# Children Health and Anti-vaccination Rumors

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## *Abstract*

Immunization is one of the most effective health interventions to improve health of children and other target age groups. It already save 2.5 million lives per year. Community partnership and confidence is crucial to reach high level vaccine coverage and immunization goals. With high immunization coverage and significant decrease of disease incidence, importance of immunization could fade and negative advertisements being more prominent. Although national immunization program has had great achievements in Iran however saving public confidence is a real need. Based on the experience of other countries, health system should follows antivaccination activities and respond them via appropriate communication. This paper wants to determine roots of antivaccination campaign in the world and in the country and also clear some distributed misinformation against immunization.

**Keywords: Vaccination, Rumors, Public confidence**

# Antibiofilm Effect of Melittin on Nosocomial Biofilm Producing *Staphylococcus aureus* Strains

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## *Abstract*

**Background and objective:** *Staphylococcus aureus* is one of important pathogen in burn infections in many hospitals in the world. Today's, Multi-drug resistant *S. aureus* are frequently reported and therefore antimicrobial peptides are suggested to treatment of microbial infections. Accordingly, this study was aimed to purification of melittin from Iranian honey bee venom and evaluation of its activity on biofilm positive *S. aureus* isolated from Shahid Motahari Burns Hospital.
50 samples of *S. aureus* were collected from the hospital and diagnosed by routine standard. **Materials and methods:** Melittin purified by Reverse-Phase HPLC technique, lyophilized, and its peptide content was determined by BCA method. Staphylococcus strains were cultured in TSB glucose medium and the biofilm stained with crystal violet and final OD was documented by a spectrophotometer. Increase of OD comparing to glucose free medium indicates biofilm formation. After that MIC and MBC of biofilm positive strains were determined at the dose of
MIC. To confirm the lethality of melittin on the bacteria that was grown in biofilm, the surface of microplate was scratched and a sample was cultured on Muller Hinton agar. The results showed that that melittin was able to kill all of the bacteria in biofilm.
**Results:** 20 peaks were seen in chromatogram. The OD average for biofilm production was 2.35 units. The mean OD for the bacteria group that exposed to the dose of one MIC was determined as 1.39.
**Conclusion:** The majority of *S. aureus* strains were biofilm producer that this fact could be very important in terms of treatment strategy. Melittin was able to degrade the produced biofilm during two hours and also killed almost all of the examined bacteria. Comparing the efficiency of melittin with other conventional antibiotics showed that study on development of melittin's applications is of high value.

**Key words**: **Biofilm, *S. aureus*, Antimicrobial Peptides, Melittin, Reverse Phase-HPLC**

# Antibacterial Effect of Silver Nanoparticles (AgNPs) on Frequency of Aerobic Pathogens in the Nursing Gowns

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## *Abstract*

**Background and objective:** Research on microbial contamination of individuals clothing has shown a variety of microorganisms. This contamination may cause infection and disease. The aim of this study was to Antibacterial effect of silver nanoparticles (AgNPs) on reduction of aerobic pathogens in the nursing Gowns of Sirjan hospitals in 2017.
**Materials & methods:** The contamination of 200 nurses Gowns was surveyed in hospitals in Sirjan city. Sampling done in two modes, before using nano Gowns and after using nano Gowns by using wet sterile swabs. The colonies were examined and biochemical tests were used to identify isolated bacteria.
**Results:** In Imam Reza Hospital & Dr. Gharzai Hospital, the most commonly isolated pathogens were Respectively *Staphylococcus Epidermidis* (57.83%) and *Staphylococcus Epidermidis* (51.35%) and the least pathogen respectively *Pseudomonas* (1.2%) and *Escherichia Coli* with *Pseudomonas* (1.35%). In these hospitals, after using nano silver Gowns, the amount of microbial load decreased significantly (eliminating roughly 100%).
**Conclusion:** In this study, the bacteria of nursing Gowns after contact with silver nanoparticles were eliminated, so the use of metal nanoparticles to cope with cross-infection can be effective.

