Vaccination Coverage in 24 to 36 Months Old Children at Marginalized Area of Kermanshah

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Abstract

Background and objective: Immunization is one of the most efficacious, cost-effective and safe public health interventions. Vaccines continue to have a tremendous impact on public health, saving millions of lives each year.Thepurpose of this study was determining vaccination coverageand reasons for non- vaccination in children (24-36 month old)that live in marginalized area in Kermanshah city

Materials and methods: In this descriptive analytic study, 420 children (24-36 month old)were selected. Sampling method was cluster sampling and included 60 clusters with7children who live in slum area in Kermanshah city .Information was collected by a questionnaire referring to children'svaccination card. Data collected were analyzed usingSPSS v13 software and chi-square.

Results: In this study,46.2% girls and 53.8% %۸ boys participated. The coverage of at birth doses including BCG, HepatitisB1 and Polio0 were 100%, DTP3, Polio3, Hepatitis B3 and MMR1 vaccines were more than 97%.There was significant difference between vaccine status and mother's education(P<0/001).Non immunization was observed in 3% children. The most common cause was lack of maternal knowledge (50%).

Conclusion: It seems vaccination coverage in children (24-36 month old) is proper; however it is suggested to use of catch up program for high risk groups to increase vaccination overage.

Keywords: Children, Immunization coverage,Marginalized area

Identification of Dominant Bacteria in Sputum of Chemical Injured Patients by Using PCR-DGGE Technique and Culture-Dependent Method

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Abstract

Background and obhective: Chronic lung diseases are developed in many gas-exposed patients due to encountering poisonous mustard gas. Respiratory tract infections cause exacerbation of chronic pulmonary disease. Thus, elimination of respiratory infection in these patients to reduce symptoms of chronic pulmonary is helpful. This study aims to identify dominant bacteria in sputum samples from gas-exposed patients via PCR-DGGE and culture-based methods.
Materails and methods: PCR-DGGE technique was used to identify the dominant bacteria in sputum samples. In this technique, after DNA extraction and and performance of PCR by using universal primers, PCR products were loaded in the gel containing urea and formamide as a denaturing agents and electrophoresis was carried out. After separation of different DNA sequences on the gel, repeated bands in different samples were separated and PCR was again performed to amplify a PCR products. After that, sequence-based phylogenetic analysis was done. In culture-based method, different media were used to isolate microbial populations. Gram staining was done after sub-culturing and getting pure culture. Taking into consideration of the result of gram staining, differential tests were used for identification of isolates.
Results: PCR-DGGE technique demonstrated that *Staphylococcus aureus* is repeated bacteria in the samples. In culture-based method *Staphylococcus aureus* was identified as the dominant bacteria in the samples.
Conclusion: Since traditional methods in microbial identification are very time consuming and have low accuracy, PCR-DGGE technique could be used as a rapid and efficient technique to many purposes including identifying the dominant bacteria in the microbial population.

Keywords: **gas exposed patients, respiratory system infection, PCR-DGGE**

Tuberculosis Trend in Prison of Iran during 2005-2013

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Abstract

Background and objective: Analysis of disease trend is one of the epidemiological method for survey of disease status in any country. Tuberculosis like any other disease, change and transform over time. Thus, according to tuberculosis disease and prison conditions, study the trend of TB in prison and determine change points, not only detect the factors that made these change but also help investigators to determine the direction of TB in country.
Materials and methods: in this study we have two aims, first we want to determine change point via MIC criterion in incidence cases in prisons of Iran and the second is to determine the trend of this disease via piecewise logistic segmented regression.
Results: we find one change point at autumn 2010 that break the TB trend in prison of Iran, first segment show us decreasing trend in TB at prison but second increasing TB in prison.
Conclusion: according to the reports from foreign country the trend of TB in public is less than prisons and also the trend of TB in Iran is decreasing but in this study we find that the trend of TB in Iran's prisons is increasing and we had one change point at autumn 2010.

Keyword: **change point, piecewise regression, Logistic regression, prison, Tuberculosis**

Biofilm Production among *Staphylococcus aureus* Strains Isolated from Healthy People

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Abstract

Background and objective: *Staphylococcus aureus* now is well documented as a nosocomial pathogen causing a variety of infections in human. In addition to *Staphylococcus epidermidis*, *S. aureus* is also known as the causative agent of biofilm formation among patients. The aim of this study was to analyze the biofilm formation and antibiotic resistance pattern of *S. aureus* strains isolated from healthy people during 2013-2014.

