

## **Therapeutic Status Assessment of Patients with Hepatitis C. Arak. 2018-19**

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### **Abstract**

**Background & objective:** Today, with the introduction of the interferon-free direct acting antiviral (DDA) drug regimen, as well as the brilliant advances that have been made in the prevention, diagnosis and treatment of hepatitis C, medical science has come closer to eradicating hepatitis C infection. Now the question is why, despite the existence of such very effective treatments that can even eradicate the infection, the infection is still stable in many patients and reduces the quality of life of many people, the death of many patients and also transmission to other people and thus its prevalence has increased in the community. Therefore, in this study, we aimed to examine the treatment status of patients with hepatitis C and also the therapeutic capacity of these patients in Arak city.

**Materials and methods:** In this study, which is a descriptive-analytical study, people with chronic hepatitis C in Arak city in 2018-19, whose disease was confirmed, were included in the study. Then, the information of these patients was collected in a questionnaire that contained demographic information, risk factors, tests and treatment process of the patient, through the information obtained from the laboratory and also during a telephone interview. Finally, the collected data were analyzed using SPSS software version 24.

**Results:** In this study, a total of 429 patients whose PCR or Elisa test were positive in the years 98-97. We were able to conduct a complete telephone interview with 152 patients and prepare a complete questionnaire for them, of which 96 had a positive PCR and 56 had a positive Elisa. After interviewing the first group, it was found that 70% of patients have completed treatment and 30% have not started treatment or left it incompletely. In the second group it was found that only 43% of the patients followed and completed the treatment, and 57% did not follow the treatment. The main reason for not pursuing treatment was lack of knowledge about the disease and then addiction and treatment costs, respectively.

**Conclusions:** The treatment process in PCR-positive patients was more favorable than in ELISA-positive patients. In the first group, lack of knowledge about the dangers of the disease and in the second group, lack of knowledge about the disease was the main reason for not treating these patients. Therefore, one of the ways to eradicate hepatitis C in the community is to provide adequate information to patients.

**Key Words: Hepatitis C, Treatment, Eradication.**

## **Antibacterial Activity of Red Bell Pepper Ethanolic Extract and Nalidixic Acid on Pathogenic Microorganisms**

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### **Abstract**

**Background and objectives:** Nowadays, resistance of pathogenic microbial strains to therapeutic antibiotics has caused concern in human societies, therefore, the use of plant extracts has been considered because of its potential to control and treat bacterial infections. Red bell pepper with scientific name (*Capsicum annuum* L.) is a genus of Eggplants, native to tropical and subtropical regions. The aim of this study was to evaluate the antimicrobial activity of red bell pepper ethanolic extract on *Escherichia coli*, *Pseudomonas aeruginosa*, *Salmonella typhi*, *Staphylococcus aureus*, *Listeria innocua* and *Bacillus cereus* *in vitro*.

**Martials and methods:** In this experimental study, red bell pepper extract was extracted with ethanol solvent. The antimicrobial activity of the extract was determined by 4 methods: disk diffusion agar, well diffusion agar, minimum inhibitory concentration (macrodilution broth) and minimum bactericidal concentration on pathogenic strains. The obtained means were used for statistical analysis. Data were analyzed using SPSS software version 26 and Duncan's test at a significance level of 5%.

**Results:** The results of disk diffusion agar and well diffusion agar showed that the highest growth inhibition zone of red bell pepper extract was related to *Pseudomonas aeruginosa* and the lowest diameter of growth inhibition zone was related to *Escherichia coli* and *Staphylococcus aureus*, respectively. The inhibition zone diameter in *Salmonella typhi* and *Listeria innocua* compared to red bell pepper ethanolic extract was larger than the inhibition zone diameter nalidixic acid antibiotic. The minimum inhibitory concentrations of *Escherichia coli*, *Pseudomonas aeruginosa*, *Salmonella typhi*, *Staphylococcus aureus*, *Listeria innocua* and *Bacillus cereus* were 400, 400, 400, >400, 200 and 400 mg/ml, respectively. The minimum bactericidal concentration of red bell pepper ethanolic extract for all bacteria was higher than the minimum inhibitory concentration.

**Conclusion:** The results of this study showed that red bell pepper extract has antimicrobial activity and has the potential to be used in the pharmaceutical industry to control bacterial infections. It is suggested that more research be done in this field in order to determine the appropriate dose of the extract.

**Keywords:** Ethanolic extract, Red bell pepper, Antimicrobial activity, Medicinal properties

## **Isolation of Enterotoxin Producing Methicillin Resistant *Staphylococcus aureus* from Chicken Nugget Samples in Isfahan. 2019**

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### **Abstract**

**Background and objective:** Methicillin resistant *Staphylococcus aureus* (MRSA) harbor genes encoding a broad spectrum of virulence factors such as different enterotoxins which enable them to produce a variety of diseases in humans. These bacteria are found extensively in meat and ready to eat (RTE) meat products. The aim of this study was to assess the presence of enterotoxin producing MRSA isolates in chicken nugget samples in Isfahan.

**Materials and methods:** During May and October 2019 a total of 12 chicken nuggets from 2 different companies were collected in Isfahan. Samples were prepared and cultured on Baird-Parker agar supplemented with oxacillin and black colonies with halo were selected and identified as MRSA using specific primers for *nucA* and *mecA* genes. For typing of MRSA strains, SCC*mec* typing and prophage typing methods using the separate multiplex-PCR assays were employed. Moreover, the presence of different enterotoxin genes was tested by the separate multiplex-PCR assays.