**Key words: Cross-infection, Gown, silver nanoparticle, antibacterial effect**

# Antibacterial Effects of *Allium Jesdianum E*xtracts on some Infectious Microorganisms in vitro

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## *Abstract*

**Background and objective**: *Allium Jesdianum* belongs to Lilaceae family and is considered as an endemic medicinal plant in Iran. Due to its traditional use in treating diseases including rheumatism, kidney stone, vomit and cold. The aim of this study was to investigate the antimicrobial effect of *Allium Jesdianum* on some pathogenic bacteria "*in vitro*".
**Materials and methods**: In this experimental study, the aqueous and ethanolic extracts of *Allium Jesdianum* were prepared by maceration. The antibacterial effects of the extracts were evaluated by four methods: pour plate method, agar-well diffusion, broth microdilution and minimum bactericidal concentration on *Staphylococcus aureus*, *Streptococcus pyogenes, Escherichia coli* and *Pseudomonas aeruginosa* in comparison with common therapeutic antibiotics.
**Results**: *Pseudomonas aeruginosa* was the most resistant bacterium to the aqueous and ethanolic *Allium Jesdianum* extracts. The concentration 80 mg/ml of the aqueous and ethanolic extracts showed the best result on *Staphylococcus aureus* ($p<0.05$). The ethanolic extract of *Allium Jesdianum* compared with the common therapeutic antibiotics, had more inhibitory effect on the studied bacteria. The minimum inhibitory concentration (MIC) of the ethanolic extract of *Malva sylvestris* was 16, 32, 32 and 64 mg/ml for *Staphylococcus aureus*, *Streptococcus pyogenes*, *Escherichia coli* and *Pseudomonas aeruginosa*, respectively. Moreover, the MIC of its aqueous one was equal to 32, 32, 64, and 64 mg/ml for the same bacteria, respectively.
**Conclusion:** According to the results of this study and the rise in the resistance of microorganisms to common therapeutic antibiotics, it is recommended that more research on *Allium Jesdianum* as an antimicrobial compound be conducted for treating bacterial infections.

**Keywords**: ***Allium Jesdianum*, Antibiotic, Extract, Antimicrobial effect**

# Antimicrobial Effect of Staphyloxanthin on pathogenic bacteria

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## *Abstract*

**Background and objective**: Expanded and on limited consumption of Antibiotics to cure *Staphylococcus aureus* has been resulted with appearance of different kinds of *staphylococcus aureus* which on resistant of antibiotics ( MRSA ). Objective of this study is to research antibiotics quality of staphyloxanthin ( golden pigment of *staphylococcus aureus* ) on different kinds of pathogen bacteria and also observing staphyloxanthin genes *( crtM* ) in *staphylococcus aureus* extracted from clinical sources.

**Materials and methods:** Totaly 170 sampels of *staphylococcus aureus* collected from clinical sources ( parts of skin, blood, urine and nose ). Having all these samples and hands-staphyloxanthin content of 20 samples with golden colonies separated and their anti microbial property 3 in testing bacteria, *Escherichia coli, Yersinia enterocolitia, klebsiella,* were studied. Furthermore, after extraction of DNA in order to observe bands of staphyloxanthin gene PCR operation was done.

**Results:** staphyloxanthin did not have anti-microbial effect on *Escherichia coli, Yersinia enterocolitica, klebsiella* bacteria. In performing PCR existence of staphyloxanthin gene band in 95% of genes were confirmed.

**Conclusion:** Result of this study, which is done for the first time in iran, existence of staphyloxanthin gene ( *crtM* ) in all of the bacteria is proved .It seems that staphyloxanthin does not have any interference of pathogen bacteria in human beings. But, in fact, staphyloxanthin has an important role in keeping bacteria alive in the host during fighting against immunity system.

**Key words: *staphylococcus aureus* ،staphyloxanthin ،anti-microbial effect ،gene ( *crtM* )**

# Investigation of the Antimicrobial and Interaction of the Aqueous and Ethanolic Extracts of Cordia myxa on some Pathogenic Microorganisms “in vitro”

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## *Abstract*

**Background and objective**: Cordia myxa belongs to Boraginaceae family and is considered a medicinal plant in Iran. In traditional medicine, each part of Cordia myxa for the treatment of various infections and diseases is used. The purpose of the present study was to investigate the antimicrobial activity of Cordia myxa leaves extracts against some pathogenic microorganisms “in vitro”.

**Materials and methods**: In this experimental study, the antimicrobial effects and interaction of the aqueous and ethanolic extracts of Cordia myxa leaves on Staphylococcus aureus, Bacillus cereus, Listeria innocua, Escherichia coli, Pseudomonas aeruginosa and Candida albicans were evaluated by different methods including disk diffusion, minimum inhibitory concentration (broth microdilution), minimum bactericidal/fungicidal concentration and fractional inhibitory concentration.

**Results**: The minimum inhibitory concentration (MIC) of the aqueous extract of Cordia myxa varied from 128 mg/ml to 256 mg/ml, while the MIC for the ethanolic extract of Cordia myxa ranged from 64 mg/ml to 256 mg/ml. Pseudomonas aeruginosa was the most resistant bacterium to the aqueous and ethanolic Cordia myxa leaves extracts**.** The minimum bactericidal/fungicidal concentration (MBC/MFC) of the aqueous extract was 128, 256, 256, 512, 512 and 128 mg/ml for Staphylococcus aureus, Bacillus cereus, Listeria innocua, Escherichia coli, Pseudomonas aeruginosa and Candida albicans, respectively. Moreover, the MBC/MFC of the ethanolic one was equal to 64, 128, 256, 256, 512 and 128 mg/ml for the same microorganism, respectively.

**Conclusion:** According to the results of this study, aqueous and ethanolic Cordia myxa leaves extracts considerably inhibited the growth of pathogenic microorganisms. However, clinical applications of these extracts need further investigations.