Materials and methods: Totally 200 healthy people were selected and sampling was carried out from arm, armpit and axillary area using sterile swaps. Swaps were transferred to thiogylcollate broth and then cultured on mannitol salt agar plates. Isolates were identified at the species level using biochemical tests and species specific primers. Potential of biofilm formation of strains was measured using congo red agar plates and microtiter plate. Genes involved in biofilm formation, *icaA* and *icaD*, was detected using PCR. Susceptibility to 16 antibiotics was determined using disc diffusion method according to guidelines of Clinical Laboratory and Standard institute (CLSI). Minimum inhibitory concentration (MIC) of oxacillin and vancomycin in MRSA isolates were also detected using broth micro-dilution assay according to CLSI recommendation. Primers for identification of 6 classes of prophages were used in a Multiplex-PCR assay

Results: Totally 79 *S. aureus* strains were isolated from healthy peoples. Amongst these, 56 and 23 strains were positive and negative for biofilm formation, respectively. *icaA* and *icaD* genes were detected in 100% of strains. All isolates were resistant to penicillin and resistance to erythromycin, ciprofloxacin, amikacin, kanamycin, tobramycin, tetracycline and clindamycin was high. None of the isolates showed resistance to vancomycin, synercid and lynezolid. Five different prophage types and 3 prophage patterns were detected.

Conclusion: Prevalence of biofilm producing multi drug resistant *S. aureus* isolates among healthy people indicating their colonization with hospital strains. Prevalence of such strains with diverse prophage types encoding broad spectrum of virulence factors, is an urgent for public health.

Key words: *S. aureus*, biofilm, healthy peoples, prophage type

Epidemiology of Pulmonary Tuberculosis in Qom province during 2005-2012

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Abstract

Background and Objectives: Tuberculosis is one of important infectious diseases in Iran that can be pretend in two forms: pulmonary and extra Pulmonary. Incidence rate of tuberculosis during the previous decades have increased again. The purpose of this study was epidemiologic survey of pulmonary tuberculosis in Qom during 2005 to 2012.
Materials and methods: The data for this cross Sectional study was obtained from TB patient's documented files diagnosing in Qom province during 2005 to 2012. The data were analyzed using SPSS20.
Results: Of 1013 Pulmonary TB patients 79.8% were positive and 20.2% were negative smears. Lowest incidence rate were observed in 2007(4.75 per 100000) and the highest rate were observed in 2011(14.81 per 100000). The average age in patients was 44.62± 22.34. 46.5% of patients were Iranian people. The most frequency rate was observed in females (63.4%) and in urban areas (91.5%).
Conclusion: This study shows that the incidence of pulmonary tuberculosis in Qom province during this year's, has not fixed trend level. In most years studied the incidence of smear positive pulmonary TB was lower than expected in Iran (13 per 100000).

Keywords: Pulmonary Tuberculosis, Smear Positive, Epidemiology

Frequency and Risk Factors of CA-MRSA Nasal Colonization among HIV- Infected Patients of Emam Khomeini Hospital,Tehran,Iran

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Abstract

Background and objective: Community associated methicillin- resistant staphylococcus aureus has been a great threat in general health worldwide.
Materials and methods: We determined the epidemiology of CA-MRSA nasal colonization among HIV- infected patients who referred to outpatient behavioral health clinic at Emam Khomeini hospital in Tehran. In analytic cross-sectional study , we obtained nasal swabs from HIV- infected patients. CA-MRSA colonization was defined as positive MRSA cultures among persons lacking healthcare exposure.
Results: Of 155 samples ,10 (6.5%)were colonized with staphylococcus aureus .4(40%)of confirmed SA isolates were identified as CA-MRSA .recently incarcerated patients had the highest colonization prevalence. No other variables including, current receipt of antiretroviral therapy, lack of TMP/SMX prophylaxis, male homosexuality, recent ß lactam exposure, IDU , viral loads, or CD4 count were significantly associated with CA-MRSA.
Conclusion: In Iran CA-MRSA nasal colonization among HIV- infected patients wasn' t more prevalent than general population unless recently incarcerated ones.

