aeruginosa*. Two traditional samples showed positive growth for *Enterococcus* and 1 sample for yeast.
Conclusion: These results suggest that, industrial dill distillate samples were less contaminated than their traditional counterpart, therefore it can be concluded that sanitation and pasteurization steps in industrial distillation are effective on microbial quality. To improve the sanitation, more control over traditional units of these products is recommended.

Keywords: Dill distillate, Microbial contamination, Good Manufacturing Practice

CONSTRUCTING AN IN SILICO MULTIEPITOPE CHIMERIC PROTEIN TARGETING OMP31, BP26 BLS, DNAK AND L7/L12 AS A SUBUNIT VACCINE FOR BRUCELLOSIS

Ahmad Karkhah[1], Mehdi Turani[1], *Hamid Reza Nouri[2]

1. Cellular and Molecular Biology Research Center, Student Research Committee, School of Medicine, Babol University of Medical Sciences, Babol, Iran

2. Department of Immunology, School of Medicine, Babol University of Medical Sciences, Babol, Iran

Email: nourihr851@gmail.com

Background: According to the latest findings, the most effective immunogenic antigens of *brucella* for induction of immunologic responses are included *Omp31, bp26, BLS, DnaK* and *L7-L12*.

Methods: *In silico* design is an essential tool for vaccine evaluation prior to experimental studies. Therefore, we determined immunogenic epitopes of *Omp31, bp26, BLS, DnaK* and *L7-L12* through bioinformatics tools. Then, a chimeric protein were constructed from regions of these antigens that have dominant B and T cell epitopes. The chimeric gene structure, its mRNA, and deduced protein were analyzed by related bioinformatics softwares. Subsequently, modeling was done to predict the three dimensional (3D) structure. Finally, validation of the predicted protein was evaluated by Ramachandran plot statistics and the B cell epitopes on the surface of the predicted model were mapped.

Results: The predicted 3D structure of the chimeric protein showed that most of the dominant epitopes were folded individually. Then, validation experiment showed that most residues of chimeric protein are located in favorite regions of the ramachandran plot. The identified T cell epitopes have enough potency to bind MHC molecules. Finally, this predicted protein was able to induce cell mediated immune responses along with humoral immune responses.

Conclusion: *In silico* analysis indicated that this chimeric protein can be effectively expressed and utilized as a vaccine against brucellosis.

Keywords: Brucellosis; chimeric vaccine; Omp31; bp26; Dnak

IN VITRO SCREENING OF MAIZE *RHIZOBACTERIA* FOR PHOSPHATE AND ZINC SOLUBILIZATION IN KERMAN, IRAN

***Farokh Rokhbakhsh-Zamin, Farzaneh Mohammadi**

Department of Microbiology, Islamic Azad University, Kerman Branch, Iran

Email: rokhbakhsh@gmail.com

Background: Phosphorous and Zinc are the most critical elements for plant nutrition. The rhizosphere of plants contains large bacterial populations capable of exerting beneficial influences on plant growth such as solubilization of phosphate and zinc. Accordingly, in this study it is important to find new powerful mineral solubilizing rhizobacteria.

Methods: Soil samples were collected randomly from the rhizosphere of plants growing at different fields in Kerman. Samples at Sterile conditions were transported to the laboratory. 5 grams of rhizosphere soil samples were suspended to 45 ml sterile saline. Following serial dilution technique and using Luria agar, different colonies were obtained. An aliquot (10 µl) of each suspension with approximately 1×107 colony forming units/ml (CFU/ml) from a 2-day culture was spot inoculated on sperber agar. A clear zone around each spot during 1 week at 28oC was considered positive evidence of phosphate solubilization. Zinc solubilization test was performed similarly by substitution of Zinc oxide instead of phosphate in the base medium.

Results: 48 bacterial *rhizobacteria* were isolated from all soil samples. 7 items showed significant activities. 2 phosphate solublizers (SE: 141/66, 115/38) and 3 zinc solublizers (SE:136/36, 140, 166/66) were achieved and the rhizobacterium IAUKTCC1400 (SE:150) showed both phosphate and zinc solublization.

Conclusion: IAUK1400 showed very promising results on phosphate and zinc solubilization and it has a very good potential to be used in further experiments for biofertilizer construction.

Keywords: Screening Phosphate And Zinc, *Rhizobacteria* Phosphate, Zinc Solubilization

STUDIES ON PHOSPHATE AND ZINC SOLUBILIZING *RHIZOBACTERIA* ASSOCIATED WITH MAIZE

***Farokh Rokhbakhsh-Zamin, Farah Sadeghinejad**
Department of Microbiology, Islamic Azad University, Kerman Branch, Iran
Email: rokhbakhsh@gmail.com

Background: The use of phosphate and zinc solubilizing bacteria as inoculants increases these elements uptake by plants. The mechanism for solubilization of these minerals is the production of organic acids in soil. So, this study in parallel to the same researches tries to find new rhizobacteria with in vitro mineral solubilizing activities.
Methods: The rhizospheric soil samples were collected from fields growing Maize from Kerman district, Iran. All bacterial strains were isolated on the Luria agar by serial dilution and pour plate techniques. An aliquot (10 µl) of each suspension with approximately 1×107 colony forming units/ml (CFU/ml) from a 2-day culture was spot inoculated on sperber agar. A clear zone around each spot during 1 week at 28oC was considered positive evidence of phosphate solubilization. Methodology for zinc solubilization test was the same with only one modification by replacing zinc oxide instead of phosphate in the base medium.
Results: Among 36 rhizobacteria isolated from soil samples, 3 ones had the acceptable phosphate solubilization (SE: 166/68,500, 133/34) and 2 isolates showed zinc solubilization (SE: 300, 375) and interestingly one of the strains as rhizobacterium IAUKTCC1450 had the both properties as phosphate (SE:141/18) and zinc solubilization (SE: 166/68).
Conclusion: The present study was designed to screen certain *rhizospheric* bacterial isolates for their multiple plant growth promoting activities which six of them have shown a good potential for further tests and may be used to develop a biofertilizer.

Keywords: Phosphate and Zinc Solubilizing, *Rhizobacteria*, Maize

DETECTION OF EXTENDED-SPECTRUM β-LACTAMASES IN CLINICAL ISOLATES OF *PSEUDOMONAS AERUGINOSA* IN BESAT AND TOOHID HOSPITALS (SANANDAJ, 2014)

***Somayeh Dastmozd[1], Rashid Ramazanzadeh[2] Mohammad Hosein Dareshiri[1]**
1. Student Research Committee and Microbiology Department, School of Medicine, Kurdistan University of Medical Sciences, Sanandaj- Iran 2. Cellular & Molecular Research Center and Microbiology Department, School of Medicine, Kurdistan University of Medical Sciences, Sanandaj- Iran
Email: somaye_dastmozd@yahoo.com

Background:. The present study was carried on, in order to detect the production of ESBLs in *Pseudomonas aeruginosa* and their susceptibility pattern against different antibiotics.
Methods: In this Cross-sectional study a total of 60 isolates of *P. aeruginosa* were analyzed for the production of ESBLs by PCR technique. PCR for detection of bla genes (bla $_{CTX-M}$, bla $_{SHV}$, bla $_{TEM}$) was performed using specific primer for each gene.
Results: The results of PCR of the bla genes in 60 strains of *P.aeruginosa* showed that the bla $_{TEM}$ was detected in 15% (n=9) of the isolates. The other ESBL genes were detected in isolates including bla$_{SHV}$ and bla$_{CTX-M}$ with frequency 8.33% (n=5), 10% (n=6) respectively. Among ESBL producing isolates (n=15), one of them was positive for all of 3 ESBL genes, Two of isolates were positive for bla $_{SHV}$ and bla $_{CTX-M}$ and one of isolates was positive for bla$_{TEM}$ and bla$_{CTX-M}$.
Conclusions: The current study highlights that *Pseudomonas aeruginosa* is a significant cause of nosocomial infections worldwide. The incidence of β- lactamase producing *Pseudomonas aeruginosa* is on the rise. Production of ESBL mediates antibiotic resistance and therapeutic problems. To defeat the multidrug resistanc and therapeutic problems a joint communication of microbiologists and clinicians is desirable.

Keywords: *Pseudomonas aeruginosa*, ESBL, PCR, multidrug resistanc

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MOLECULAR DETECTION OF *STAPHYLOCOCCUS AUREUS* ISOLATED FROM PATIENTS IN BESAT AND TOOHID HOSPITALS BY SPA TYPING (SANANDAJ, 2014)

***Mohammad Hosein Dareshiri[1], Rashid Ramazanzadeh[2], Somayeh Dastmozd[1], Amin Hooshyar[1]**
1. Student Research Committee and Microbiology Department, School of Medicine, Kurdistan University of Medical Sciences, Sanandaj- Iran
2. Cellular & Molecular Research Center and Microbiology Department, School of Medicine, Kurdistan University of Medical Sciences, Sanandaj- Iran
Mail: mhd_y68@yahoo.com

Background: *Staphylococcus aureus* has become an important nosocomial pathogen, causing considerable morbidity and mortality. During the last 20 years, a variety of genotyping methods have been introduced for screening the prevalence of *staphylococcus aureus*. *Spa* typing of *Staphylococcus aureus* has traditionally been done by PCR amplification of the spa repeat region. *Spa*-typing, a typing method based on the DNA sequence analysis of the protein A gene. The purpose of this study was to molecular typing of *Staphylococcus aureus* isolated from patients in Sanandaj hospitals Toohid and Besat (2014).
Methods: This study is Cross-sectional and Clinical specimens from hospitalized patients studied were collected over a period of 1 year. *Staphylococcus aureus* isolates were identified by culture and biochemical methods. *Spa* gene patterns in *Staphylococcus aureus* isolates were identified by using PCR techniques.
Results: In total, 20 different patterns of *Spa* gene in *staphylococcus aureus* isolates were obtained in this study, which includes 6 type t030, 3 type (t230, t459 & t701), 2 type (t11332 & t304) and types t325, t012, t1149, t1810, t197, t325, t7789, t808, t871, t937, t14896, t14913, t14928 and t14929.
The highest prevalence of type t030 (18.18%) and then type t230, t459 and t701(9.09%) is. And new types t14896, t14913, t14928 & t14929 were identified during this study.
Conclusions: There are similar patterns of *Spa* gene represents a common source of infection in the hospital and the analysis of these patterns can help break the chain of infection transmission in hospitals.

Keywords: *Staphylococcus aureus, Spa* Typing, Sanandaj, Epidemiology

STUDY OF INVESTIGATION OF CONTAMINATION PROCESSED RAISINS TO MYCOTOXIN(AFLATOXIN-OCHRATOXIN) AND PRODUCING FUNGI AND THEIR IDENTIFICATION IN QAZVIN PROVIENCE

***Elnaz Gerveipour[1], Hatef Ajoudanifar[2], Majid Moghbeli[3]**
1.Msc Microbiology, Department of Microbiology, Islamic Azad University, Damghan Branch, Damghan, Iran
2.Ph.d Mycology, Department of Microbiology, Islamic Azad University, Damghan Branch, Damghan, Iran
. Ph.d Genetic Engineering, Department of Microbiology, Islamic Azad University, Damghan Branch, Damghan, Iran
Email: gp_elnaz@yahoo.com

Background: In this study the presence of *Aspergillus* fungi and amount of aflatoxin and Ochratoxin in Qazvin's raisins is studied.
Methods: 60 samples were randomly collected from Qazvin's raisins factories.samples were of the three types of raisins Sunny, Sultana, California that 20 samples were taken from each of raisins. Then packaged in sterile conditions and they were kept in the refrigerator to isolate and identify *Aspergillus* Using a digital scale , 10 g of sample was weighed and to a flask containing 90 ml of sterile distilled water was added Shaker was placed for 20 minutes. Grinded samples after diluting cultivated in Sabouraud dextrose agar (pour plate method) and then incubated at 27 C for 5 days. Therefore, plates were examined for fungal growth and slide culture had been done. Finally, contaminated samples were selected and method of high performance liquid chromatography (HPLC) was used.
Results: 53.3% of the total samples were contaminated with *Aspergillus*. 43.7% of them were *niger* species, 37.5% were *carbonarios* species, 18.7% belonged to *ochraceus* species and Aflatoxin -producing fungi None was found in samples.
Conclusion: From 32 contaminated samples that examined by HPLC, 14 samples had Ochratoxin, Therefore 23.3% of total samples were contaminated. Amount of Ochratoxin A in sample of 19 was (12.5 ppb) that was more than Iran national standard (10 ppb) and amount of Ochratoxin A in sample of 17 was(0.2 ppb) that was lower than Iran national standard and other samples had lower Ochratoxin A than Iran national standard.

Keywords: Raisins, *Aspergillus*, Aflatoxin, Ochratoxin A, Qazvin, HPLC

COMPARISION ACHILLEA TENUIFOLIA EXTRACT ANTIMICROBIAL ACTION AND ANTIBIOTIC RESISTANCE ISOLATES *STAPHYLOCOCCUS AUREUS* AND *ENTROCOCCUS FEACALIS* FROM CLINICAL AND STANDARD STRAIN IN ESFAHAN AL-ZAHRA HOSPITAL

Fatemeh Talebi Varnosfaderani1, *Maryam Mohammadi-Sichani1, Leila Amjad2
1. Department of Microbiology, Falavarjan Branch, Islamic Azad University, Isfahan, Iran
2. Department of Biology, Falavarjan Branch, Islamic Azad University, Isfahan, Iran
Email: mohammadis_m@yahoo.com

Background: In recent years, antibiotic resistance increase in the world rapidly and create abundance problems. Hereat, reasearchers encuire modern galenics. The aim from this study, *Achillea tenuifolia* extract antimicrobial action and antibiotic resistance assess for *Staphylococcus aureus* and *Entracoccus fecalis* comparison of them.
Methods: *Achillea tenuifolia* were collect from Esfahan Ghoroghchi zone and calcined in shadow. Herbal producted of Methanol, Ethanol, Acetonia and Chloroform. Standard samples included extract *S. aureus* ATCC 6538 and *E. feacalis* ATCC 1394. A total 6 clinical speciments (3 *S.aureus* and 3 *E. feacalis*) were collected in Alzahra Hospital and identification of isolates. Antibiotic sensivity was assessed using disk diffiusion method for Vancomycin, Cefazolin, Getamicin, Tetracyclin, Ciprofloxacin, Oxacillin and Trimethoprem-Sulfametaxole. Herbal extract was assessed using sump diffiusion method for 0/5, 0/250 pitied and antimicrobial action were measured.
Results: Both *S. aureus* and *E. feacalis* strains (standard and clinical samples) display Vancomycin and Cefazolin resistance. Herbal extract haden't antibacterial resistance.
Conclusion: To our knowledge, samples were Vancomycin and Cefazolin resistance witch serious danger may for community. Extract diden't show antibacterial resistance witch could arise from deference in accur and methodology. The results show *Achillae tenuifolia* dosen't action for Gr+ bacteria, but may action for Gr- bacteria, hence *Achillea tenuifolia* extract antimicrobial action ought to study for Gr- bacteria.

Keywords: *Achillea tenuifolia*, *Staphylococcus aureus*, *Enterococcus feacalis*

MUTAGENICITY SURVEY OF ALGINIC ACID POLYAMIDOAMINE DENDRIMER NANOCOMPOSITE G2 USING AMES TEST (SALMONELLA TYPHIMURIUM MICROSOME ASSAY)

Samaneh Rouhi[1, 2, 3], Hanar Narenji[1, 2], *Babak Shahbazi[1, 2], Rashid Ramazanzadeh[2, 3]
1. Student Research Committee, Kurdistan University of Medical Sciences, Sanandaj, Iran
2. Department of Microbiology, Kurdistan University of Medical Sciences, Sanandaj, Iran
3. Cellular & Molecular Research Center, Kurdistan University of Medical Sciences, Sanandaj, Iran
Email: babakshahbazi77@gmail.com

Background: Several studies have been shown the effects of anti-bacterial nanocomposites and polyamidoamines. But these materials are mutagenic. Efficacy and safety of these mutagenic substances are also important. In this study strains of *Salmonella typhimurium* that lacked in operon amino acid histidine synthesis genes were applied. Ames test using these strains of *Salmonella typhimurium* was performed for survey on mutagenicity effect of Alginic acid polyamidoamine dendrimer nanocomposite G2.
Methods: The amount of bacterial suspension was spread on glucose minimal agar medium. Then Alginic acid polyamidoamine dendrimer nanocomposite G2 as some point was placed on the plate and put at 37 ° C for 48-72 h incubation time. Then we count the number of colonies on the medium. If large numbers of colonies observed, so these material is mutagenic.
Results: Mutagenicity survey by the Ames test showed that number of reverted colonies that was created by Alginic acid polyamidoamine dendrimer nanocomposite G2 was not significant ($p>0.05$). Inhibitory percent of the Alginic acid polyamidoamine dendrimer nanocomposite G2 that was used in the Ames test was 70.78%.
Conclusion: According to our results there is hope that Alginic acid polyamidoamine dendrimer nanocomposite G2 can be safely for used as an antimicrobial agent. However, further research is needed to confirm it.