**Keywords: Cordia myxa, Antimicrobial effect, Interaction, Pathogenic microorganisms.**

# The Reasons behind Disregard for Hand Hygiene from the Perspectives of Hashtrood Imam Hussein Hospital Working Staff

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## *Abstract*

**Background and objective:** Emerging infections from caring services are regarded as one common reason behind mortalities among hospitalized patients. The most effective and simplest way to prevent hospital infections is to follow hand hygiene rules. Despite the importance of hand hygiene in the preventing from infections, still there is a low level of attention to the subject matter. The present study tries to investigate the reasons behind disregard for hand hygiene among working staff of Imam Hussein Hospital in Hashtrood, East Azerbaijan, Iran.

**Material and methods:** In the present descriptive study, 71 working staff of Hashtrood Imam Hussein hospital was scrutinized in 2017. Data were gathered using a questionnaire made by Arshadi et al in 2014. After data collection, they were analyzed by Pearson, independent t-test and variance analysis tests and the Mean, SD, frequency and percentage were obtained.

**Results:** By studying the Mean score for each item it was revealed that the most important barriers for hand hygiene are respectively: lack of belief in the importance of hand hygiene, attitude toward the role of hand in infection control, skin allergy caused by disinfectants, lack of high quality disinfectants, and lack of hand hygiene tools. There was no meaningful relationship between demographics and total score.

**Conclusions:** As results suggest, it seems that an integration of mentioned items such as having a positive attitude towards hand hygiene among working staff, presence of high quality disinfectants and providing hand hygiene tools are necessary to prevent and control infections in hospitals.

**Keywords: hand hygiene, medical staff, hospital infections, hospital**

# Coxiellosis Study in Stray Cat by Trans-PCR in Kerman-Iran: Preliminary Zoonotic Risk Assesment

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## *Abstract*

**Background and objective**: Q fever is endemic zoonotic worldwide diseases which caused by Coxiella burnetii. This pathogen can be infecting domestic and wild ruminants, companion animals, insects and humans. Ruminants are the primary reservoirs of C. burnetii. A variety of tick species also act as reservoirs or vectors for disease via bite, shedding or vertical transmission. Dogs and cats could be infected via inhalation or ingestion of aerosol from milk, aborted fetuses or carcasses of infected animals. Some reports indicated that pet owners could be infected after inhalation of aerosol which shed during parturition or abortion by infected dogs and cats. The aim of this study was to determine the presence of C. burnetii in the blood samples of stray cats in Kerman city (Southeast Iran) using a nested Trans-PCR assay.
**Materials and methods**: Blood samples were obtained from sixty stray cats which were trapped from different parts of Kerman city from May to September of 2015. DNA extraction was done using extraction kit (G-spin ،South Korea) and specimens were refrigerated at -18 $^{o}$C. Detection of C. burnetii was conducted by nested Trans-PCR assay using the specific primers.
**Results**: Seven out of 60 (11.66%) samples were positive by nested Trans-PCR.
**Conclusion**: Our data showed that cats can be considered as the reservoirs for C. burnetii and noted zoonotic importance of these populations. As Q fever is an endemic disease in farm animal in Iran specially Kerman district, efforts should be focused on understanding the role and pathogenic importance of companion animals in transmission of Q fever to human population.

**Keywords: Coxiella burnetii, Nested Trans-PCR, Blood, Cat, Kerman**

# Frequency of Bacteria Implicated in Urinary Tract Infections in Besat Hospital, Sanandaj: a Three-Year Surveillance Study (2013–2015)

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## *Abstract*

**Background and objective:** Urinary tract infections (UTIs), as most common bacterial infection in humans, are major causes of morbidity in the world. The aim present study was to determine prevalence and profile of bacteria implicated in UTIs inpatients and out-patients of Besat hospital in Sanandaj, located in northwest of Iran.

**Materials and methods:** This cross-sectional study carried out during the period 2013 -2015. All urine samples from patients with symptoms of UTI investigated in hospital Laboratory. Samples with more than 105 CFU/mL bacteria were considered positive and, for these samples, the type of bacteria were identified. All analysis conducted in STATA version 13.

**Results:** From January 2013 to December 2015, 1359 patients with UTIs identified that 1196 (88.0%) and 163 (12.0%) from them were Gram-negative and Gram-positive, respectively. Among Gram-negative pathogens the most prevalent were *E. coli* 977 (81.7%), followed by *Enterobacter* (6.3%). The majority 924 (77.3%) of the Gram-negative isolates were from female while the remaining were males. Among Gram-positive pathogens the most prevalent were *Staphylococcus epidermidis* (35.6%) followed by *Staphylococcus aureus* (28.2%). The chance of E. coli infection related to the UTI in women (OR=1.83) and in outpatient persons (OR=2.37) was significantly higher (P <0.001).

**Conclusion:** This study revealed that E. coli was the predominant bacterial pathogen in studied population. The results can be useful for clinician in order to improve the empiric treatment.

**Key words: UTIs, Gram-positive pathogens, Gram-negative pathogens, E. coli**