Key words: CA-MRSA nasal colonization ,HIV, Iran

Phytochemical and Antibacterial Properties of the Essential oils of Medical Plant Ajowan (*Carum copticum* L.) by Micro dilution method

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Abstract

Background and objective: Plants used for traditional medicine contain a wide range of substances which can be used to treat various infectious diseases**.** In the study, essential oil was extracted from the seed of Ajowan and the resulting extracts were evaluated by gas chromatography (GC-MS). Analysis and then assayed in vitro for theircapability to inhibit the growth of pathogenic bacteria.
Material and methods*:*In this study, the essential oil of Ajowan (*Carumcapticum*) obtained by hydrodistillation was analyzed by gas chromatography coupled to mass spectrometry (GC-MS) in order to determine their chemical composition. The antimicrobial effect of essential oil was determined using broth microdiluation method.
Result*:*Twenty-one (21) components in the oil of Ajowan were identified. The results indicated that the major components of the essential oil were Thymol (23.3%), p-cymene (17.5%), γ-Terpinene(16.8%) were present in fairly good amounts. However, it exhibited highest zone of inhibition (38 mm) against *E.coli*. The MIC value was also determined against all the tested bacteria. The MIC values of essential oil were found to be 3/75mg/ml against *E.coli and* 1/87 mg/ml against, *Staphylococcus aureus*
Conclusion: present in Ajowan,Thymol, the major phenolic compound of essential oils plays an important role in antimicrobial activity.

Keyword: **Ajowan, Essence, *Escherichia Coli*, Micro dilution method, *Staphylococcus aureus*.**

Antibacterial Activity Extracts of *Ribes rubrum* against *Bacillus cereus, Bacillus subtilis, Listeria innocua* and *Enterobacter aeruginosa* "in vitro"

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Abstract

Background and objective: Regarding the high percentage of the population suffering from infectious- microbial diseases and the high level of treatment costs, especially in high-risk groups, prevention and control concerning this kind of illness is essential. On the other hand, due to the global and national appreciation of traditional treatments and the necessity of extracting medicines natural ingredients and medicinal herbs, this study aimed at investigating the effect of methanolic extracts of anti-bacterial dichloromethanic, aqueous and hydroalcoholic of *Ribes rubrum* on some of infectious bacteria in vitro.

Materials and methods: This study was conducted in Industrial Microbiology Laboratory in Ferdowsi University of Mashhad, in 2014. In this in vitro study, the anti-micobial effect of the given plant along with the minimal inhibitory concentration and minimal bactericidal concentration were determined using Serial Dilution Method based on NCCLS standards.

Results: The results of the study showed that the 30 and 40 mg/ml concentrations of *Ribes rubrum* extracts had a considerable anti-microbial effect on bacteria. The effect of these extracts decreased based on the concentration in disks. Alcoholic extracts had a significant inhibitory effect on the growth of explored bacteria in all concentrations. The maximal inhibition zone diameter in 40 mg/ml concentration was related to *Listeria innocua* and the minimal inhibition zone diameter was concerned with gram–negative *Enterobacter aeroginosa*.

Conclusion: Serial Dilution method showed that *Ribes rubrum* had an inhibitory effect on all studied strains and that this effect was higher for methanolic extracts compared with other extracts.

Key Words: ***Ribes rubrum*, Concentration, In vitro, Extract**

Isolation of *lmo* Gene in *Listeria monocytogenes*

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Abstract

Background and objective: *Listeria monocytogenes* is a Gram-positive coccobacilli, which have ability to grow and survive inside the body of the alive creatures, it also can be the cause for Listeriosis**.** *lmo* gene in *Listeria monocytogenes* is regarded as a factor to increase the bacteria resistance against undesirable environmental conditions such as temperature, pH and biliary salts changes. This present study aims to investigate the ***lmo*** gene presence in the Listeria monocytogenes separated from vegetables.
Materials and methods: From late May to November of 2012, and in a 7 month period, the amount of 82 different vegetable samples have been gathered from farms in Behesht e Zahra Tehran, agricultural lands in Varamin and also some groceries throughout Tehran. The *Listeria monocytogenes* has been separated through taking advantage from Bacteriology Standard Method. And the *lmo* gene have been recognized in *Listeria monocytogenes* by PCR.
Resaults: Among 82 separated vegetables such as lattice (23 samples), white cabbage (19 samples), red cabbag(19 samples), celery (13 samples) and parsley(12 samples), among them 8 samples(%9/7) included the *Listeria monocytogenes*. In these 82 samples, 4 cases(%17/3) *Listeria monocytogenes*, 3 cases (%15/7),and 1 sample(%6/7) have been separated from lattice,white cabbage and parsley, respectively. Of these 7 samples (%87/5) had lmo gene. Samples taken from meat, diary, standard and clinical samples having *Listeria monocytogenes* had lmo gene.
Conclusion: During this investigation it was obvious that the *lmo* gene of separated *Listertia monocytogenes* have been seen in vegetable samples which can be effective in survival of the bacteria and its being the cause of disease by helping bacteria to stay alive in adverse environmental conditions and also in the body of the host. The prevalence of the *Listeria monocytogenes* is low but it is noticeable as it has the capability to be the cause for fatal disease . So in order to prevent from the infection with *Listeria monocytogenes*, it is recommended to pay attention to the hygiene related issue during food provision in order to prevent the risk of catching *Listeria monocytogenes* infection. In this regard become familiar with disease factors can help us to kill the *Listeria monocytogenes* Bacteria.