Keywords: Mutagenicity, Alginic Acid Polyamidoamine dendrimer nanocomposite G2, Ames test, *Salmonella typhimurium*

PREVALENCE OF ANTIBIOTIC RESISTANCE IN GRAM-NEGATIVE BACTERIA ISOLATED FROM HOSPITALIZED PATIENTS IN TOOHID AND BESAT HOSPITALS, SANANDAJ CITY, IRAN (2013-2014)

Rashid Ramazanzadeh[1, 3], *Bahman Mohammadi[1, 2, 3], Saman Mohammadi[1, 2, 3], Sairan Zandi[1, 2, 3], Samaneh Rouhi[1, 2, 3]

1. Department of Microbiology, Kurdistan University of Medical Sciences, Sanandaj, Iran
2. Student Research Committee, Kurdistan University of Medical Sciences, Sanandaj, Iran
3. Cellular & Molecular Research Center, Kurdistan University of Medical Sciences, Sanandaj, Iran
Email: bahman.mo67@gmail.com

Background: Aim of this study was to determinate antibiotic resistant prevalence in Gram-negative bacteria isolated from patients in Hospitals, Sanandaj, Iran.
Methods: This cross-sectional descriptive study was performed to evaluate the prevalence of antibiotic resistance that caused by Gram-negative bacteria during 2013 and 2014 in Tovhid and Besat Hospitals. After the identification of Gram-negative bacteria isolates by microbiological methods, antibiotic susceptibility testing was performed by disk diffusion according to CLSI.
Results: A total of 2129 Gram-negative bacteria isolates were obtained from 3242 patients' clinical samples. The majority of the organisms were isolated from the urinary tracts (85.41%) and *Escherichia coli* were the most frequently organism isolated as Gram-negative species (76.7%), followed by *Klebsiella* spp. (9.77%), *Acinetobacter* spp., and *Enterobacter* spp.. Highest antibiotic resistance was to the trimethoprim (63.2%) in the Burn ward and in the CCU (64.7%). A significant difference was found among antibiotic resistance, ward of hospitalization and the patient's age ($p < 0.05$).
Conclusion: This study showed high rates of resistance in Gram-negative isolated from hospital wards in Sanandaj. High resistance rates were observed for all studied antibiotics. Imipenem, amikacin and cephotaxime appeared to be the most active agents against the majority of isolates in our study, but more studies for appropriate prescription of antibiotics are necessary.

Keywords: Antibiotic-Resistant, Gram-Negative Bacteria, Nosocomial Infections

FREQUENCY OF *MYCOPLASMA GENITALIUM* AMONG PATIENTS WITHBACTERIAL VAGINOSIS IN ROBAT KARIM CITY BY PCR IN COMPARISON WITH CULTURE METHOD

***Khadijeh Onsory[1], Hossein Shahbani Zahir [2], Mona Abdollahi [3], Zahra Haji Mehdi Nouri [4]**

1.Department of Biology, School of Science, Islamic Azad University, Parand Branch, Parand, Iran
2. Microbiology Department, National Genetics Research Center, Tehran-Karaj Highway, Tehran, Iran
3. Ph.D. Student of Cellular and Molecular Biology, Pardis Building, Tehran University, Tehran, Iran
4. Ph. D. Student of Cellular and Molecular Biology, Faculty of Science, Islamic Azad University, Sirjan Branch, Sirjan, Iran
E-mail: onsory@gmail.com

Background: *Mycoplasma genitalium* is a vaginosis pathogen bacterium which conventional clinical microbiology techniques cannot be applied due to difficulties in cultivation and slow growth incubation. The aim of this study was detection and frequency of these bacteria among vaginosis infected women and comparison of its incidence using PCR and culture methods.
Methods: For this purpose, we conducted a study among 150 patients with bacterial vaginosis admitted to Imam Zaman Hospital and compared with 50 healthy women with no vaginal infections. Samples were collected in PPLO culture for the growth and in PBS for DNA extraction and then *16srRNA* gene was amplified using specific primers.
Results: The results indicated that among this population, 107 (71.8%) samples were positive using PCR but only 77 (49.3%) of samples were growing in culture. Positive association was observed between the age and bacterial infection ($P=0.01$). Also an association was found between women with less than two birth and the risk of infection ($P=0.02$).
Conclusion: It is therefore, PCR is a more reliable technique to detect *Mycoplasma* compared to culturing. It is also suggested that presence of this organism is strongly associated with bacterial vaginosis in female.

Keywords: *Mycoplasma genitalium*, bacterial vaginosis, culture, PCR.

EVALUATION OF BALF AND SERUM LEVEL ANNEXIN 1 IN EXPERIMENTAL PNEUMONIA IN CALVES WITH PASTEURELLA MULTOCIDA

***Zohre Eftekhari[1], Mohammad Reza Mokhber Dezfouli[2], Masoud Doosti[2], Masoomeh Heidari Sureshjani[2], Ahmad Reza Jabbari[3]**
1. Research & Development Department, Research &Production Complex, Pasteur Institute of Iran
2. Department of Clinical Sciences, School of Veterinary Medicine University of Tehran, Tehran, Iran
3. Razi Vaccine and Serum Research Institut, Karaj, Iran
Email: Eftekharivet@gmail.com

Background: Annexin A1 (AnxA1) was originally identified as a glucocorticoidregulatedprotein and is an endogenous anti-inflammatory mediator during the resolution phaseof inflammation.
Methods: In present study, Annexins I has been detected in bronchoalveolar lavage (BAL) fluidsand serum from calves (5case) inoculated with *Pasteurellamultocida* (PMC66 Razi ,2×109cfu/ml, 300 cc/ calf in cases), the pathogen for calf pneumonia and compared withcontrol group (5 case). BAL was performed using tracheal tube and lavage catheter and 250 mlof pyrogenic-free saline solution was delivered into the main bronchus and aspirated by syringesin two groups. BAL fluids achieved by bronchoalveolar lavage of calves centrifugedimmediately and sediments were examined for detection of annexins I. Blood samples werecollected from each calf before inoculation and after observation pneumonia signs for Annexin Idetermination.
Results: In calves that inoculated with *Pasteurella*, annexins I was coincidentally elevated inBAL fluids sedimentation (14.37±1.57ng/ml) and serum (11.11±0.55ng/ml) in comparisoncontrol calves (9.22±0.33ng/ml, 8.24± 0.27ng/ml).
Conclusion: These results, together with previous findings on calves inoculated with Pasteurella, suggest that the release of annexins I onto the alveolar surface and elevation in serum is anessential event occurring in response to pulmonary infections of *P. multocida*.

Keywords: Annexin A1,*Pasteurellamultocida*, Bronchoalveolar lavage, Pneumonia

EVALUATION OF CARDIAC TROPONIN I CONCENTRATION DURINGEXPERIMENTAL SEPTICEMIA IN CALVES

***Eftekhari Z[1], Heidari Sureshjani M[2], Mokhber Dezfouli M.R[2], Arab Yarmohammadi M[2], JaniM[2], Doosti M[2], BalaliDehkordi Sh[3]**
1. Research & Development Department, Research &Production Complex, Pasteur Institute of Iran
2. Department of Clinical Sciences, School of Veterinary Medicine University of Tehran, Tehran, Iran
3. School of Veterinary Medicine University of Shiraz,, Shiraz, Iran
Email: Eftekharivet@gmail.com

Background: Colibacillosis occurs most commonly in newborn farm animals and is asignificant cause of economic loss in raising livestock. Abnormalities of cardiac function arefrequent in patients with sepsis. Since alteration of myocardial performance in sepsis may berelated to structural abnormalities of the heart, biochemical markers could thus be useful in thediagnosis of sepsis-induced myocardial dysfunction.
Methods: To evaluate the cTpI changing during septicemia, colisepticemia was induced in 10calves weighting 50 ± 5 kg and aging 10 ±1days with *Escherichia coli O111:H8*. Blood sampleswere obtained at 0, 2, 4, 6, 8, 24, 30, 36 and 48h after challenge to measure the serum cTpI.
Results: Serum cTpI was in its peak level (1.78±0.287 ng/ml) between 8 and 36h after challengeand returned to base level (1.15± 0.158 ng/ml) at the end of study. Statistic's analysis (ANOVA, SPSS version 13th) showed the cTpI changing during colisepicemia was significant ($p < 0.001$).
Conclusion: Serum cardiac troponin I concentration (as a sensitive and specific biomarker ofmyocardial injury) correlates with myocardial dysfunction in septic shock. The mechanism of cTnI elevation in sepsis and systemic Inflammatory Response Syndrome (SIRS) and itsprognostic value is poorly understood. But cytokines and endotoxins from gram-negativemicroorganisms may lead to myocardial depression.

Keywords: Troponin I,*Escherichia coli O111:H8,*Calf

INTESTINAL INFECTION IN MALNOURISHED CHILDREN

Hossein Khavari Daneshvar[1], *Monireh Rahimkhani[2]

1. *Cancer research Centre, Tehran University of Medical sciences, Tehran, Iran*
2. *School of allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran*

E.Mail: rrahimkhani@sina.tums.ac.ir

Background: In present study intestinal infections were surveyed in mal nourished children.
Methods: The present research was a cross sectional study in 12 months. In the period time all the malnourished children admitted to health center in south of Tehran, were included in study. Malnutrition was found in children with clinical examinations. The clinical examinations included measurement body weights, heights and weight-for-age children Z scores and compare them with the standard growth curve. Malnourished children and control group (were matched with sex and age to malnourished children) were referred to the laboratory for stool screening of Ova of worms and protozoa cysts or trophozoite and also stool culture.
Results: In present study 84 malnourished children less than five years old and 58 healthy children (control group) were matched for sex and age to malnourished children were studied. In total 84 cases, 4 children were infected with cysts of Giardia intestinalis,2 children were infected with *Blastosistis hominis*, 5 children were infected with *Enteropathogenic E.coli* and 3 children were infected with *Shigella* Spp. In control group, one child was infected with Giardia intestinalis, 2 children were infected with *Blastosistis hominis* cysts and one child was infected with *Enteropathogenic E.coli*. Statistical analysis showed significantly higher rates of parasitic infection in malnourished children with *G. intestinalis* compared to control group.($P<0.05$) but there was significantly higher rates of *Blastosistis hominis* infection in control group compared to malnourished children.($P<0.05$)About bacterial infections, statistical analysis showed significantly higher rate of bacterial infection malnourished children with EPEC and *Shigella* Spp. Compared to control group. ($p<0.05$)
Conclusion: Parasite and bacterial intestinal infection in malnourished children were significantly higher than healthy children thereby malnourished children should be tested periodically for detecting bacterial and parasitic intestinal infections and should be treated in first stages of illness.

Keywords: intestinal infection, malnutrition, children.

THE RELATIONSHIP BETWEEN HUMAN HERPES VIRUS TYPE 1 (HHV-1) AND CHRONIC FATIGUE SYNDROME

***Mohammad Derakhshan[1], Saeed Niazmand[2], Reza Derakhshan[3]**

1. Department of Clinical Bacteriology & Virology, School of Medicine, Antimicrobial Research Center
Mashhad University of Medical Sciences, Mashhad, Iran
2. Department of Physiology, Mashhad University of Medical Sciences, Mashhad, Iran
3. School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Email: derakhshanm@mums.ac.ir

Background: CFS is a disorder of unknown etiology. Many studies have been reported elevated serum antiviral antibody titers in patients suffering from CFS; so a viral element in its etiology has been suggested. Among the diversity of viruses evaluated to date, including *enteroviruses, retroviruses*, and human *herpesviruses* (HHVs), there is controversial report about the relationship of HHV-1 and HHV-2 with CSF.
Methods: After accurate medical examination, 48 patients were found to fulfill the Centers for Disease Control (CDC) classification for CFS and 35 individuals were selected as control group. IgG and IgM antibodies to HHV-1 were measured in serum of all samples obtained from patients and control group using ELIZA method.
Results: Both patient (93.8%) and control (97.1%) group had positive IgG antibody titer and negative IgM antibody titer (100%). There were not any significant differences ($P>0.05$) between CFS patient's IgG antibodies (115.8 ± 38.58) versus control (105.78 ± 35.68). Also any significant differences ($P>0.05$) was not revealed between patient's IgM antibodies (0.42 ± 0.13) and control (0.46 ± 0.13).
Conclusion: Our data didn't show any relationship between CFS and *HHV*-1 viral infection and this was in parallel with a few studies with the same conclusion. Several strains of *HHVs* and other viruses could simultaneously infect the body and therefore more studies needs to be done in this field for clarifying the viral infections as etiology of CFS.

Keywords: Chronic, fatigue, Human, *herpes*, virus

ANTIBIOTIC RESISTANCE PATTERN OF UROPATHOGENIC ISOLATES OF E. COLI IN KHORRAM-ABAD CITY IN 2012-2013

***Nemat Shams[1], Zainab Shahkarami[2], Mohammad Nayebaghae[3], Khatoun Shahkarami [4]**

1. Associated Professor of Microbiology, Department of Microbiology, School of Veterinary Medicine, Lorestan University, Khorram-Abad, Iran
2. Department of Microbiology, School of Veterinary Medicine, Lorestan University, Khorram-Abad, Iran
3. Department of Microbiology, School of Veterinary Medicine, Lorestan University, Khorram-Abad, Iran
4. Bachelor of Laboratory Science, Boroujerd Branch, Islamic Azad University, Boroujerd, Iran
Email: nematshams1386@yahoo.com

Background: Urinary tract infection is one of the most nosocomial infections which is antibiotic resistance pattern of them is vary in different regions. This study was done with aim of surveying amount of susceptibility and resistance of uropathogenic *E. coli* strains that had been isolated from those who refer to the private laboratories in Khorram-Abad city.
Methods: This study was conducted on 253 urinary isolates. After identification of isolates by standard biochemical tests to evaluate the susceptibility of bacterial isolates by Kirby - Bauer (diffusion) according to standards of the National Committee for Clinical Laboratory (NCCLS) was investigated and the results are analyzed respectively.
Results: The most resistance rates of isolates were related to Co-trimoxazol (61.26%), Ampicillin (52.57%), Cephalexin (49.01%), and Nalidixic acid (44.26%) respectively. On the other hand, the most antibiotic sensitivity rates were to Nitrofurantoin (83.79%), Amikacin (79.05%), Enrofloxacin (68.77%) and Ciprofloxacin (65.61%) respectively.
Conclusion: The results of this study showed that is better in the initial treatment of urinary infections less use antibiotics such as Co-trimoxazol and Ampicillin. Instead antibiotics such as Nitrofurantoin, Amikacin replace them.

Keywords: Antibiotic Resistance, *E. coli*, Urinary tract infections

EVALUATION OF ALOE VERA GEL ON MICRO-FLORA OF UF CHEESE

***Kazhal Sajadi[1], Samira Bahramian[2]**

1. Young Researchers and Elite Club, sanandaj Branch, Islamic Azad University, Sanandaj, Iran
2. Department of Food Science and Technology, Sanandaj Branch, Islamic Azad University, Sanandaj, Iran.
Email: kazhal_sajadi@yahoo.com

Background: Microorganisms play an important role in human life. Aloe vera belongs to the Liliaceae family and has various effects such as the anti-microbial activity. The purpose of this study was to evaluate the effect of Aloe vera gel on total bacterial count, mesophilic lactic acid bacteria and coliforms in UF cheese.
Methods: Aloe vera plant gel was extracted manually under sterile conditions and after homogenization, at the time of filling, was added to the retentate at concentrations of 0, 0.5, 1, 2, 5, 10 and 15%. Then after renneting process, clot formation, salting, sealing of cheese packages and ripening they were kept in cold store. Total bacterial count, mesophilic lactic acid bacteria and coli count in cheese were determined respectively in PCA, MRS agar and VRBA mediums at 30°C. Microbial tests were done immediately after cheese production and at the end of their shelf life.
Results: The results showed the absence of coliform in all samples from production to expiration time. This may indicate good hygienic practice without post process contamination. The comparison of total bacterial number and lactic acid bacteria in UF cheese in the first and third month showed that the difference between their counts during this period was not significant ($p<0.05$).
Conclusion: Aloe vera gel at concentrations of 0.5, 1, 2, 5, 10 and 15% has not significant effect on total bacterial number and lactic acid bacteria in UF cheese.