**Results:** Out of the 12 chicken nuggets, 5 (42%) samples were contaminated with MRSA isolates and a total of 93 strains were identified using specific primers for *nucA* and *mecA*. The results of SCC*mec* typing showed that 3 different types II, III and V were present among MRSA strains, in which type III was the dominant one. Also, 6 different prophage types and 3 prophage patterns were identified among the strains. Moreover, 13 genes encoding different enterotoxins were also detected in which, *sea*, *sek* and *seq* genes were present among all strains.

**Conclusion:** The results of the present study revealed the high prevalence of enterotoxin producing MRSA strains in chicken nugget samples indicating the importance of hygiene systems for producing of such RTE products.

**Keywords:** MRSA, chicken nugget, prophage typing, SCC*mec* typing, enterotoxin

# Vaccine-associated Paralytic Poliomyelitis in IRAN

## A Case Report

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**Background and objective:** For as long as IRAN uses Oral polio vaccine (OPV; Containing live attenuated viruses), for expanded program on childhood immunization. The most severe complication Caused by OPV is Vaccine-associated paralytic poliomyelitis (VAPP). VAPP is more common in people with Immunodeficiency.

**Case report:** The case is an Iranian infant, born on February 21, 2018 and birth weight 2200gr., with cellular immune deficiency. Date of onset of paralysis is 97 days after receiving the second dose of OPV at the age of 7 months on October 2, 2018. Paralysis of the respiratory muscles occurred with tachypnea and fever. According to the world protocol, two stool samples were taken from the patient. The results of both samples with both L20B & RD cell line tests were Positive and vaccine-derived polio virus isolated from the patient's stool. The examinations done by the national referral laboratory of the Tehran University of medical sciences.

**Conclusion:** A decrease in the Percent of children immunization coverage conduces to circulating Vaccine-Derived Polio Virus (cVDPV) as well as, viral excretion by people with immune deficiency in the community. In addition to cause a poliomyelitis infection in these people, It can endangers the global polio eradication Initiative (GPEI).

**Key words:** poliomyelitis, oral polio vaccine, inactivated polio vaccine, vaccine-derived polio virus, Vaccine-Associated Paralytic Polio

## **Isolation of Vancomycin Resistant Enterococci from Chicken Meat Samples in Isfahan. 2019**

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### **Abstract**

**Background and objective:** Vancomycin-resistant *Enterococcus* (VRE) are endemic in hospital settings, and the prevalence of colonization is increasing. Enterococci are intestinal bacteria which colonize mammals, birds, reptiles and insects. VRE are among the first documented antibiotic resistant bacteria with primary origin in animals. So, the contamination of food with VRE strains, particularly of meat and meat products, is very important. The aim of the study was to evaluate the occurrence of VRE strains in chicken meat collected from supermarkets in Isfahan.

**Materials and methods:** From September to November 2019, a total of 12 chicken meat samples were collected from 2 different supermarkets in Isfahan. All fresh samples were collected in original packs and after filtration, filter membranes were transferred to mEnterococcus agar plates supplemented with 8 µg/ml vancomycin and bile esculin agar and black colonies were confirmed as enterococci using *ent* specific primers. All enterococcal isolates were identified at the species level using multiplex-PCR assay and the presence of *vanA-vanG* genotypes was tested using another multiplex-PCR.

**Results:** A total of 319 vancomycin resistant *Enterococcus faecium* were identified among all meat samples using specific primers. All strains were positive for *vanA* genotype and also the frequency of *vanB* and *vanD* genes was 13 and 5%, respectively. Moreover, 2% of VRE strains harbored all triple *vanA*, *vanB* and *vanD* genes and none of the strains were positive for *vanC*, *vanE* and *vanG* genes.

**Conclusion:** The results of the present study indicated the high prevalence of VRE strains in chicken meat samples in Isfahan which could be a concern for public health.

**Keywords:** VRE, *E. faecium*, vancomycin, chicken meat, resistance genotypes, multiplex-PCR, Isfahan

## The Cytotoxicity Effect of Iranian Cobra Venom Fractions on Lung Cancer

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**Background and objective:** Lung cancer is one of the most common cancer. Despite numerous therapies, chemotherapy is still the primary treatment . however Most patients, develop severe side effects. This has led to efforts to obtain new drugs from natural sources. The aim of this study was to investigate the cytotoxic effect of fractions obtained from Iranian cobra venom on A549 lung cancer cell line.

**Materials and methods:** First, snake venom was purified by gel filtration method and the toxicity effect of the fractions obtained was evaluated by MTT assay on lung cancer cells and the selected fraction was purified by ion exchange method. The toxicity effect of the selected fraction was investigated on normal cells, the cell proliferation test was performed too and finally Real Time PCR test was performed on treated cells.

**Results:** Fraction 6 of the gel filtration chromatography had the greatest cytotoxicity effect and was selected for further purification by ion exchange chromatography. Fraction 5 had the highest cytotoxicity effect. The toxicity of the selected fraction was significantly reduced on normal cells and the results of the cell proliferation test were consistent with the MTT results. Finally, Real Time PCR test was showed a significant increase in expression caspase 9 gene on treated cells.

**Conclusion:** Fraction 5 obtained from two stages of purification of Iranian cobra venom has cytotoxic effect on lung cancer cell line A549 and is a suitable option for drug studies of natural origin.

**Keywords:** lung cancer - snake venom - cytotoxicity - apoptosis