Keywords*: Listeria monocytogenes, lmo* gene, PCR, vegetables

Anti Bacterial Effects of Aquatic and Chloroformed Extract of *Allium Sativum* on *Staphylococcus aureus*

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Abstract

Background and objective: Staphylococcus aureus bacteria is one of the most important infection factors in mankind and also, by increasing the resistance of bacteria against chemical drugs and low side effects of herbal drugs, today the herbal ones are evaluated by researchers. The aim of the current study is considering the anti- bacterial aquatic and chloroformed effects of Allium Sativum on Staphylococcus aureus.
Materials and methods: In this study, first the aquatic and chloroformed extraction of Allium Sativum was prepared, then the MIC and MBC rates of extraction were calculated and the diameter of lack of growing areola of Staphylococcus aureus was measured in different attenuation of extraction. And also, the sensitivity of different anti- biotic was considered by Kirby/baur standard method and the results were analyzed by SPSS software, version 18 and Anova one-way statistical test.
Results: The chloroformed extraction with areola diameter average of lack of growing about 27±3% showed more powerful anti-bacterial effects than aquatic extraction with the average of 17±2% and the maximum rate of anti-bacterial sensitivity to Nafcillin was showed about 58.99 %.
Conclusion: Although the medical usage of herbal extractions and essences is valuable for their less side effects rather than common medical factors, but it should be done more studies about the mechanism of ingredients of this plant on bacterial factors for the medical usage of anti-bacterial aquatic and chloroformed extraction of Allium Sativum.

Key Words: Staphylococcus aureus, Garlic, Aquatic extraction, Chloroformed extraction, Drug resistance

Isolation and Identification of Salmonella typhimurium Serotype from Chicken Meet in Isfahan City

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Abstract

Background and objective: Foodborne diseases are one of the most important economic and health problems in the industrial and non-industrial countries and the prevalence is increasing. Salmonella species are one of the primary food-borne pathogens and Salmonellosis is one of the most important zoonotic bacterial pathogen of food-borne infection all around the world. The present study was carried out to report the molecular prevalence of Salmonella typhimurium isolated from chicken meet in Isfahan city, Iran.

Materials and methods: From April to September 2013, a total 200 chicken meet samples were collected from in Isfahan city. Both culture method and PCR method was used for detection of Salmonella spp, in order to detect Salmonella typhimurium serotype; we used specific primers mentioned in reference.

Results: A total of 200 chicken meet samples 28 samples (14%) were contaminated with Salmonella spp. After amplification of ST gene, 14 of 28 (50%) samples were diagnosed Salmonella typhimiurum.

Conclusion: The contamination of food with bacteria such as Salmonella virulence trait means an outbreak of food poisoning among people in society. That it tends to be a health risk and other irreparable damages, so the identification of common serotypes of this bacterium is important.

Keyword: Chicken meat, Salmonella , Salmonella typhimurium, PCR

Prevalence and Antibiotic Resistance Patterns of *Aeromonas spp* Isolated from Children with Diarrhea in Pediatric Center 2013-14

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Abstract

Background and objective: Aeromonas hydrophila (A. hydrophila)and other motile Aeromonas (A. sobria and A.caviae) are receiving increasing attention as a human pathogens, especially as causative agents of gastroenteritis, wound infections and septicemia. The purpose of this study was to investigate the prevalence of Aeromonas in children with diarrhea in city of Tehran and to determine their antibiotic susceptibility.

Materials and methods: This study was performed on 391 stool samples from Children's Hospital Medical Center, Tehran. Fecal samples were collected and transferred in a transport medium to laboratory. The samples were placed in alkaline peptone water for 24 hours at 37 ° C. Then the samples were cultured on blood agar containing ampicillin, MacConkey and CIN agar. The suspicious colonies were identified with biochemical tests and API kit. The antibiotic susceptibility test was performed for identified isolates.

Results: In total 12 isolates (3.1%) were identified as Aeromonas, which were confirmed with API-20E. five strains of Aeromonas caviae (42%) , four strains of Aeromonas veronii biovar sobria (33%) and three strains of Aeromonas hydrophila (25%) were identified. All the strains were sensitive to gentamycin, amikacin, cepime, and resistance to ampicillin.

Conclusion: Aeromonas species could cause substantial amount of diarrhea in children, therefore in isolation and identification of diarrhea these fecal pathogens also should be considered.

Key words: Aeromonas, diarrhea, pediatric center, antibiotic resistance