Keywords: *Aloe vera* gel, UF cheese, coliform, Total bacterial count, mesophilic lactic acid bacteria

ASSOCIATED HOSPITAL INFECTIONS, TYPE OF DELIVERY IN LINE WITH THE IMPLEMENTATION OF HEALTH DEVELOPMENT

***Hossein Abdollahi [1], Majid Maleki[2], Zahra Pashaei[3]**

1. *Research Committee of Miyaneh Khatam'l Anbia Hospital, Tabriz University of Medical Sciences,Tabriz, Miyaneh, Iran*
2. *Infection Supervisor, Research Committee of Miyaneh Khatam'l Anbia Hospital, Tabriz University of Medical Sciences, Tabriz, Miyaneh, Iran*
3. *Research committee of Miyaneh Khatam'l Anbia Hospital, Tabriz University of Medical Sciences, Tabriz, Miyaneh, Iran*

E-mail: hosseinabdollahims@gmail.com

Background: Hospital infection is one of the fundamental problems in the health system. The prevalence of 5% to 25% have been reported. The most common causes of these infections, is performing medical treatments in patients. Hospital infection would increase costs, length of recovery time, disability and death, and would jeopardize the health of the community.
Methods: This study is descriptive and analytic. All hospitalized patients of Miyaneh hospital from April 2014 to March 2015, with confirmed urinary tract infections, blood infections, pneumonia, and surgical wound were included in this study.
Results: From April 2014 to March 2015, 311 cases of urinary tract infections, 23 blood infections, 169 surgical wound and 96 cases of pneumonia, were recorded. From October 2014 to March 2015, 202 cases of urinary tract infections, 18 blood infections, 117 surgical wound and 68 cases of pneumonia were analyzed. Most of the reduction of urinary tract infections and surgical infections was in the women ward. The main reasons for this observation may be the promote natural childbirth and a reduction in the number of cesarean in this period, as the rate of cesarean reduction from 63% to 51%.
Conclusion: Given the importance of hospital infections and a significant reduction in the incidence that by promoting labor and reducing caesarean operations, the country's health policymakers should pay particular attention to it.

Keywords: *Infection, labor, health development*

THE EFFECTS OF TWO DIFFERENT ORGANIC ACIDS: CITRIC ACID AND OXALIC ACID ON POLY (GAMMA) GLUTAMATE BIOSENTHESIS BY FLAVOBACTERIUM SP.

Asma Chegeni[1], *Ali Bahrami[1], Mojtaba Khani[1], Mohammad D. Ghafari[2], Narges Malek sabet[1]

1. *Department of Bioscience and Biotechnology, Malek Ashtar University, Tehran, Iran.*
2. *Young Researchers and Elites Club, North Tehran Branch, Islamic Azad University, Tehran, Iran.*

Email: a_bahrami@mut.ac.ir

Background: To understand the possible mechanism contributing to the improved γ-PGA production, the activities of four key intracellular enzymes were measured, and the possible carbon fluxes were proposed.
Methods: The strain *Flavobacterium* Sp. was obtained from the microbial bank of biotechnology institute (NCBI, Biotechnology Research Center). The strain was cultured in 150 ml LB medium at 30°c for 12 h, the flasks were placed in an orbital shaker at 170 rpm. Then, the bacterial pre-culture medium (6% v/v) were inoculated in the medium was optimized containing of six components purchased from Merck: sucrose (21 g/l), glutamic acid (2 g/l), K_2HPO_4 (6 g/l), NaH_2PO_4 (7 g/l), NH_4Cl (0.7 g/l) and $MgSO_4$ (0.5 g/l) at pH 7.4, for 4 days at 30°c and with shaking at 170 rpm. After incubation, the mixture was centrifuged at 1000 rpm for 20 min to remove the bacterial cells.
Results: The results indicated that citric acid and oxalic acid showed the significant capability to support the overproduction of γ-PGA and the enhanced level of Pyruvate Dehydrogenase (PDH) activity caused by oxalic acid was important for glutamic acid synthesized from sucrose. Moreover, Isocitrate Dehydrogenase (ICDH) and Glutamate Dehydrogenase (GDH) were the positive regulators of glutamic acid biosynthesis, while 2-oxoglutarate dehydrogenase complex (ODHC) was the negative one.
Conclusion: The addition of citric acid or oxalic acid could greatly elevate the productivity of poly (gamma) glutamate by adjusting the bioactivities of some key enzymes. Finally a high concentration of poly (gamma) glutamate (21.7 g/L) was attained by supplementing 20 g/L citric acid.

Keywords: Poly(gamma)glutamate, *Flavobacterium* sp. , Citric acid, Oxalic acid, Biopolymer

INVESTIGATION AND SELECTION OF THE BEST LABORATORY NITROGEN SOURCE ON POLY (GAMMA) GLUTAMATE PRODUCTION BY FLAVOBACTERIUM SP.

***Asma Chegeni[1], Ali Bahrami[1], Mojtaba Khani[1], Mohammad D. Ghafari[2], Narges Malek Sabet[1]**
1. Department of Bioscience and Biotechnology, Malek Ashtar University, Tehran, Iran.
2. Young Researchers and Elites Club, North Tehran Branch, Islamic Azad University, Tehran, Iran.
Email: a_bahrami@mut.ac.ir

Background: Nitrogen is an important nutrition source for organism, in this study was to evaluate the effect of nitrogen source in the mechanism production of γ-PGA of the *flavobacterium* sp.
Methods: In this study, the microorganism *flavobacterium* sp. provided by department of Bioscience and Biotechnology, Malek Ashtar University, was used. Inoculum cultures were prepared in LB-broth and *flavobacterium* sp. Cells were incubated in 150 ml of LB-broth at 30±2°c for 24h, the flasks were placed in an orbital shaker at 170 rpm. The medium was optimized consisted of six components purchased from Merck : Sucrose (21 g/l), Glutamic acid (2 g/l), K_2HPO_4 (6 g/l), NaH_2PO_4 (7 g/l), NH_4Cl (0.7 g/l) and $MgSO_4$ (0.5 g/l) in order to optimize the production of γ-PGA produced from the strain of nitrogen source with cheaper sources of nitrogen such as sodium glutamate, urea, sodium nitrite, potassium nitrate and ammonium chloride was replaced. Then, the bacterial pre-culture medium (6% v/v) were inoculated in the flasks and incubated for 96 h in the orbital shaker at 170 rpm and 30±2°c.
Results: The result indicate that after drying emerged various products in terms of quantity, quality, color, adhesion and appearance were completely different. Finally the maximum concentration of the γ-PGA (19 g/l) obtained from sodium glutamate. Therefore, sodium glutamate were selected with respect to performance and cost and availability.
Conclusion: The best laboratory source of nitrogen could improve the quality and quantity of γ-PGA. Subsequently, was selected sodium glutamate production as nitrogen source, as well as cheap and available.

Keywords: Poly(gamma)glutamate, *Flavobacterium* sp. , Nitrogen source, Sodium glutamate

HIGH PROTHIONAMID RESISTANCE IN *MYCOBACTERIUM TUBERCULOSIS* STRAINS ISOLATED IN ARMENIA

***Hasmik Margaryan[1], Armen Hayrapetyan [2], Aram Manukyan [3]**
1. *Manager of Laboratory Network of MOH "National TB Control Center" SNPO*
2. *Director of MoH "National TB Control Center" SNPO*
3. *Deputy Director of MoH "National TB Control Center" SNPO*

Background: Despite the successes in managing drug-susceptible *TB*, drug-resistant tuberculosis is a major challenge to the effectiveness of National Tuberculosis Program in Armenia, placing the country in the list of 18 high-burden countries for multi-drug resistant tuberculosis (MDR) in the WHO European Region. Estimated burden of MDR-TB in 2012 was 9.4 (7-12) and 43 (38-49) among retreatment *TB* cases. *Prothionamide* (PTH), a structural analog of isoniazid, is used as a second-line drug for MDR-TB and shares the target with isoniazid.
Methods: A total of 197 *mycobacterium tuberculosis* (MTB) strains resistant to individual and combined first line drugs were used for this study. The strains were subjected to drug susceptible testing (MGIT 960 liquid media) to Prothionamide among other second- line.
Reslts: Total sixty-one [61/197(30.96%)] strains showed resistance to second-line drugs. Resistance to PTH was the highest [40/61 (65.57%)], co-resistance with isoniazid [36/40 (90, %)], fifteen [15/61 (24.6%)] strains were fully resistant (XDR), 3 [3/40 (7.5%)] were indeterminate resistance to PTH.
Concluison: The high levels of PTH resistance is a cause for concern. Drug resistance to PTH puts the drug into high risk of low confidence for effectiveness, especially among previously treated cases. This will impact negatively on the outcome of management of MDR-TB. However, recent advances in diagnosis of MDR-TB and aggressive empirical treatment of patients with several drugs in the initial phase of treatment have further improved the prognosis MDR-TB.

Keywords: *Prothionamide*, Isoniazid, resistance, MDR-TB

ANAIYSING THE ABUNDANCE OF THE GENE *glmM* IN SUBJECTS WITH A POSITIVE HPSA FAECAL TEST AND DETERMINING THE CORRELATION BETWEEN *glmM* ABUNDANCE WITH SERUM LEVELS OF CYTOKINES TNF-α AND IL- 1β

***Ayat Moradipour[1], Afra Khosravi[2], Mohammad Reza Mehrabi[3]**

1. Department of Microbiology, Islamic Azad University, Borujerd Branch, Khoramabad, Iran

2. Department of Immunology, School of Medicine, Ilam University of Medical Sciences, Ilam, Iran

3. Department of Laboratory Sciences, Islamic Azad University, Borujerd Branch, Borujerd, Iran

Email: ayatmoradipour@yahoo.com

Background: *Helicobacter pylori*, an organism responsible for various digestional diseases. Phosphoglucoseamine mutase is an enzyme produced by *Helicobacter pylori* which is encoded by the gene *glmM*. The main aim of this study is to determine the prevalence and the abundance of *glmM* in faecal samples by employing faecal PCR and also to assess the correlation between the level of *glmM* and the fluctuations of cytokines TNF-α, IL-1ß and HPSA in the serum of subjects partaking in the current study.

Methods: The Present study was performed on 84 subjects with digestional problems. Faecal and blood samples were gathered and DNA extraction and DNA presence determination was performed using PCR. TNF-α and IL- 1ß levels were determined by performing ELISA on the serum of the samples previously gathered.

Results: In this study, determined that a meaningful correlation is present between the *glmM* gene, HPSA and the cytokines TNF-α & IL-1ß. It also seems that with every unit of increase in either of the quantitave parameters of HPSA and IL-1ß, the presence of *glmM* in faecal samples becomes, regarding the mentioned order, 2.9 and 1.1 times more probable.

Conclusion: According to the obtained results, it may be concluded that fluctuations of cytokines TNF-α , IL-1ß is in close correlation with the presence of *H. pylori* and the *glmM* gene in the stomach's lining. Increases in responses to faecal antigens and IL-1ß is associated with an increased chance of presence of *glmM* in faeces. Thus suggesting a prognosis of a bacterial virulent, requiring faecal analysis.

Keywords: *H. pylori, glmM,* TNF-α , IL- 1β, HPSA

ANTICANDIDIAL POTENTIAL OF ALLIUM SARALICUM AGAINST CANDIDA SPP. AND DETERMINATION OF COMPONENTS USING HEAD-SPACE

***Faranak Bidad[1], Mahboobeh Madani[1], Seyed-Mohammad Masoumi[2]**

1. Department of Microbiology, Falavarjan Branch, Islamic Azad University, Isfahan, Iran.

2. Department of Biology, School of Science, Razi University, Kermanshah, Iran

Email: faranakbidad@hotmail.com

Background: Antimicrobial derived from plants have a long history in the treatment of microbial infections. *Candida* species is the most important agent of candidiasis and also can cause systemic infection in immunocompromised subjects. Drugs toxicity, resistance in fungi and drug –interaction lead to the usage of more efficient and less toxic drugs. The application of traditional medicine and medicinal plants had attracted many professional and scientists around the world.

Method: *Allium saralicum* were collected from Kermanshah in may of 2014. The antifungal activity of the extracts) ethanol and choloroform) against *Candida tropicalis (CBS94), Candida albicans (ATC1677), Candida glabrata(CBS2175)* were investigated using well diffusion method. Minimum Inhibitory Concentration (MIC) and Minimum Fungicide Concentration (MFC) Were determined. The major compound determined by Head-speace.

Results: The results indicated that *Allium saralicum* extracts) ethanol and choloroform) was work against *candida* spp. Analysis by Head-speace, determined sulfide component in *Allium saralicum.*

Conclusions: The increase of refractory fungal diseases, drug toxicity and other reasons cause to attention to the nature for obtain new resources that inexpensive, safe and affective for patients. This study showed antifungal effect of *Allium saralicum* against *C.albicans* spp.

Keywords: *Candida* spp, *Ephedra major*, Antifungal, Head -space

PREVALENCE OF NOSOCOMIAL INFECTIONS IN FIVE HOSPITALS OF ARDABIL CITY IN 1393

***Seyyedeh Negar Modarres sadrani[1], Sadegh Hazrati[2], Bagher Talebi[3]**

1. Department of biology-biochemistry, Islamic Azad University, Ardabil Branch, Ardabil, Iran
2. Department of Environmental Health, School of Public Health, Ardabil University of Medical Sciences, Ardabil, Iran
3. M.D, Ardabil province Health Center, Ardabil, Iran

Background: The hospital aquired infections are in the category of major medical problems leading to different health risks and mortality. The purpose of this study was to evaluate incidence of hospital aquired infections in Ardabil city.
Methods: In a cross-sectional study all the patients admitted to five hospitals of Ardabil city were evaluated for hospital aquired infections based on the standard criteria 2014. Isolation and identification of bacteria were performed according to standard methods in medical diagnostic laboratories
Results: The incidence of nosocomial infections among hospitalized patients in all wards was 3.45% with the highest and the lowest rates belonging to Imam-Khomeini (6.16%) and Tamine-Ejtemai (1.98%) hospitals, respectively. The highest prevalence of infection was observed in ICU (32.59%) followed by NICU (18.34%) and CCU (6.35%) wards (P value <0.05). The most common microorganism causing the infections was *E.coli* (7.79%), followed by Acinetobacter (6.23%) and gram-negative bacilli (4.37%). Of 2163 nosocomial infections occurred, 61.76% and 38.23% were diagnosed based on the clinical presentations and positive results of cultures in vitro, respectively. Incidence of death in patients with nosocomial infection was 53 patients (109 cases registered).
Conclusion: According to the results obtained, we could determine associated factors of hospital aquired infections to control the infection. Improving the managing methods and sterilizing the units with a high prevalence can be a way to reduce infection and consequently decrease the number of deaths caused by it.

Keywords: Hospital infections, nosocomial, prevention, Ardebil

PREVALENCE OF *CRYPTOSPORIDIUM* INFECTION IN CHILDREN WITH GASTROENTERITIS IN JAHROM CITY IN 2014

Solhjoo K[1], *Zahra Kargar jahromi[1], Abiri R[2], Davami MH[1], Kargar Jahromi H[1]

1. Zoonoses Research Center, Jahrom University of Medical Sciences, Jahrom, Iran
2. Medical Student of Jahrom University of Medical Sciences, Jahrom, Iran

Background: *Cryptosporidium* has emerged as an important cause of diarrhoeal illness worldwide, especially amongst young children. The parasite is not examined in Parasitology usual tests. Therefore, the study performed with the aim of frequency determination of *Cryptosporidium* infection in children with diarrhea in Jahrom city for the first time.
Methods: In this study, a total of 200 stool specimens from children under 10 years with diarrhea that referred to Jahrom laboratory centers were examined to determine Cryptosporidium infection in during 2014. On beginning, samples were concentrated with Formol-ether method and after staining with modified acid fast method, were studied microscopically.
Results: In this study, 5 children (2.5%) were diagnosed with Cryptosporidiosis. 3 cases were girls and 2 cases were boys.
Conclusion: Results of this study revealed that the frequency of *Cryptosporidium* infection was similar to other parts of the world. Considering the nature of zoonotic this protozoan and its transmission to human and endangerment of human and animal should be the children kept out of contact with animals.

