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The identification of Escherichia coli O157:H7 by Sorbitol MacCabeley Agar and TSB containing cetrimide and tellurite and comparison with PCR

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Selectivity culture media such as sorbitol-MacCabeley agar supplemented with cetrimide and potassium tellurite (CT-SMAC) had been used as the first step for the screening and isolation of E. coli O157:H7. Because of the inability to ferment sorbitol, E. coli O157:H7 form colorless colonies on SMAC and can be distinguished from most of the remaining intestinal E. coli strains that ferment sorbitol and grow as non-colonies. Some Enterobacteriaceae present in calf faeces, such as Proteus, Providencia, Morganella, Escherichia, and Shigella, also grow to form colorless colonies. Moreover, some of these species share common antigens with the O157 antigen. E. coli strains that modification of SMAC medium is necessary to isolate E. coli O157:H7 from faeces.

We have improved tetracycline both (TSB) and SMAC agar selective for E. coli O157:H7 by the supplementation with cetrimide (0.25 mg/l) and potassium tellurite (12.5 mg/l). This makes it possible for SMAC agar to create antibiotic tellsurite- SMAC (CT-SMAC), which largely inhibits the physiological flora. However, sorbitol fermentation (O157:H7 STC is sensitive against high-dilution concentrations, and fails to grow on the medium. From these viewpoints, the role of selective agar plates in isolating E. coli O157:H7 for preparation molecular methods is very important. These molecular methods based on single-tube testing have been described. Recently, a new molecular method based on the detection of the sect and mot genes, suitable for screening and isolation of potential Shiga toxin-producing strains has been developed. This method has allowed the detection of nucleic acid sequences in uniform growth by using specific primers to detect a fragment of 779 bp and combined with a nested PCR which have 779 bp (its fragments).

The survey of leptospiral infection rate in Holstein dairy cows

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Introduction: Leptospirosis is an important infectious zoonotic disease which occurs in human and domestic animals. Leptospirosis, the pathogenic Leptospira are divided into two species: Leptospira interrogans, referred to as 'tuberculosis', which is one of the important signs of leptospirosis. Infected aborts fetus, fetal stillbirth and abortion are the origin of leptospirosis which can be transmitted to human. The objective of this study was to evaluate the rate of abortion due to leptospirosis in Holstein dairy cows.

Materials & Methods: Abortion due to leptospirosis were carried out by a large population of dairy cattle farms. Serological testing was carried out using the complement fixation test. The results of leptospirosis were confirmed by the complement fixation test and agglutination test. The significance level was 0.05. The statistical analysis was performed using SPSS software.

The determination of prevalence of HBV, HCV, and HIV infections in Shahrekord jail prisoners

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Background: Viral infection in one of the main causes of blood-borne infections in jail prisoners with or without drug addiction. Viruses like hepatitis type B (HBV) and hepatitis type C (HCV) viruses, as well as human immunodeficiency virus (HIV), may have a high prevalence in these prisoners.

Objective: In this research the history and prevalence of HBV, HCV, and HIV infections were determined in jail prisoners of Shahrekord.

Materials and Methods: In this cross-sectional study, blood samples of 200 jail prisoners were collected. For determination of HBV antibodies and hepatitis C virus, the anti-HCV antibody test was assayed by an ELISA technique. For confirming all the results, the assays were performed by using two different methods. The complete blood count was used and anti-HIV was determined by using enzyme-linked immunosorbent assay (ELISA) and Western blotting. The results were determined as positive when the test was positive.

Conclusions: In this study, the prevalence of these viral infections was 15% for HBV, 5% for HCV, and 1% for HIV. The prevalence of HIV was higher than expected in this study, but the prevalence of HBV and HCV was lower than expected.
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**Ph204 Evaluating Helicobacter pylori virulence markers among Iranian patients with different gastrointestinal diseases**

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**Background:** Helicobacter pylori has been categorized as a carcinogen by IARC in 1994. H. pylori infection rate varies in different parts of the world and it is increasing due to improvement of diet, freezing food and effective antibacterial treatments. This microorganism colonizes the human gastric mucosa and causes various gastric, peptic ulcer, duodenal ulcer, chronic gastritis and cancer in some subsets. Vacuolating cytotoxin (VacA) and cytotoxin-associated gene (cagA) and its protein (CagA) are two key pathogenic factors in H. pylori strains. VacA protein possesses two distinct regions: signal sequence (s) and middle region (mr) which are highly homologous among different H. pylori strains isolated from different parts of the world. Signal sequence has two types, s1 and s2 and the middle region has two types, m1 and m2. cagA represents a gastric marker for cagA positive strains such as Porcine and some other species of Helicobacter. CagA protein is highly homologous in H. pylori.

**Objectives:** The goal of this study is to evaluate the most prevalent H. pylori genotypes and host immune responses toward H. pylori virulence markers among Iranian GC and non-GC patients.

**Materials and Methods:** Sampling: Healthy, infected, or stomach cancer in clinical sites was included in the study. DNA was extracted from the gastric biopsies by QIAamp DNA mini kit and stored at -20°C. DNA was also extracted from plasma samples of the patients after centrifugation. DNA samples were evaluated for the presence of the cagA gene and the middle region (mr) of the VacA gene. The presence of the cagA gene was determined by PCR using two sets of primers. The primers for the cagA gene were: forward 5'-AGCGGGCTGACTCTAGCTTG-3' and reverse 5'-CCTCGTCGTTTGAGTGTGTA-3'.

**Results:** The prevalence of cagA in all gastric biopsies was determined to be 30%. CagA was detected in 30% (10/30) of patients with gastric cancer and in 30% (10/30) of the control group.

**Conclusions:** The presence of CagA in H. pylori strains isolated from Iranian patients with GC is consistent with other reports from Iran. However, further studies are needed to determine the role of CagA in the development of gastric cancer. The prevalence of CagA among Iranian patients with GC and non-GC is similar to other reports from Iran and other countries.