Keywords: *Cryptosporidium,* children, diarrhea, Jahrom

PREVALENCE OF THE POLY-B-HYDROXYBUTYRATE AND EXOPOLYSACCARIDE BIOSYNTHESIS BY BACTERIA ISOLATES FROM CLOVER ROOT NODULES

***Abdoljalil Eiri[1], Mohammadreza Kouchaki[2], Masoud Daliryonesi[3], Mozghan Porjafari[3], Jamshid Bahmani[3]**

1. Department of Biology, Farhangian University, Imam Khamenei campus, Gorgan, Iran
2. Department of Electrical and Computer Engineering, Pooyandegan Danesh Institution of higher Education ,chalous,Iran
3. Department of microbiology, Islamic Azad University, Tonekabon Branch, Tonekabon, Iran

Background: The aim of this study was Prevalence of the poly -β -hydroxybutyrate and Exopolysaccaride biosynthesis by bacteria isolates from clover root nodules.
Methods: Sampling was conducted from 6 different regions in the chalous city that located in north of Iran. After culturing and purifying the bacteria in yeast extract–mannitol–agar medium, those characteristics were investigated with the differential biochemical tests. Medium YEM was used to the bacteria isolated, then the PHB and EPS production was investigated by using different carbon sources (fructose, glucose, xylose, sucrose, or starch).
Results: Results showed that from the 6 isolated colonies, 4 colonies (R1, R4, R6, R2) have the highest production of PHB that produced more than 12 mg/l PHB, and among these isolates only R3is produced 28.6 mg/l PHB and 25mg/l EPS and dry cell biomass was 65. After adding different carbon sources, PHB and EPS production in the presence of fructose was the highest and in the presence of glucose was the lowest. R3 in the presence of fructose and sucrose showed a high production, while the (DCB) for this sample in the presence of glucose was the highest.
Conclusion: The bacterial strains that are able to produce biopolymers that are applied in industrial sectors present a source of renewable resources.

Keywords: Exopolysaccaride, poly beta hydroxybutyrat, clover

STUDY OF THE CONJUGATION POSSIBILITY OF GOLD NANOPARTICLES PRODUCED BY FUSARIUM OXYSPORUM TO STREPTOMYCIN ANTIBIOTIC

***Nasrin Naimi Shamel[1], Samaneh Dolat Abadi[2], Parastoo Pourali[3]**

1. Department of microbiology, Science and Research Branch, Islamic Azad University, Neyshabur, Iran
2. Department of microbiology, Neyshabur Branch, Islamic Azad University, Neyshabur, Iran
3. Department of Medical Sciences, Shahrood Branch, Islamic Azad University, Shahrood, Iran

Background: In the present study biosynthesis of gold nanoparticle was done by *Fusarium oxysporum* fungus strain and the obtained nanoparticles were conjugated to streptomycin antibiotic. Finally, the anti-bacterial property of the conjugated gold nanoparticles was studied against four pathogenic bacterial strains.
Methods: *Fusarium oxysporum* cultured in SDB medium. In order to produce gold nanoparticles, the sample was cultured in SDB medium and the culture supernatant was subjected to chloroauric acid solution at the final concentration of 1mmolar. After nanoparticles production, the color changed reaction mixture was used for characterization with spectrophotometry, X ray diffraction (XRD) and transmission electron microscopy (TEM) microscopy. Conjugation the antibiotic to gold nanoparticles was confirmed through spectrophotometry and infrared spectroscopy (FTIR). MICs of the antibiotic, nanoparticles and the conjugated nanoparticles were evaluated by broth dilution and agar well diffusion plate methods against some bacterial pathogenic strains.
Results: The produced gold nanoparticles had spectral absorption peak around 530 nm wavelength. XRD results confirmed the presence of the elemental gold in the mixture and TEM images have shown the nanoparticles were spherical or hexagonal and their sizes were around 25-30 nanometer. Spectrophotometry analysis had shown that gold nanoparticles were successfully conjugated to the tested antibiotic. Furthermore, FTIR results confirmed the conjugation process.Based on the structure of the used antibiotic and the tested bacterial strains, gold nanoparticles that were conjugated to the antibiotic had different antibacterial properties.
Conclusion: It seems that the conjugation of the biologically produced gold nanoparticles to the antibiotic can be done without any additional linkers.

Keywords: *Fusarium oxysporum*, gold nanoparticles, conjugation, streptomycin

DIAGNOSIS AND ISOLATION OF BACTERIA EXISTING IN THE SEWAGE OF YASUJ HOSPITALS

***Asghar Sharifi[1], forogh Kargar[2], Mohsen Naghmachi[3], Seyed Abdolmajid Khosravani[4], Seyed Sajad Khoramrooz[5]**

1. *Cellular & Mollecular Research Center, Yasuj University of Medical Science, Yasuj,Iran*
2. *medicine student of medical university of yasuj*
3. *Department of Nutrition,Medical Health Science,Medical University of Yasuj Yasuj,Iran*
4. *Cellular & Mollecular Research Center,Yasuj University of Medical Science,Yasuj,Iran*
5. *Cellular & Mollecular Research Center,Yasuj University of Medical Science,Yasuj,Iran*

Background: With respect to the importance of sewage in hospitals because of the out break of a number of diseases and also preventing the cost inflicted to the community therefore we decided to study the diagnosis and isolation of bacteria existing in the hospital sewage of yasuj city in the present research.
Methods: At first sampling was performed from the sewage of hospitals shahid Beheshti,Shahid Rajaee and Emam Sajjad(AH).Then the samples were diluted in proportion of 1/100000, and MPN test was donefor coliforms and *entrococus fecalis*,and also Azid dextrose brate environments were used for recognition of these microorganisms.Then antibiogram test was performed to determine the sensivity and resistance of bacteria to the standard antibiotics.P.T.O
Results: In this sectional study in total 72 times sampling was performed from the three (3)hospitals,and the obtained data showed that the awerage counting of coliform and *enterococus fecalis* colonies were 53.66*106 and 1858 *106 in shahid beheshti hospital 49.1*106 and 15.53 *106 in shahid Rajaee hospital and 38.3 *107 and 23.28 *106 before septic and 13.93 * 106 and 9.2 *106 after septic in Emam sajjad (POH) hospital respectively.
Conclusion: The counting rate of coliform and *enterococcus fecalis* colonies have significantly decreased after purification and septic process in Emam Sajjad hospital in comparison to shahid beheshti and shahid Rajaee in which there is no system for purification of sewage.

Keywords: *Enterococcus fecalis*, Coliform, Sewage

ANTIBACTERIAL ACTIVITY OF DIFFERENT EXTRACTS OF AERIAL PARTS OF DIONYSIA REVOLUTA BOISS. AGAINST *ESCHERICHIA COLI, STAPHYLOCOCCUS AUREUS, PSEUDOMONAS AERUGINOSA, SALMONELLA ENTERITIDIS, ENTEROCOCCUS*

***Maryam Ahani[1], Nahid Rahimifard[2], Asie Shojaii[3]**

1. *Pharmaceutical Sciences Branch, Islamic Azad University (IAUPS), Tehran, Iran.*
2. *Food and Drug Laboratory Research center (FDLRC), Food and Drug Control Laboratories (FDCLs), Ministry of Health (MOH), Tehran, Iran.*
3. *Research Institute for Islamic and Complementary Medicine, Iran University of Medical Sciences, Tehran, Iran.*

Background: The aim of this study was to evaluate the antibacterial effects of three Dionysia revoluta extracts (aqueous, methanolic & chloroform) against five bacterial species including *Escherichia coli, Staphylococcus aureus, Pseudomonas aeruginosa, Salmonella enteritidis, Enterococcus faecalis*
Methods: The extracts were prepared by maceration method. Pre-evaluation of the antibacterial effect was utilized by cup-plate technique and then minimum inhibitory concentrations of the extracts were determined by agar-well diffusion, broth microdilution and disc diffusion methods according to NCCLS.
Results: All three extracts have antibacterial effects on all bacterial strains.The methanolic extract was the best, with least MIC about 7.8 microgram/ml.
Conclusion: The present study shows that different extracts of Dionysia revoluta Boiss have remarkable antibacterial activity and definitely contain effective antibacterial compounds which maybe novel and should be investigated more in future studies.

Keywords: Antibacterial; Dionysia revoluta; MIC

DESULFOSPOROSINUS, ANAEROBIC THERMOPHILIC SULFATE-REDUCING BACTERIUM ISOLATED FROM A BUSHLI HOT SPRING.

***Sorour Aalipanah[1], Mitra Sadat Tabatabaee[2], Nazila Arbab Soleimani[3]**

1. *Department of Biology, Science and Research Branch, Islamic Azad University, Tehran, Iran*
2. *Department of Biology, School of science, Islamic Azad university-Central Tehran branch*
3. *Department of Microbiology, Damghan Branch, Islamic Azad University, Damghan, Iran*

Background: Due to the extreme conditions of sulphate reducing bacteria growth (obligative anaerobic, high temperature, and ...), studying them is difficult. Due to Ardabil's unique hot springs not many studies were performed on them. The aim of this study was the investigation of the possibility of anaerobic thermophilic sulphate reducing bacteria existence in Bushli hot springs of Ardabil.
Methods: In this study Bushli hot spring was anaerobically sampled. Enrichment, isolation and purification of sulphate reducing bacteria were done in specific media Postgate B and Hungate under anaerobic condition in crimped seal anaerobic serum bottles. Initial identification of bacteria was done by common biochemical tests. Molecular identification was performed on the basis of DNA extraction and *16S rDNA* riobotyping with the use of universal primers.
Results: Studied hot spring contained sulphate reducing bacteria which were able to grow in specific media.Dominant bacteria in these media were gram positive, motile, and had endospore. None of these isolated bacteria had desufoviridin pigment.
Conclusion: The result of this study showed the existence of anaerobic thermophilic sulphate reducing bacteria of Desulfosporosinus genus in the target hot spring.

Keywords: Desulfosporosinus. Hot springs. Sulphate reducing bacteria. Anaerobic bacterai. Thermophilic bacteria. Extremophiles

INTRODUCTION OF 8 STRAINS OF PROBIOTIC *LACTIC ACID BACTERIA* ISOLATED FROM LOCAL DAIRY PRODUCTS OF IRAN

***Malihe Hajighasemi[1], Naheed Mojgani[2]**

1. *R and D Department, Alborz Razi Productive and Distributive Cooperative Co., Karaj, Iran*
2. *Associate professor, Razi Vaccine and Serum Research Institute, Karaj, Iran*

Background: *Lactic Acid Bacteria (LAB)* well known for their probiotic properties are present mainly in dairy, meat and other food products. These bacteria are generally regarded as safe (GRAS) and used in many products as probiotics. In this research, we aimed to identify locally isolated LAB with probiotic potentials by phenotypic and genotypic methods.
Methods: A number of locally isolated bacteria from different sources were identified to genus level as LAB by phenotypic characteristics including gram staining and catalase test. The selected bacteria were then screened for their probiotic properties by testing their acid and bile resistance, antibacterial activity, cholesterol reducing. The selected probiotic LAB were identified to species level by using universal primers and *16s rRNA* gene sequencing.
Results: In this research, 20 strains of gram positive and catalase negative bacteria were identified as belonging to genus LAB, and were subjected to probiotic screenings. Among the 20 LAB isolates only 8 isolates resisted pH value of 2.5 and resisted 0.3 to 1% bile salt. Among these 8 isolates, 3 isolates showed the ability to lower cholesterol significantly as they reduced 94.8, 95.73 and 97.82 per cent of cholesterol within 2 hours of incubation. Based on *16s rRNA* gene sequencing these 8 isolated were identified as *L. plantarum* (PBN13, PBN10, PBN14, PBN15, PBN16), *L. casei* (PBN1) and L.rhamnusos (PBN17).
Conclusion: The LAB isolates in this study possessed significant probiotic properties and might be used as a probiotic supplement in human and poultry products in the future.

Keywords: Probiotic, Lactic Acid bacteria, *16s rRNA* gene sequencing

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INVIVO SAFETY EVALUATION OF PROBIOTIC BACTERIA IN WISTAR RAT MODEL

Sodabeh Khalkhali[1], Naheed Mojgani[2]

1. *Department of Microbiology, Islamic Azad university, Fars Iran*
2. *Associate professor, razi vaccine and Serum Research Institute, Karaj*

Email: dnmoj@yahoo.com

Background: Safety is the most important criterion for the use of probiotic bacteria in man and animals, and the absence of pathogenicity and infectivity is regarded as the most important factor for consideration. In order to verify the safety of these bacteria it is recommendable to determine the toxicity of these bacteria in an appropriate animal model.
Methods: In this study, oral toxicity tests of probiotic bacteria including *Lactobacillus casei, L.fermentum*, and *Enterococcus faceium* were conducted in 24 health male albino Wistar rats. All rats were fed daily 108 cfu/ml of the respected bacteria and observed with respect to general behavior, signs of toxicity and mortality for 21 consecutive days. After an overnight fast all animals were weighed and sacrificed. Blood was withdrawn by cardiac puncture from anaesthetized animals under sterile conditions for hematological and serum biochemical investigations. The animals were then killed humanely and the vital organs including liver, spleens, kidneys and heart were removed under sterile conditions and processed for routine gross and microscopic examination.
Results: Based on our observations all tested animals appeared to be healthy, inquisitive and active. It was also indicated by their food intake, weight gain and general appearance. No illness or death occurred and there were no signs of gastrointestinal upsets including diarrhea or vomiting. No viable cells were isolated from blood and the vital organs. Significant data was achieved during hematological and serum biochemical studies.
Conclusion: In conclusion, the tested probiotic bacteria appeared safe for consumption in man and animals.

Keywords: Probiotic bacteria, safety, Wistar rats

ISOLATION AND IDENTIFICATION OF *PROBIOTIC BACTERIA* FROM HUMAN MILK SAMPLES

Sodabeh Khalkhali[1], Naheed Mojgani[2]

1. *Department of Microbiology, Islamic Azad university, Fars IR Iran*
2. *Associate professor, razi vaccine and Serum* Research *Institute, Karaj*

Email: dnmoj@yahoo.com

Background: Objectives: The probiotic efficacy of lactic acid bacteria isolated from 30 healthy mothers breast milk samples collected in Tehran was assessed.
Methods: The isolates identified to genus level by phenotypic characters were selected and tested for their tolerance to pH (2.0, 2.5, 3.0, 4.0, 6.5), bile salt (0.3, 0.5, 0.7, 1%), and NaCl (1, 2, 4, 6%) at different time intervals. The survival rate of the isolates in simulated gastric juice and their antibacterial activity against a number of gram positive and gram negative pathogens was evaluated by well diffusion assay. The phenotypic antibiotic resistance pattern of the isolates was determined by disc diffusion assay, and their minimum inhibitory concentrations (MIC) determined by broth micro dilution method. The mentioned isolates were identified to species level by *16s rRNA* gene sequencing.
Results: Among isolated LAB, *Pediococcus* was the most prominent species while other included L.case, *L.fermentum, L.plantarum, and L.gasseri*. The isolates shoed significant probiotic characteristics including acid and bile resistance, cholesterol reduction and bile salt hydrolysis activity. The isolates were able to inhibit a number of tested pathogens including *E.coli, Ps aeruginosa, Sh.sonnei, Staph.aureus* and *Sal.typhi.*
Conclusion: Breast milk samples appeared to be a potential source of probiotic bacteria. Invivo safety evaluation of these isolates is essential to prove their safety for consumtion in humans.

Keywords: *Lactic Acid bacteria* LAB, Probiotic, Mothers Milk

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RAPID IDENTIFICATION OF 4 SPECIES OF *LACTIC ACID BACTERIA* ISOLATED FROM TRADITIONAL IRANIAN DAIRY PRODUCTS BY SPECIES-SPECIFIC PRIMERS

Siavash Azari[1], Elahe Zarei Yousef Abad[1], Malihe Hajighasemi[1], Fatimah Hussaini[2], Naheed Mojgani[3]

1. *R and D Department, Alborz Razi Productive and Distributive Cooperative Co., Karaj, Iran*
2. *R and D Department, Nature Bio Technology, Karaj, Iran*
3. *Razi Vaccine and Serum Research Institute, Karaj, Iran*

Email: dnmoj@yahoo.com

Background: Identification of *Lactic Acid Bacteria* has always been a challenge in the probiotic industry. Use of a rapid and reliable method is of great significance.
Methods: 20 strains *of Lactic Acid Bacteria* were identified by using 4 specific primer pairs in PCR reactions. The primers were specific for *L. casei* (Lc1 and Lc2), L. rhamnosus (LU5 and RhII), *L. plantarum* (MY42F and MY42R), and *P. acidilactici* (PedAF and PedAR). The primers Lc1 and Lc2 were specifically designed for this study while the other 3 pairs were primers reported earlier by other researchers. The results were confirmed by *16s rRNA* gene sequencing using 27F and 1492R universal primers.
Results: PCR products of 270 bp for *L. casei*, 113 bp for *L. rhamnosus*, 752 bp for *L. plantarum*, and 872 bp for *P. acidilactici* were obtained. The sequencing results showed above 98 per cent similarity of our isolates with the aforementioned species found in the databases.
Conclusion: The primers used in this study approved to be reliable for rapid and accurate identification of selected LAB isolates.

Keywords: PCR, Primer, LAB, Identification

PHYSICO-CHEMICAL AND MICROBIOLOGICAL ANALYSIS (LACTIC FLORA) OF A TRADITIONAL IRANIAN SARI CHEESE

Elham Kameli[1], Mohammad Reza Ehsani[2], Naheed Mojgani[3]

1. *Food Science and tenhmology-Scinece and Research Branch-Islamic Azad University, Tehran*
2. *Tehran university, Tehran*
3. *razi vaccine and Serum Research Institute, Karaj*

Email: dnmoj@yahoo.com

Background: Cheese is a nutritional dairy product produced and consumed all over the world.
Methods: Sari cheese was obtained from a local producer in Salmas city, West Azerbaijan Iran. The Physico-chemical properties including pH, moisture, ash, total proteins, fats, acidity, and NaCl concentrations was investigated during ripening period (days 1, 15, 30 and 60). The number of mesophylic bacteria was determined on Plate Count Agar incubated at 37°C for 48 h. *Lactic Acid Bacteria* were evaluated on MRS supplemented MRS and M17 Agar at 37°C for 48 h under aerobic and anaerobic conditions. The isolates were identified by 16SrRNA sequencing and their probiotic properties determined according to standard methods.
Results: Significant reduction in pH was observed during initial 15 days of ripening while in later pahses pH was increased. The protein, fat, ash and NaCl concentrations increased during ripening period which could be due to decrease in moisture contents. *Lactic acid bacteria* were the major microbial group. *Lactococci* were the dominant flora during initial ripening phases. While in later phases *lactobacilli* species were dominant. The isolated LAB showed significant probiotic properties and were identified to species level by *16S rRNA* sequencing.
Conclusion: Sari Cheese a traditional Iranian cheese showed high prevalence of LAB with significant nutritive values.

Keywords: Traditional Sari Cheese, Physico-chemical properties

EVALUATION OF ANTIBIOTIC RESISTANT OF PSEUDOMONAS AERUGINOSA AND *KLEBSIELLA PNEUMONIAE* IN URINE SAMPLES OF REFERRED PEOPLE TO TOWHID HOSPITAL OF SANANDAJ, IRAN, 2014

Farzaneh Kaffashi Boukani[1], Bahareh RahimianZarif[2], KambizDavari[2]

1. *M.Sc Student, Department of Microbiology, Science and Research Branch, Islamic Azad University, Sanandaj, Iran*
2. *Assistant Professor, Department of Microbiology, Science and Research Branch, Islamic Azad University, Sanandaj, Iran*

Email: namo_k81@yahoo.com

Background: The aim of this study was the evaluation of antibiotic resistance in *Pseudomonas aeruginosa* and Klebsiella pneumoniae, there are isolated from the urine specimens of people who referred toTawhid Hospital, Sanandaj, Iran.

Methods: In this experimental study, urine samples were obtained from 4912 patients. *Pseudomonas aeruginosa* and *Klebsiella pneumoniae* were identified by routine Bacteriological methods. The isolates were cultured inMuller-Hinton agar and antimicrobial susceptibility testing was performed by Kirby Bauer disc diffusion method, according to CLSI guidelines. Results were compared with standard table and isolates were determined asresistant, sensitive, or intermediate resistant.

Results: Out of 4912referredpatients, 819(16.67%) samples had bacterial contamination.The frequency rates of the isolated *P.aeruginosa* and *K. pneumoniae* were 43(5.25%) and 58(7.08%) respectively.*P.aeruginosa* resistance rates to different antibiotics were as follows: Pipracillin 90.70%, Cefotaxime 83.72%, Ciprofloxacin 79.07%, Gentamicin 65.12%, Ceftriaxone 48.87%, Cefepime 44.19% and Colistin 37.90%.*K. pneumoniae* resistance rates to different antibiotics were as follows: Cotrimoxazole 70.69%, ciprofloxacin 63.79%,Nitrofurantoin 55.17%, Cloranfenicol 48.28%, Gentamicin 48.28%, Nalidixic acid 39.66%, and Imipenem 31.03%.P. aeruginosa and *K. pneumoniae* strains isolated in our patients were showedMulti Drug Resistance (MDR) 93.02% and 68.97% respectively

Conclusion: The emergence of *P. aeruginosa* and *K. pneumoniae* with alarming rates of resistance, highlights the need for a more rationalized and restricted use of antibiotics in order to minimize the spread of resistant bacterial strains.

Keywords: Antibiotic resistance, *Pseudomonas aeruginosa*, Klebsiella pneumoniae, UTI, Sanandaj

STUDY ON AFFECTION OF SILVER NANOPARTICLES, HYDROGEN PEROXIDEAND HUWA-SAN ON MULTIDRUG RESISTANT (MDR)*PSEUDOMONAS AERUGINOSA*ISOLATED FROMURINARY TRACT INFECTIONS IN TOHID HOSPITAL, SANANDAJ, IRAN, 2014

Farzaneh Kaffashi Boukani[1], Bahareh RahimianZarif[2], KambizDavari[2]

1. *Department of Microbiology, Science and Research Branch, Islamic Azad University, Sanandaj, Iran*
2. *Department of Microbiology, Science and Research Branch, Islamic Azad University, Sanandaj, Iran*

Email: namo_k81@yahoo.com

Background: The objective of this study is to investigate the antimicrobial effect of silver nanoparticles (Ag), hydrogen peroxide (HP) and their combination in Huwa-San (a trademark) solution against P.aeruginosa.

Methods: In this experimental study, urine samples were obtained from 4912 patients who referred to Towhid hospitals of Sanandaj, Iran, 2014. After bacteriologicalidentification and evaluation of antibiotic resistance in P.aeruginosaby Kirby Bauer disc diffusion method, according to CLSI guidelines, the MDRs were collected. To measure the effective antibacterialconcentration of Ag, HP and their combination in Huwa-Sansolution, the MIC and MBCwere determined by macro dilution susceptibility test.

Results: According to the results, 40 (93.02%) Out of 43 samples showed MDR and MIC and MBC of Agfor P.aeruginosa were 3.12 and 12.50ppm respectively.MIC and MBC of HP for *P. aeruginosa* were 1.88 and 3.75% respectively. MIC and MBC of Huwa-San solution for P. aeruginosa were (1.88 ppm Ag and 0.32% HP) and (7.50 ppm Ag and 1.25% HP), respectively.

Conclusion: This study demonstrated that silver nanoparticles and hydrogen peroxidehave inhibitory effect on P. aeruginosa and intheir combination in Huwa-San solution, increased antibacterial action.

Keywords: *Pseudomonas aeruginosa*, MDR, silver nanoparticles, hydrogen peroxide, Huwa-San

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CTX-M BETA- LACTAMASE GENE FREQUENCY IN UROPATHOGENIC *ESCHERICHIA COLI* (UPEC) ISOLATED FROM CLINICAL CASES IN BAQIYATALLAH HOSPITAL

Sorour Farzi[1], Mohammad Niakan[2]
1. *Master of Science Medical Microbiology School of Medicine, Shahed University Tehran iran*
2. *PHD of Medical Microbiology Medicine School Shahed University Tehran iran*

Email: s.farzi65@gmail.com

Background: *E. coli* is one of the most common bacterial causes of urinary tract infection. It is now clear Antimicrobial resistance is very important in this group of bacteria. One of the most important immune mechanisms in Gram-negative bacteria against antibiotics Beta-lactam, beta-lactamase enzymes used.
Methods: From September to December 2013, 50 uropathogenic *Escherichia coli* (UPEC) strains were isolated and included in this study. That The study randomly was selected to determine for review at a later stage sensitivity or resistance antibiotics amikacin, ciprofloxacin, cephalothin, nitrofurantoin, gentamicin, Nalid ixic acid, cefotaxime, Ceftizoxime, ceftriaxone, ceftazidime, cefixime and Cefpodoxime were determined. In the next phase of testing to determine the presence of ESBL Test DDT (Double Disk Test) was used, and the frequencies of resistant genes were analyzed by PCR *blaCTX-M*.
Results: Antibiotic resistance samples was as follows: 2% to amikacin, 18% To ciprofloxacin, 41% to cephalothin, 1/8% to nitrofurantoin, 14% to gentamicin, 36% to Nalidixic acid, 10% to cefotaxime, 50% to Ceftizoxime, 16% to ceftriaxone, 16% to Ceftazidime, 25% to cefixime and 50% to cefpodoxime were resistant. Of which 11 isolates (22%) were resistant to cefotaxime, ceftazidime and ceftriaxone that DDT test on them Testing was conducted DDT, 7 isolates were positive. After tests Phenotype based on PCR positive ESBL genes on 7 *blaCTX-M* (63%) were performed.
Conclusion: According to ESBL production should be identified phenotypic strains by strains. ESBL-producing should be reported in our lab in our country routinely to have Antibiogram with the ESBL test results to treatment with a view to producing ESBL not fail to be treated.

Keywords: *E. coli, CTX-M*, urinary tract infection

ANTIBACTERIAL EFFECT OF DIONYSIA REVOLUTA BOISS. EXTRACTS ON *ACINETOBACTER BAUMANNII* ISOLATED FROM WOUND OF BURNED PATIENTS

Leila Moslemi[1], Nahid Rahimifard[2], Asie Shojaii[3]
1. *Pharmaceutical Sciences Branch, Islamic Azad University (IAUPS),*
2. *Food and Drug Control Laboratories(FDCL);Food And Drug Laboratories Research Centre(FDLRC),Ministry of Health and Medical Education(MOH);Tehran, Iran;*
3. *Research Institute for Islamic and Complementary Medicine, Iran University of Medical Sciences, Tehran, Iran.*

Email: rahimifn@yahoo.com

Background: Dionysia revoluta Boiss is a member of primulaceae.This plant is distributed locally across south region of Iran. Antimicrobial activities against some species have been reported from the extracts and fraction of this plant. In the present study antimicrobial activities of methanolic and chloroformic and crude extracts against 50 isolates of Acinetobacter baumannii from wound of burned patients were avaluated.
Methods: The samples of plant were collected from Hormozgan province. The plant were first dried and blended and extracts were prepared by standard methods of maceration. The extracts then dried with rotary evaporator. The dried concentrated extracts were kept within glass vials under standard conditions until used. Standard agar diffusion methods (disck diffusion and well diffusion) were used to examine different concentrations plant extracts against bacteria.
Results: All three extracts had antibacterial effects on Acinetobacter baumannii.Water extract at 2000 mg/ml showed the maximum inhibion zone (15 mm).Well diffusion methods was more efficient method.16 isolates were sensitive to all extracts and showed growth inhibition zone from 12 mm to 15 mm.
Conclusion: We concluded that the antimicrobial activity of Dionysia revoluta Boiss against *Acinetobacter homani* is valuable, but further investigation especially invivo studies are recommended before final conclusion.

Keywords: *Dionysia revoluta* Boiss. extracts , Antibacterial effect , *Acinetobacter homani*

DETECTION OF NDM-1-PRODUCING GRAM NEGATIVE BACTERIA FOR THE FIRST TIME IN SOUTHERN OF TURKEY

Farzad Heydari, Tülin Güven Gökmen, Suna Kızılyıldırım, Emel Yarar, Fatih Köksal
Department of Medical Microbiology, School of Medicine, Cukurova University, Adana, Turkey
Email: heydarifarzad@yahoo.com

Background: New Delhi metallo-β-lactamase-1 (NDM-1), an acquired class B carbapenemase, is a significant clinical threat due to the extended hydrolysis of β-lactams including carbapenems. In this study, we isolated 100 carbapenem resistance gram-negative bacteria that were recovered from different units in Cukurova univesity Hospital of Adana, Turkey.
Methods: These isolates were resistant to imipenem and meropenem, but susceptible to colistin. Modified hodge test and double disk synergy test were positive in these isolates. The presence of blaNDM-1 was investigated by PCR and confirmed by sequencing.
Results: We detect four species of bacteria (*Enterobacter cloacae, Acinetobacter baumannii, Klebsiella pneumoniae, and Escherichia coli*) that harboured blaNDM-1 for the first time in southern of Turkey.
Conclusion: Our findings confirmed that the rapid spread of NDM-1-producing gram-negatives could become a major challenge for the treatment and control of healthcare-associated infections in our geographical area.

Keywords: NDM-1, carbapenemase, molecular epidemiology, sequencing

BIOLOGICAL WASTEWATER TREATMENT THROUGH BIOFILM

Amin Barghi[1], *Razieh Sadati [2], Reza Abbasi Larki [3]
1. *Young Researchers Club, Lahijan branch, Islamic Azad University, Lahijan, Iran*
2. *Young Researchers Club, Tonekabon branch, Islamic Azad University, Tonekabon, Iran*
3. *Department of Microbiology, School of Sciences, Tonekabon Branch, Islamic Azad University, Tonekabon, Iran*

Email: razisadati@yahoo.com

Background: Water is essential for all known lifeforms, still, water pollution and the destruction of ecosystems continue to increase. Water contamination is now a major problem in the global context as a consequence of industrialisation, globalization and population growth. Biofilms treatment systems employ the use of bacteria, fungi, algae, and protozoa to remove organic and inorganic materials from wastewater through oxidation of organic particles and nitrification of ammonium. This study focused on the growth and effectiveness of biofilms in a reactor of diluted wastewater.
Methods: During this project four biofilms were grown in a reactor tank; two were on nylon mesh frames and two were on plastic membranes, one aerated and one anaerobic. The reactor tank consisted of 50 liters of diluted wastewater which was circulated and oxygenated to imitate a river. To determine the efficiency of biofilms in wastewater treatment, daily samples of the wastewater were tested using the TOC method.
Results: Throughout the experiment, more biofilm growth was observed on the nylon mesh frames than on the plastic membrane frames. Furthermore, colonization on the aerated membrane surpassed that of the anaerobic membrane.
Conclusion: Overall, from this study, it has been concluded that the application of biofilms is an effective step in the biological treatment of wastewater. Even though the development of the biofilm takes time, the films are proficient in increasing water quality by oxidizing ammonium and organic compounds in wastewater.

Keywords: Wastewater, biofilm

ANALYSIS OF THE PHYTOCHEMICAL CONTENT AND ANTI-BACTERIAL ACTIVITY OF OCIMUM BASILICUM L.

Mahshad kalantari[1], Massiha A[2], Khoshkholgh Pahlaviani M.R.M[1], Issazadeh kh[1], Safdari Zahra[1], vaysi saeed[1]

1. *Department of Biology, Rasht Branch,Islamic Azad university of Iran*
2. *Department of Biotechnology, Lahijan Branch,Islamic Azad University of Iran*

Email: mahshadk73@yahoo.com

Background:.In this study the in vitro antimicrobial activity of crude ethanolic,methanolic and water extracts of the stem bark of O.basilicum were investigated.
Methods: The extracts exhibited antimicrobial activities with zones of inhibition ranging from 5 to 12,8 to 20 and 0 to 8 mm for ethanol,methanol and water extracts respectively.The minimum inhibitory concentration(MIc)of the ethanol extract was between 0.5 and 6.25 mgml.While that of methanol extract ranged from 0.5 to 0.1 mgml.The minimum bactericidal concentration (MBC) for ethanol extract ranged between 2.0and 12.50 mgml,while that of methanol ranged from 2.0 to 20 mgml.Again all the extracts exhibited appreciable activity against all the fungal species investigated.
Results: The zones of inhibition exhibited by the extracts against the test fungal species ranged between 15 and 18,15 and 20 and 5 and 10 mm for ethanol, methanol and water extracts respectively.Phytochemical screening revealed the presence of saponin,steroids,tannins,glycosides,alkaloids and flavonoids in the extracts.
Conclusion: In this study,The ability of the crude stem extracts of *O.basilicum* to inhibit the growth of bacteria and fungi is an indication of its broad spectrum antimicrobial potential which may be employed in the management of microbial infections.

Keywords: *O.basilicum,* antimicrobial activity, phytochemical screening, minimum inhibitory concentration, minimum bactericidal concentration

ANTIMICROBIAL EVALUATION OF VARIOUS EXTRACTS FROM LEAVES AND STEMS OF DAPHNE OLEOIDES AGAINST *STAPHYLOCOCCUS AUREUS*

Sara Ashrafzadeh, Mohammad Mehdi Dehshiri, Mohsen Mirzaei

Department of Microbiology, Boroujerd Branch, Islamic Azad University, Boroujerd, Iran

Email: sa_mic1987@yahoo.com, Iran

Background: Plants have e important effect in human health and improving the quality of life. They serve human with useful components as a food. In fact, many of plant extracts have shown that have biological activity in vitro and in vivo. This study explored antibacterial effects of Daphne oleoides extracts.
Methods: At this study, the antibacterial properties of various extracts (ethanolic, methanolic, n-hexane and aqueous) against *Staphylococcus aureus* (ATCC25923) have been shown. These extracts have obtained from leaves and stems of Daphne oleoides at spring and summer seasons. At this research, their activities were recorded by MIC on Mueller Hinton Broth media.
Results: Also showed that the spring stem ethanolic extracts had the highest effect on S.aureus compared with used as effective and antibacterial treatment against *S.aureus* (ATCC25923).
Conclusion: The study found that the ethanol extract of the spring stem of Daphne oleoides (ATCC25923) has higher antimicrobial on S.aureus (ATCC25923) bacteria among other extracts.

Keywords: Daphne oleoides, Different extracts, *Staphylococcus aureus*, MIC

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FREQUENCY OF ANTIBIOTIC-RESISTATNCE *COLIFORMS* ISOLATES IN QOM URBAN WASTEWATER

Somaye Nikoogoftar Ranjabar[1], *Somaye Nikoogoftar Ranjbar[2], Ahmad Ali Pourbabaee[3], Kambiz Davari[4]

1. *Department of biology, School of basic siences, Science and Research Branch of the Islamic Azad University Sanandaj, sanandaj, Iran*
2. *Department of microbiology, Science and Research Branch of the Islamic Azad University,Sanandaj,Iran*
3. *Department of Biotechnology. University School of Agriculture and Natural Resources, University of Tehran*
4. *Department of Biology, School of Sciences, Islamic Azad University Sanandaj Branch, Sanandaj.Iran*

Email: nikoo.sanandaj@yahoo.com

Background: This study was based on the occurrence of antibiotic resistant bacteria in the wastewater could be correlated with be structure and composition of the bacterial community and the antibiotic resistance loads of the final effluent.
Methods: In this regard, 120 wastewater samples at three periods of winter, spring, and summer from two parts input and output were examined in city of Qom. Isolation of *coliforms* was down with spread culture of samples on EMB agar and Antibiogram examination was performed according to the Kirby-Bauer method.
Results: The results from percent of prevalence in the antibiotic-resistant isolates indicated that the highest resistance associates to the isolates in summer. 94% of isolates of *Enterobacter* sp.and 80% of isolates of *Klebsiella* were resist to penicillin G, Sulfamethoxazole, trimethoprim. Further, the highest antibiotic susceptibility was seen associated to the output wastewater in winter at 50% of *Enterobacter* isolates to gentamicin and nalidixic acid. In the spring, 56% of isolates were *Escherichia coli* resistance to penicillin group.
Conclusion: According to this results, the municipal wastewater have main role in distribution of antibiotic-resistant coliform in Qom city.

Keywords: Bacteria resistance, Qom Urban wastewater, Antibiotic resistance

IN VITRO ANTIFUNGAL ACTIVITY OF SOME TRADITIONAL IRANIAN MEDICINAL PLANTS AGAINST HUMAN PATHOGENIC DERMATOPHYTES

Alireza Massiha[1], Panah Zolfaghar Muradov[1], *Zahra Safdari[2], Mahshad Kalantari[2], Saeed Veysi[2]

1. *Department of Microbiology, School of Basic Sciences, Islamic Azad University, Lahijan, Iran*
2. *Department of Biology, School of Basic Sciences, Islamic Azad University, Rasht, Iran*

Email: Safdari.zahra7@gmail.com

Background: Methanolic extract of five medicinal plants were subjected to in vitro antifungal property of Acacia arabica, Anagalis arvensis, Calendula officinalis, Juglans regia, and Hypericum perforatum were evaluated against common dermatophytic species, viz. *Microsporum canis, Microsporum gypseum, Trichophyton mentagrophytes, Trichophyton rubrum, Trichophyton schoenleinii* and *Epidermophyton floccosum*. Qualitative phytochemical screening of was studied. They were tested against dermatophytes, isolated from patients having tinea infection.
Methods: The studies were carried out using broth dilution method, and inhibitory zone estimation. The effects of the plant extract were compared with those of griseofulvin. That plants possessing higher Carbohydrates/Glycosides, tannin and saponin show antifungal activity. The five dermatophytes differed with regard to their susceptibility to plant extracts. Trichophyton rubrum was the most susceptible dermatophyte, followed by *Epidermophyton floccosum Trichophyton schoenleinii, Microsporum canis*, and *Microsporum gypseum*, respectively.
Results: Minimum inhibitory concentrations (MIC) for the extracts of the five plants were estimated by the broth dilution method and values found ranging between 0.001 to 0.016 mg/mL. The minimum fungicidal concentration (MFC) of the extracts ranged from 0.8 to 7.81 mg/mL.
Conclusion: The results of the present study indicate the antidermatophytic nature of the selected plant extracts of which the methanol extract of H. perforatum, A. arvensis and A. arabica was found to be the most potent. In conclusion, methanolic extracts of some medicinal plants can be used to treat infections with pathogenic fungi.

Keywords: Medicinal plants, Antidermatophytic, Methanol extract, Minimum inhibitory concentrations

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PREVALENCE FUNGUS FREQUENCY CAUSES OF DERMATOPHYTOSIS IN WRESTLING HALLS OF CHALOOS

***Mozhgan Porjafari, Mohammad Reza Kouchaki, Abdoljalil Eiri, Jamshid Bahmani, Masoud dalir Yonesi**
Department of Biology, Microbiology group, Islamic Azad University, Tonekabon, Iran
Email: mozhganporjafari@yahoo.com

Background: Fungal infections are one of the most common skin infections in contact sports such as wrestlers. The aim of this study was prevalence fungus frequency causes of dermatophytosis in wrestling halls of Chaloos
Methods: This study was a cross-sectional descriptive study which was conducted in 2014 and subjects were wrestlers of wrestling halls of Chaloos, Iran. In this study questionnaires were filled carefully and samples were identified using a polyphasic method and the prevalence of fungus frequency causes of dermatophytosis and its related factors was collected based on clinical history, physical examination and laboratory tests. Also determined the rate of dermatophytic contamination of wrestling mats. The relationship between independent variables and incidence of fungal infection analyzed
Results: In this study, among 750 samples taken from wrestlers with10-50 years of age, 134 (17.86%) wrestlers had dermatophytosis. *Trichophyton tonsurans* (%37.33) and *Malassezia furfur* (22.39%) were the most cause of infection in wrestlers. *Epidermophyton floccosum* (12.68%), *Trichophyton rubrum* (11.2%), *Trichophyton mentagrophytes* (9.7%), *Trichophyton verrucosum* (3.7%) and *Candida albicans* (3%) were other isolated fungi. Fifteen wrestling mats (42.85%) were contaminated with different fungal. Also *Epidermophyton floccosum* had the highest prevalence in samples from wrestling mats(%33.25)
Conclusion: Also instructing coaches for appropriate identification of the infection on time and preventing athletes from training before full treatment seems to be indispensable.

Keywords: Dermatophytosis, wrestling hall, Chalous

THE STUDY OF GENETIC DIVERSITY OF CLINICAL STRAINS OF *MYCOBACTERIUM FURTUNIOUM* BASED ON RAPD-PCR TECHNIQUE

***Mohammad Navaderi[1], Farnoosh Gholamhoseinpoor[1], Sharareh khorami[2]**
1. *Young Researchers and Elite Club, Azad university, Parand Branch,Parand, Iran*
2. *Manipal University G-04,Dubia International Acadmic City ,dubia.u.a.e*

Email: Navaderimohammad@yahoo.com

Background: *Mycoplasma* is one of the microbial agents in human infertility. Genital *Mycoplasma* adverse effects on reproductive organs and cause reproductive disorders and infant mortality are. This study aimed to determine the molecular study of *Mycoplasma hominies* isolated from the genital tract of infertile women and men in Mashhad.
Methods: This descriptive study on infertile 150 women and150 men, who were references to Mashhad Infertility Center for eight months, was targeted. It semen and vaginal swab specimens for the presence of *Mycoplasma* hominies has been using polymerase chain reaction were tested. PCR products of the positive samples were selected for molecular identification. Equaled the sequence software using 5 mega neighbor-joining method was.
Results: In this study, 53 % of men were infected by *Mycoplasma* genus. Among the many species, *Mycoplasma Hominies* popularity was 43 percent. Also, 63 % of women were infected with *Mycoplasma*. *Mycoplasma hominies* popularity was 51%. *Mycoplasma hominies* isolated sequences analysis showed that the strains are six distinct lineages. These strains in different groups classified as native strain of Iran.
Conclusion: In this study, *Mycoplasma hominies*, was the most important factor in infertility among the studied population .Nucleotide strains sequence analysis of genomic similarity between some of the strains showed very little.

Keywords: *Mycoplasma hominies*, infertility, *16 sr RNA* molecule

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EVALUATING THE EFFECTS OF ULTRASOUND ON DISABLING *SACCHAROMYCES CEREVISIAE* IN POMEGRANATE JUICE

Sharareh Khorami rouz[1], Farnoush Gholamhusain Poor[2], Mohamad Navaderi[2]
1. American Hospital Dubai PO BOX:5566
2. Young Researchers and Elite Club Azad University,Parand Branch ,Parand ,Iran
Email: shrrh_khorami@yahoo.com

Background: Pomegranate fruit is a useful compound with health effects. Thermal processing on these compounds is effective. Therefore, in this study, non-thermal effects of ultrasound technology for inactivation of Saccharomyces cerevisiae in Pomegranate were envisaged. Pomegranate juice from sour and sweet Pomegranate from SAAVEH was inseminated with Saccharomyces cerevisiae
Methods: Then use an ultrasonic system equipped with probes nineteen mm at a frequency of 20 kHz fixed in the intensity of fifty seventh and one hundred percent for zero two four and six minutes in a glass Chamber with two layer the influence of ultrasonic waves. Counting the number of living cells in culture media samples was performed.
Results: Based on the results of ultrasound treatment on the severity and different times have a significant effect on the microbial population ($p<0.02$), While the type of Pomegranate juice did not have a significant impact on the microbial population. Inactivate *Saccharomyces cerevisiae* in intensity 50% and 65% percent had less than a logarithmic cycle
Conclusion: One hundred percent of high intensity for six minutes while reducing the number of cells in the two types of juice *Saccharomyces cerevisiae* respectively two and had a logarithmic cycle. Double glass container designed to evaluate the effect of ultrasound alone, at constant temperature allowed. So it seems that the possibility of non- reading of temperature control microorganisms studied in this way impossible

Keywords: Pomegranate juice, ultrasound, *Saccharomyces cerevisiae*

PREVALENCE OF PURINES OMPK 35, OMPK 36 IN *KLEBSIELLA PNEUMONIA*

Sharareh Khorami rouz[1], Farnoush Gholamhusain Poor[2], Mohamad Navaderi[2]
1. American Hospital Dubai PO BOX: 5566
2. Young Researchers and Elite Club Azad University,Parand Branch, Parand , Iran
Email: shrrh_khorami@yahoo.com

Background: *Klebsiella pneumonia* opportunistic pathogen that today as one of the main bacteria involved in hospital infections and, Causing diseases such as urinary tract infections, intra-abdominal sepsis and pneumonia patients are hospitalized. In this study, the expression of outer membrane purine and its relationship with the *Klebsiella pneumonia* was ESBL positive (extended spectrum beta lactamase).
Methods: Bacterial isolates were identified using conventional laboratory. To identify strains of ESBL strains were measured susceptibility of antibiotic such as: ceftazidime, Cefpodoxime, ceftriaxone, azetronam, cephotoxime. ESBL positive strains were measured and confirmed by using combined antibiotic discs such as ceftazidime/ Clavulanic acid, cephotoxime/ Clavulanic acid/ Cefpodoxime. Then, using PCR and SDS_PAGE expression of purines in *Klebsiella pneumonia* strains produce beta -lactamase (ESBL POSITIVE) and no produce beta lactamase enzyme (ESBL NEGATIVE) were evaluated.
Results: Among isolated, 42.30 % of ESBL gene was confirmed by PCR. To compare the expression of purines ompk35,ompk 36 in strains with ESBL and without ESBL an equal number of them selected and It was observed that the expression of ompk35 and ompk 36 purine in ESBL (+)strains is 54/54 %and 72/72% respectively , As stated above purine in strains without ESBL was 95/45% and 100% , respectively
Conclusion: Almost all clinical isolates of ESBL negative *Klebsiella pneumonia* are expressed both purines, ompk 35, ompk36. While a smaller percentage of Klebsiella pneumonia isolated with ESBL, were expressed purines (ompk35, ompk36). It can be concluded that ESBL producing strains expressing reduced purines, while the inverse association between decreased expression of the purine and increase resistance

Keywords: ESBL(extended spectrum beta lactamase), *Klebsiella pneumonia*

THE PHENOTYPIC AND GENOTYPIC CHARACTERIZATION OF *PSEUDOMONAS SAVA*STANOI ISOLATED FROM BANE AT ARAK, USING PCR METHOD

Sharareh Khorami rouz1, Mohamad Navaderi2, Farnoush Gholamhusain Poor2
1. American Hospital Dubai PO BOX:5566
2. Young Researchers and Elite Club Azad University,Parand Branch ,Parand ,Iran
Email: shrrh_khorami@yahoo.com

Background: Bane is from Turpentine plant family. Scabies is caused by *Pseudomonas savastanoi* branch, an important disease of this plant. This study aimed to assess the phenotypic and genotypic diversity of *Pseudomonas savastanoi* isolated from Turpentine (wild pistachio) at Arak , was performed using PCR-BOX
Methods: The experimental research on thirty-four strains of *Pseudomonas savastanoi* was isolated from corms. The IAAL primers and PCR method was used to track directly. Assessment of genetic diversity of *Pseudomonas savastanoi* using REP_PCR and BOX_ primers were performed. The following data related to phenotypic strains studied were analyzed using PC –NT sys software
Results: Based on the numerical analysis of phenotypic strains were similar to each other at the level of 78 %. But for them there was no particular group. Gall extract GES buffer using specific IAAL primers and DNA fragment size of approximately 454 bp was amplified. Using the Software NT sys _pc assay and BOX primer, it was found that strains at the similarity of 81% are divided into three clusters
Conclusion: The results of this study showed that the BOX primer used for identify *Pseudomonas savastanoi* belong to different regions and different hosts. The present study reports the first direct detection of bacteria Pseudomonas savastanoi of scabies infected plants in

Keywords: *Pseudomonas savastanoi*, BOX_PCR, BANE

THE POTENTIAL EFFECT OF PLATELET-RICH PLASMA AGAINST WOUND BACTERIA

Elnaz Jafarzadeh[1], Mojgan Pourmokhtar[2]
1. Pharm.D. Student, School of Pharmacy, Islamic Azad University Of Pharmaceutical Sciences
2. Blood Transfusion Research Center, High Institute for Research and Education in Transfusion Medicine, Tehran, Iran
Email: elnazjafarzadeh1@yahoo.com

Background: Platelets are commonly known to play a fundamental role in hemostasis. But, Recently, the antibacterial effect of human Platelet-rich plasma (PRP) has been reported against some bacteria. Because of the importance of bacterial contamination, in this study, the antimicrobial effect of PRP was evaluated against three bacteria, commonly found in wound infections.
Methods: In vitro laboratory susceptibility to samples of 10 blood donors was determined by Agar well diffusion method against *Staphylococcus epidermidis* as a Gram-positive and *Escherichia coli* and *Proteus vulgaris* as Gram-negative bacteria. Antimicrobial activity was assessed by measuring the zones of inhibition on agar plates, coated with selected bacterial strains, At 20, 24 and 48 hours after incubation at 37 °.
Results: Platelet-rich plasma showed antibacterial activity against *Staphylococcus epidermidis* with the zone of inhibition of 10.9±1.5 mm. There was no zone of inhibition against *Escherichia coli* and *Proteus vulgaris*. However, there was no significant difference in antibacterial effect of PRP after 20, 24 and 48 hours.
Conclusion: PRP which is inherently biocompatible and safe, may have the potential to prevent infection due to the large number of platelets, leukocytes and certain peptides. In addition, PRP can be considered ideal candidate for the delivery of autologous bioactive substances as it has been demonstrated to contain hundreds of different proteins and growth factors. Therefore, these findings may have practical clinical applications in the control of wound infections by blood derived biomaterials. Although more comprehensive studies with a larger number of bacteria are still needed.

Keywords: Platelet rich plasma, antibacterial, *Staphylococcus epidermidis, Escherichia coli, Proteus vulgaris*

NASAL CARRIAGE AND RESISTANCE PATTERNS OF *STAPHYLOCOCCUS AUREUS* AMONG HEALTHY WORKERS IN FOOD INDUSTRY

Elham Ahmadi[1], *Mohammad Khojasteh[2], Nikoo ahmadi[3]

1. *Department of Pathology,Sanandaj Veterinary Medicine Branch, Sanandaj University, Sanandaj, Iran*
2. *Islamic Azad University, Sanandaj Branch, Sanandaj, Iran*
3. *Graduated Student of Pharmacy, School of Medicine, Urmia University, Urmia, Iran*

Email: mohammadkhojasteh333@gmail.com

Background: Staphylococcal food borne disease (SFD), a major public health concern worldwide, is caused by infection with *Staphylococcus aureus*.although improper food handling practices in the retail industry account for the majority of the disease, reservoirs of the bacterium who host *S.aureus* in their nasopharynx have efficient impact on SFD occurrence.
Methods: a cross-sectional study including 100 adults dealing with food chain was conducted at sanandaj,iran during november 2014- jun 2015.nasal swabs from anterior nares were cultured and tested for *S.aureus* and antibiogram tast was performed on muller-hinton agar using disc diffusion method.
Results: The prevalence of *S.aureus* was 35% of which 15% were methicillin-resistant.resistance to penicillin and amoxycillin had the highest rates.the isolated demonstrated higher sensitivity to vancomycin, tobramycin, cafazolin and ciprofloxacin.
Conclusion: The importance of implementing strategies to eliminate nasal carriage of S.aureus to prevent the spread of SFD is highlighted.effective strategies in this field are thus strongly recommended.

Keywords: Antimicrobial drug resistance,*Staphylococcus aureus*,nasal carriage

COMPARISON OF CHLORHEXIDINE MOUTHWASH ANTIBACTERIAL EFFECT AGAINST CLINICAL ISOLATED *STREPTOCOCCUS MUTANS* AND *STREPTOCOCCUS MUTANS PTCC1683* USING WELL DIFFUSION METHOD

***Sarvenaz Esmaeilee, Khosro Issa zadeh**

Department of Microbiology, School of Basic Sciences, Islamic Azad University, Lahijan Branch, Lahijan, Iran, P.O.Box:1616

Email: Sarvi_e520@yahoo.com

Background: There are lots of antibacterial products against dental caries bacteria, including Chlorhexidine mouthwash. This study aimed to Comparison of Chlorhexidine mouthwash antibacterial effect against clinical isolated of *streptococcus mutans* and *streptococcus mutans PTCC1683*.
Methods: *S. mutans* isolated from dental caries. They were cultured in Brain Heart Infusion broth and were incubated anaerobically at 37°C to reach the concentration of 1/5.108cfu/ml. An agar well diffusion method with different concentrations of Chlorhexidine [1:4(25%), 1:1(50%), 3:4(75%) and full strength (100%)] used to evaluate the antibacterial effect. Mueller Hinton Agar without mouthwash served as the control respectively.
Results: Maximum diameter of inhibition zone was found against clinical isolated (1.83 - 3.3cm) and minimum diameter of inhibition zone was found against *streptococcus mutans* PTCC1683 (1.22 - 2.6cm).
Conclusion: Chlorhexidine mouthwash found to be more effective against clinical isolated of *S. mutans*, rather than the *S. mutans PTCC1683* at all concentrations.

Keywords: Mouthwash, Chlorhexidine, Dental caries bacteria, *Streptococcus mutans*

PREVALENCE OF TEM ENZYME-PRODUCING ENTEROBACTERIACEAE SPP. IN INTENSIVE CARE UNITS IN SANANDAJ HOSPITALS, IRAN

Rashid Ramazanzadeh[1], Samaneh Rouhi[2], Nooshin Abdolmaleki[2], Sako Akhdar[3]

1. Department of Microbiology, Kurdistan University of Medical Sciences, Sanandaj, Iran. Cellular & Molecular Research Center, Kurdistan University of Medical Sciences, Sanandaj, Iran

2. Student Research Committee, Kurdistan University of Medical Sciences, Sanandaj, Iran. Department of Microbiology, Kurdistan University of Medical Sciences, Sanandaj, Iran. Cellular & Molecular Research Center, Kurdistan University of Medical Sciences, Sanandaj, Iran

3. Student Research Committee, Kurdistan University of Medical Sciences, Sanandaj, Iran. Department of Microbiology, Kurdistan University of Medical Sciences, Sanandaj, Iran. Cellular & Molecular Research Center, Kurdistan University of Medical Sciences, Sanandaj, Iran

Email: sakoakhdar@yahoo.com

Background:. The aim of this study was to determination of prevalence of TEM (Temorina; a ESBL) Enzyme-producing *Enterobacteriaceae* spp. in ICU part in Sanandaj Hospitals.

Methods: This study included 2000 clinical specimens specimens (Urine, Wound, Respiratory Tube, Blood, Cerebrospinal Fluid and Abseces) (May 2010-April 2012) were collected. From different parts of Toohid and Besat Hospitals, Sananadaj, Iran. *Enterobacteriaceae* spp. identified using microbiological procedure. Double-disk synergy (DDS) test and PCR for TEM enzyme detection were performed.

Results: 119 *Enterobacteriaceae* spp. were isolated from all clinical specimens, results showed that 9 (0.25%) of 2000 samples were isolated from ICU part, also DDS test and PCR proved that 4 (44.44%) isolates were ESBL and 6 (66.66%) isolates were producing Enterobacteriaceae spp.

Conclusion: According to our results, *Enterobacteriaceae* spp. produced ESBLS. So appropriate infection control and antibiotics prescription should be designed to prevent of resistant isolates throughout the Hospital parts.

Keywords: TEM Enzyme, *Enterobacteriaceae* spp., Intensive Care Units, Hospitals

SEROPOSITIVITY OF IGG ANTIBODIES AGAINST CHLAMYDIA PNEUMONIAE IN ACUTE ISCHEMIC STROKE PATIENTS

***Shokoufeh Roudashti[1], Abdoreza Ghoreishi[2], Elham Rostami Pirzaman[1], Amirreza Ansar[1]**

1. *Student Research Committee, Zanjan University of Medical Sciences, Zanjan, Iran*
2. *Department of Neurology, School of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran*

Email: roudashti@zums.ac.ir

Background: *Chlamydia pneumoniae*, a gram-negative and intracellular bacterium, is one of the most common pathogens in upper respiratory tract infections. Since infectious diseases in general are more common in Iran to Western countries, we aimed to investigate the role of *C. pneumoniae* antibody (IgG) in patients with acute ischemic stroke.

Methods: Patients with acute ischemic stroke (AIS), sex and environment-matched controls were enrolled; then Antibody to C. pneumoniae (IgG) were measured using enzyme-linked immunosorbent assay (ELISA).finaly analysis of data was performed on spss 17.0 software.

Results: The mean±std of age was 68+15.21 in stroke patients and 67.58±11.71 in control group (P=0.88). Results from 46 patients with AIS, 45(97.5%) and from 35 control group 33(94.2%) seropositive of IgG antibodies against *Chlamydia pneumoniae* are also reported

Conclusion: Unlike other studies We found no evidence that *C. pneumoniae* can countribiute in acute ischemic stroke patients, because of we seen high prevalence of seropositiy of IgG antibodies against *Chlamydia pneumonia* in both patients and control group.

Keywords: Acute stroke ,*Chlamydia pneumoniae*, ELISA assay, Choronic Infection, IgG Antibody

PREVALENCE OF *CAMPYLOBACTER JEJUNI* BY PCR IN RAW MILK IN ZANJAN

[*]Shokoufeh Roudashti[1], Fakhri Haghi[2], Habib Zeighami[1], Ghazal Naderi[1], Shahin B ahari[1]

1. *Student Research Committee, Zanjan University of Medical Sciences, Zanjan, Iran*
2. *Department of Microbiology, School of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran*

Email: roudashti@zums.ac.ir

Background: *Campylobacter* spp is a leading cause of bacterial enteritis illness in the world wide. The most frequently reported in human diseases is *C. jejuni*. the microorganism as a gram-negative and spiral rod bacterium commonly associated with intestinal inflammation. The main route of transmission to humans through contaminated food and animal products via undercooked meat and its products as well as raw or unpasteurized milk. acute infection of campylobacteriosis with symptoms such as diarrhea (sometimes bloody),abdominal pain,vomiting.
Methods: Detection of *Campylobacter* in raw milk samples were collected in zanjan by polymerase chain reaction (PCR) assay.
Results: The positive *hipO* gene was not detected in any of our samples(n=60)
Conclusion: The prevanlance of genus *campylobacter* in milk samples were determined very low and rawer milk samlpes should be investigated for finding probable positive *hipO* gene in Them.

Keywords: *campylobacter jejuni*, Raw milk, PCR

THE SURVEY OF PREVALENCE *ROTAVIRUS* DIARRHEA IN CHILDREN UNDER 5 YEARS HOSPITALIZED IN 17 SHAHRIVAR HOSPITAL OF RASHT CITY

[*]Mahdiyeh Akbarpoor[1], Mehdi Assmar[1], Amir Massiha[1], Zohre Azma[2]

1. *Islamic Azad University Lahidjan Branch School of Science*
2. *The Department of Nursing University of Babol*

Email: mahdiyeh.akbarpoor@yahoo.com

Background: In developing countries, *Rotavirus* diarrhea is The main cause of hospitalization in children under 5 years.
Methods: The descriptive-cross sectional research performed on 240 children less than 5 years with gastroenteritis hospitalized in 17 Shahrivar Hospital of Rasht city. The rapid diagnostic kit *Rotavirus* basis of chromatographic and immunological response based on antigen-antibody was used. Statistical result obtained by using Spss software and Chi-Square test was assessed.
Results: In this study, we found no significant association between sex and Rotavirus diarrhea (P>0.05).
Conclusion: Relative humidity is facilitating factor for *rotavirus* in autumn and winter. low The

Keywords: Rasht, Children under 5 years, *Rotavirus*, Gastroenteritis, rapid diagnostic kits for chromatography

ANTIMICROBIAL RESISTANCE PATTERNS OF ISOLATED VIBRIO CHOLERA STRAINS DURING 2011 TILL 2013

***Roghieh Saboorian, Massoud Hajia, Mohamad Rahbar**
Health Reference Laboratory, Ministry of Health and Medical Education
Email: shivasaboorian@yahoo.com

Background: Cholera is a potentially life-threatening acute diarrheal disease caused by the toxigenic bacterium *Vibrio cholerae* Antibiotics should be selected using local antibiotic susceptibility testing patterns. This study was performed to identify the patterns of antimicrobial resistance in collected isolates from laboratory-confirmed cases of cholera during three years from 2011 till 2013.
Methods: All isolates received for confirmation at Health Reference Laboratory were tested by MIC Test Strip Method using Liofilchem against Ciprofloxacin, Nalidixic Acid, Cefixime, Ampicillin, Tetracycline, Trimethoprim-Sulfamethaxazone, and Erythromycin. Following organisms were used as quality control strains for MIC E-testing; *E.coli* (ATCC 25922), *S. aureus* (ATCC 29213), and *P. aeruginosa* (ATCC 27853)
Results: Results of susceptibility testing shows almost complete sensitive to Ciprofloxacin, Cefixime and Amplicillin for both isolated Inaba and Ogawa serotypes except all isolated Inaba serotypes at 2011 that were resistant to Cefixime. These resistant Inaba serotypes were not isolated in next years. Inaba serotypes showed an increased resistant up to 100% to Nalidixic acid, Tetracycline and SXT, while Ogawa serotypes were 100% sensitive at the end of 2013. Susceptibility pattern of Erytromycine were almost similar in these to type. Sensitivity to Erytromycine were decreased in both Inaba and Ogawa serotypes
Conclusion: Analyzed results underlines patterns of antimicrobial resistance shows Tetrecycline should not be considered as a first line of antibiotic therapy for those patients infected with Ogawa serotypes

Keywords: Cholera, Epidemiology, Antimicrobial pattern

COMPARISON OF THE ANTIBACTERIAL EFFECTS OF HYDROALCOHOLIC EXTRACT AND ESSENTIAL OIL OF MENTHA PILEGLUM IN VITRO

Yetar Moghtader, Mir-Hadi Khayatnouri, Saeid Abbasi-Maleki
Departement of Pharmacology,School of Veterinary Medicine,Urmia Branch,Islamic Azad University,Urmia,Iran
Email: s_am65@yahoo.com

Background: *Mentha pileglum* (MP) is a typical plant of the North area of Iran, which has been traditionally used due to its antiseptic effect for treatment of cold, sinusitis, bronchitis, cholera, food poisoning and tuberculosis. In the present study antibacterial effects of hydroalcoholic extract and essential oil of MP were comprised in vitro
Methods: In this experimental-laboratory study, antimicrobial susceptibility testing was performed by disk diffusion method and the minimum inhibitory concentration (MIC).
Results: The diameter of the growth inhibition in disk diffusion test of hydroalcoholic extract and essential oil on *Staphylococcus aureus, Streptococcus pyogenes, Klebsiella pneumoniae* and *Pseudomonas aeruginosa*, were respectively 14.66±0.57, 0.33±0.57, 10.00±0.16 and 2.33±4.0mm, respectively. Also, the minimum inhibitory concentration (MIC) and minimum bactericidal concentration(MBC) of hydroalcoholic extract and essential oil on *Staphylococcus aureus, Streptococcus pyogenes, Klebsiella pneumoniae* and Pseudomonas aeruginosa respectively were 1.25±0.0, 0.52±0.18, 5.00±0.0 and 10.0±0.0 mm and 0.83±0.36, 0.15±0.0, 2.88±0.0 and 6.66±0.0 mg/ml.
Conclusion: Results showed that both hydroalcoholic and essential oil of MP have considerable antibacterial activity but among the tested bacteria the greatest effect was on *Pseudomonas aeruginosa* and totally compared hydroalcoholic extract, the essential oil have better antibacterial activity. However, further studies are needed for determine their exact mechanism of action.

Keywords: *Mentha pileglum*, Essential oil, Disk diffusion, Antimicrobial effects, the minimum inhibitory concentration

A SURVEY ON THE PREVALENCE OF PLASMID MEDIATED QUINOLONE RESISTANCE IN CLINICAL ISOLATES OF ESCHERICHIA COLI AND *KLEBSIELLA* IN TEHRAN

***Masume Mohammadbeigi[1], Jafar Akbarmehr[2]**

1. Department of Microbiology, Islamic Azad University Ahar Branch, Ahar, Iran
2- Department of Microbiology, Islamic Azad University Ahar Branch, Ahar, Iran
Email: m_mohamadbigi@yahoo.com

Background: The quinolones are a class of synthetic antibioics with broad spectrum antimicrobial action against both gram positive and gram negative bacteria. The widespread use of quinolones has led to resistance against to these antimicrobial agents. The aim of this study was to characterize the prevalence of plasmid-mediated quinolones resistance in clinical isolates of *E.coli* and *Klebsiella* in Tehran city.
Methods: In this study 220 bacterial isolates (132 *E.coli* and 88 *Klebsiella*) were collected from patients with urinary infection. All of the isolates were tested for their susceptibility to two quinolones (Nalidixic acid and Ciprofloxacin) by disc diffusion method and the interpration of results was carried out according to National Committee for Clinical Laboratory Standards.Detection of the *qnr A, qnr B, qnr S* genes of resistant isolates was carried out by PCR method.
Results: Antibiogram results showed that % 62/12, % 47/72 of *E. coli* isolates and %51/13, %35/22 *Klebsiella* isolates were resistant to Nalidixic acid and Ciprofloxacin respectively. According to the PCR results the frequency of the *qnr A, qnr B, qnr S* genes in *E.coli* were 20(%31/74), 36(%57/14), 18(%28/57), and for *Klebsiella* were 8(%25/8), 24(%77/42), 11(%35/48) respectively.
Conclusion: This study revealed that the the prevalence of *qnr A, qnr B, qnr S* genes are relatively high in clinical isolates of *E.coli* and *Klebsiella* in Tehran city and has an important role in transfer of quinolone resistance.

Keywords: Quinolone, antibioic, *E. coli, Klebsiella*

THE EVALUATION OF ANTIBIOTICS AND HEAVY METAL RESISTANCE OF SCHERICHIA *COLI FROM* CLINICAL SPECIMENS

******Elahe sardary*, Mahnaz Farahmand[1], Sadegh Khalili[1]**

Department of Biology, Islamic Azad University, Tehran Shargh (Ghiyam dasht)
Email: elahehsardari65@gmail.com

Background: Bacterial resistance to antibiotics and heavy metals is an increasing problem in today's society. There is growing concern that metal contamination functions as a selective agent in the proliferation of antibiotic resistance. This study aimed to determine the relationship between antibiotic resistance and metal tolerance of bacteria isolated from isolates collected from clinical samples.
Methods: 60 strains of *E. coli,* from clinical samples were analyzed resistance to several antibiotics by disk diffusion method. Tolerance to heavy metals (copper, Mercury and lead) was determined by agar dilution method. Finally the most antibiotic and heavy metal resistant strains were identified and selected. Analyses of plasmid resistance gene were performed by PCR assay.
Results: The clinical isolates showed 20%, 100%, 86/66%, 56/66% and 70% resistance to chloramphenicol, penicillin, vancomycin, erythromycin and cotrimoxazole, respectively. The heavy metal tolerance in clinical samples determined 20%, 73/33% and 70%, for mercury, copper and leads respectively. Conclusion
Conclusion: The isolates with heavy metal resistance plasmid were resistant to antibiotices seriously. Antibiotic resistance in the clinical isolates, relation between the of resistant bacteria against heavy metals and resistant bacteria against antibiotics was achieved. The results showed that the plasmids responsible for resistance to antibiotics and heavy metals transmit between *E.coli* strains and can cause a co-resistance. This study demonstrated a correlation between metal tolerance and antibiotic resistance in *E.coli* strains.This achievement confirms that increasing of metal pollutions increases the number of resistant bacteria against antibiotics and heavy metals in the clinical isolates.

Keywords: *E. coli*, antibiotics, heavy metals, resistance, plasmid,clinical isolates

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INCREASED PREVALENCE OF MULTI- DRUG AND FLUROQUINOLONE RESISTANCE AMONG GRAM NEGATIVE CLINICAL ISOLATES FROM WOUNDS INFECTIONS AND TRACHEAL TUBE SECRETIONS IN BURN SETTING OF SINA HOSPITAL, TABRIZ

***Arezoo Fallah[1], Alka Hasani[2], Mahsa Beomid Haq[1], Leila Deghani[3], Hossein Samadi Kafill [1], Mohammad Ahangarzadeh Rezaee[1]**

1. *Department of Medical Microbiology, School of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran*
2. *Research Center of Infectious and Tropical Diseases, School of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran*
3. *Sina Hospital, Tabriz University of Medical Sciences, Tabriz, Iran*

Email: arezoo.falah39@yahoo.com

Background: The aim of this study was to determine frequency and resistance patterns of pathogens isolated from tracheal tube secretions and wounds infections in burn in-patients of Sina Hospital, Tabriz.

Methods: In a descriptive study of a six-month period, 131 positive clinical samples from tracheal tube secretions and wounds sent to microbiology division of Central laboratory, Sina Hospital were cultured and identified according to standard bacteriological methods(1). Antimicrobial susceptibility was performed as per CLSI recommendations (2).

Results: Most prevalent organism in tracheal tube secretions included Acinetobacter baumanii (75%), *Pseudomonas aeruginosa* (31.25%) and *Klebsiella pneumonia* (9.37%). On the other hand, *P.aeruginosa* (63%) was the most common microorganism followed by *A. baumanii* (59%) and *K. pneumonia* (26%), and *Staphylococcus aureus* (17%) in wound infections. *K. pneumoniae* were resistant to gentamicin (80%), cefotaxime (100%), ciprofloxacin (60%), ofloxacin (60%), cefepime (60%). A. baumanii were resistant to ciprofloxacin (82.5%), gentamicin (72.5%), cefotaxime (72.5%), imipenem (65%), pipercillin- tazobactam (60%), amikacin (55.17%), cefepime (55.17%) and ofloxacin (50%). *P. aeruginosa* were resistant to ciprofloxacin (77.41%) followed by gentamicin (70.96%), and ofloxacin (70.96%).

Conclusion: The rising prevalence of *K.pneumoniae*, appearance of multi- drug and quinolone resistance were marked features of this study. Re-evaluation of treatment strategies to control the spread of such resistant strains is mandatory.

Keywords: Antibiotic resistance, Burns, Wound, Endotracheal tube

PREVALENCE OF ENTEROBACTERIACEAE CONTAMINATIONON PHYSICAL SURFACES OF MASHHAD EBNESINA AND HEJAZI HOSPITAL IN 2012-13 ,2012-13

***Hassan Yazdanfar[1], Milad Esmaeilzadeh[2], Marziyeh Gazrani[3]**

1.Departement of parasitology and Mycology, School of Medcine Islamic Azad University Mashhad Branch, Mashhad,Iran
2.General Practitioner ,School of Medcine, Islamic Azad University Mashhad Branch , Mashhad,Iran
3.*Departement of Infectious, School of Medcine Islamic Azad University Mashhad Branch ,Mashhad,Iran*

Email: hasanyazdanfar@yahoo.com

Background: Hospital associated infection (HAI) is one of the important cause of mortality of patient and on the other hand cause increase time of hospitalization.the goal of this study is evaluation entrobacteriacea contaminatiocn on physical surfaces.

Methods: This descriptive study evaluated *entrobactercea* contamination on 85 surfaces of Mashhad Ebnesina and Hejazi hospitals in 2012-13.in this study during 6 months .sampling was done from different physical surfaces of hospital wards by sterile swabs in Broth environment and transported to Macconkey agar plates and was recognizzed by particular bioch emical tests.Results analysed by SPSS.V.20.

Results: The mostcontaminated surface during 6times sampling (6months)wasfood table of patient in men ward1 with contamination about 83/33% (4times *E.coli*(66l67%) and 1time *Klebsiella* 16/67%)nursery station of women ward2 and door catch of men educational ward with contamination about (66/67% (4times), 3times *E.coli*(50%), 1time(16/67&) with *Klebsiella*), but contamination on the surfaces of nursery station of women ward 2 and door catch of men educational ward was reported *E.coli* (66/67%),and proteus was reported once culture results of Sitrobacter,*Yersinia,Anterobacter* was negative.there was no reports ofcontamination of Laryngoscopes and Autoclaves in different wards.

Conclusion: The most common germ was reported *E.coli* aqnd in the next step was Klebsiella and then proteus on the diffrenet cultures of various physcal surfaces.sterilization and antiseptic usage must done based onthe resultof culture.

Keywords: *Enterobacteriacea*,Prevalence , physical surfaces

FREQUENCY OF CRYPTOSPORIDIOSIS IN HOSPITALIZED CHILDREN WITH DIARRHEA AT HOSPITALS OF ISLAMIC AZAD UNIVERSITY OF MASHHAD, 2013 – 2014

***Hassan Yazdanfar[1], Farzaneh Afshar Delkhah[2]**

1. *Departement of parasitology and Mycology, School of Medcine Islamic Azad University Mashhad Branch ,Mashhad,Iran*
2. *General Practitioner ,School of Medcine Islamic Azad University Mashhad Branch ,Mashhad,Iran*

Email: hasanyazdanfar@yahoo.com

Background: *Cryptosporidium* is a protozoan parasite which is recently known as one of the main causes of diarrhea in children and immunocompromised cases. This study aimed at investigating the frequency of *Cryptosporidium* and risk factors related to cryptosporidiosis in hospitalized children under12 years of age due to diarrhea in at hospitals of Islamic Azad university of Mashhad.

Methods: In this study, one hundred and fifty eight stool samples were obtained from hospitalized children under 12 years old due to diarrhea in 17Shahrivar and 22 Bahman Hospitals, Mashhad during 2013-2014. These specimens prepared by formalin-Ether method and smears were stained by zeihl-Neelsen modified, then were studied by 10X, 100X power under a microscope and results were analyzed with SPSS.

Results: Out of 158 stool samples, 9 (5.7%) cases were positive for *cryptosporidium*. Significant relationship was observed between *Cryptosporidium* infection and breast feeding, close contact between children or their parents and domestic animals (P-Value<0.05). But there was no significant association between cryptosporidiosis and birth weight, age, gender and going to preschool or school (P-Value>0.05).

Conclusion: These results showed that prevalence of cryptosporidiosis in hospitalized children under 12 years due to diarrhea in Mashhad is approximately similar to other parts of Iran and factors like, having contact with domestic animals and non-breast feeding are risk factors increasing the chance of cryptosporidiosis. This study demonstrates the fact that proper plan for prevention, accurate diagnosis and treatment of cryptosporidiosis is an essential matter.

Keywords: *Cryptosporidium* , children, frequency, Mashhad

OPTIMIZING BLOOD CULTURE PRACTICES IN SEPTICEMIA AND BACTEREMIA: BENEFIT OF BACTEC OVER MANUAL BLOOD CULTURE SYSTEM

***Mahsa Beomidehagh[1], Alka Hasani[2], Arzoo Fallah[1], Leila Deghani[3], Hossein Samadi kafil[1], Mohammad Ahangarzadeh Rezaee[1]**

1. *Department of Medical Microbiology, School of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran*
2. *Consultant, Division of Microbiology, Sina Hospital, School of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran and 1. Department of Medical Microbiology, School of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran*
3. *Division of Microbiology, Sina Hospital, Tabriz University of Medical Sciences, Tabriz, Iran*

Email: mahsa.bh379@gmail.com

Background: Bacteremia and septicemia are common causes of morbidity and mortality and requires prompt etiologic diagnosis. Though manual blood culture bottles are used frequently in most laboratories, however, are laborious. The automated BACTEC 9200 instrument is a reliable, fast, and accurate system, especially when the etiologic organism is a fastidious one. This report stresses the importance of employing BACTEC system and relates one year experience with both the automated and manual blood culture system.

Methods: We used final results of both manual and BACTEC cultures from adult population that were admitted in period of one year in Sina Hospital. Routine blood cultures were sub-cultured blindly on first day and then re-incubated again followed by subculture after 3rd and 5th day. Blood cultures sent in special aerobic BACTEC bottles were cultured only when the system detected positivity automatically.

Results: Of 286 blood cultures, 21 were manually positive, while of 275 blood cultures send in BACTEC bottles, 58 episodes were documented positive. Advantage of BACTEC was discrimination of true bacteremia or contaminants. BACTEC system recorded coagulase positive *staphylococci* as colonizers (67%) much faster than routine system (6.89%). *Brucella spp.* was recorded fourteen times on BACTEC system while routine system could detect it twice. *Candida spp.* was documented as true pathogen in 13.6% cases on automated system. Multi drug resistance was evidenced on antibiotic susceptibility in our patients.

Conclusion: Prompt and accurate automated blood culture reports followed by appropriate antibiotic treatment shortens the hospital stay and restricts use of invasive devices.

Keywords: Adolescent, Microbial contamination, blood culture, Automation

SIMILAR CORRELATION OF ANTIBIOGRAM PATTERNS OF *ENTEROCOCCUS FAECALIS* ISOLATED FROM URINE AND FECAL SAMPLES IN URINARY TRACT INFECTION

***Marjan Rashidan[1], Masoud Alebouyeh[2], Fatemeh Fallah[3], Giti Eslami[1], Mohammad Rahbar[4], Ghazaleh Ghanchi[1]**

1. *Department of Microbiology, School of Medicine, Shahid Beheshti University of Medical Science, Tehran, Iran*
2. *Foodborne and Waterborne Disease Research Center, Research Institute for Gasteroenterology and Liver Disease, Shahid Beheshti University of Medical Sciences, Tehran,Iran*
3. *Pediatric Infections Research Center, Mofid Children Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran*
4. *Department of Microbiology, Iranian Reference Health laboratory, Ministry of health and medical education, Tehran*

Background: The aim of this study was to evaluate the association of antibiogram patterns *E. faecalis* isolated from urine and fecal samples in UTI.
Methods: During August 2014 to April 2015, a total of 144 urine and fecal sample were obtained from outpatients UTI which had been referred to Labafinejad and Milad hospital. For bacteriological study samples was cultured in *enterococcosel* and blood agar. Antimicrobial susceptibility tests were evaluated by disk diffusion method and E.test according to criteria recommended by CLSI.
Reslts: Of 72 *E. faecalis* strains isolated from urine, 61 (84.7%) was isolated from feces. 38 (62.2%) isolates from urine and feces were similar antibiotic sensitivity patterns. 9 (14.7%) isolates were different in an antibiotic (related) and 14 (22.9%) isolates in more than one or two antibiotics (difference). Antibiotic resistance of strains isolated from urine were evaluated for tetracycline, minocycline, HLR-gentamicin, ciprofloxacin, levofloxacin and Gatifloxacin, 64 (88.8%), 62 (86%), 22 (30.5%), 14 (19.4%), and 12 (16.6%) and for feces 44 (72%), 42 (68.8%), 9 (14.7%), 7 (11.4%) and 4 (6.5%) respectively. All strains were sensitive to vancomycin, ampicillin, penicillin, nitrofurantoin, Linezolid and Daptomycin.
Concluison: Due to the simultaneous high frequency of *E.faecalis* in gastrointestinal and urine patients, these results indicate the presence of uropathogenic *Enterococcus* in these patients. Further study is essential to identify virulence factors involved in colonization of these isolates in urinary tract.

Keywords: *Enterococcus faecalis*, antibiotic resistance, Urinary tract infection

HIGH PROTHIONAMID RESISTANCE IN *MYCOBACTERIUM TUBERCULOSIS* STRAINS ISOLATED IN ARMENIA

***Hasmik Margaryan[1], Armen Hayrapetyan [2], Aram Manukyan [3]**

1. *Manager of laboratory network of MOH "National TB control Center" SNPO*
2. *Director of MoH "National TB Control Center" SNPO*
3. *Deputy director of MoH "National TB Control Center" SNPO*

Background: Despite the successes in managing drug-susceptible TB, drug-resistant tuberculosis is a major challenge to the effectiveness of National Tuberculosis Program in Armenia, placing the country in the list of 18 high-burden countries for multi-drug resistant tuberculosis (MDR) in the WHO European Region. Estimated burden of MDR-TB in 2012 was 9.4 (7-12) and 43 (38-49) among retreatment TB cases. Prothionamide (PTH), a structural analog of isoniazid, is used as a second-line drug for MDR-TB and shares the target with isoniazid.
Methods: A total of 197 *mycobacterium tuberculosis* (MTB) strains resistant to individual and combined first line drugs were used for this study. The strains were subjected to drug susceptible testing (MGIT 960 liquid media) to Prothionamide among other second- line.
Reslts: Total sixty-one [61/197(30.96%)] strains showed resistance to second-line drugs. Resistance to PTH was the highest [40/61 (65.57%)], co-resistance with isoniazid [36/40 (90, %)], fifteen [15/61 (24.6%)] strains were fully resistant (XDR), 3 [3/40 (7.5%)] were indeterminate resistance to PTH.
Concluison: The high levels of PTH resistance is a cause for concern. Drug resistance to PTH puts the drug into high risk of low confidence for effectiveness, especially among previously treated cases. This will impact negatively on the outcome of management of MDR-TB. However, recent advances in diagnosis of MDR-TB and aggressive empirical treatment of patients with several drugs in the initial phase of treatment have further improved the prognosis MDR-TB.

Keywords: Prothionamide, Isoniazid, resistance, MDR-TB.

RAPID IDENTIFICATION OF *MYCOBACTERIUM TUBERCULOSIS* AND THEIR DRUG SUSCEPTIBILITY BY USING MOLECULAR LINE PROBE ASSAY AMONG TB PATIENTS AND COMPARISON WITH GENE-XPERT MTB/RIF IN ARMENIA

***Hasmik Margaryan[1], Armen Hayrapetyan [2], Aram Manukyan [3]**

1.Manager of laboratory network of MOH "National TB control Center" SNPO
2.Director of MoH "National TB Control Center" SNPO
3.Deputy director of MoH "National TB Control Center" SNPO

Background: Present study was designed to demonstrate the efficacy of molecular techniques inclusive of line probe assay (LPA) and GeneXpert MTB/RIF methods for the detection of multi-drug resistant (MDR) TB.

Methods: Sputum samples from 176 different categories of new TB cases and previously treated were tested for the detection of possible mutation in the resistance specific genes (*rpoB, inhA* and *katG*) through Genotype MTBDR-plus assay (LPA) and GeneXpert MTB/RIF tests, and their performance characteristics were assessed relative to the routine diagnostic standard as Bactect MGIT 960 (liquid media).

Reslts: A set of 176 clinical isolates being either rifampicin resistance or sensitive selected for this study. The LPA and GenXpert methods were found to be 91.67%, 100%, 98.87% and 81.48%, 100% and 97.2 % sensitive, specific and accurate, consecutively in detecting MDR-TB when compared to the conventional DST. The PPV and NPV respectively were 100% (95% CI: 84.56% to 100.00%), 98.72 %% (95% CI: 95.45% to 99.84%) and 100% (95% CI: 84.56% to 100.00%), 96.84 %% (95% CI: 92.77% to 98.96%). Specificity and sensitivity of the GeneXpert method was 100% and 88%, with the 98.32% accuracy when compared to LPA. Both assays were able to detect the presence of *M. tuberculosis* in smear-negative (GenXpert MTB/rif), smear-positive and culture positive cases (LPA), suggesting that the performance characteristics were dependent on bacillary load. However, the Line Probe Assay provided additional information on isoniazid susceptibility. The main mutations causing rifampicin and isoniazid resistance were located in the codon of rpoB S531L and katG S315T1, respectively.

Concluison: Our data represent an important addition to the rare epidemiological data concerning resistance pattern of MTB in Armenia and has the potential to complement the Xpert MTB/RIF screening assay by validating rifampin susceptibility and providing information on isoniazid susceptibility.

Keywords: Drug resistant, mutation, rifampicin, pharmacogenetic