

CURRENT RESEARCH TOPICS IN PHARMACY: *Microbiology Debates*

December 14th, 2022 14.00 PM ISTANBUL

FOR REGISTRATION:



First Session- Moderator: Büşra ERTAŞ 14.00-15.45 PM

Welcome- Assoc.Prof.Esra TATAR

Bacteriotherapy – Dr. Zahraa AMER HASHIM
Mosul University, Mosul, Iraq

Antibiotic resistance – Assist.Prof. Pervin RAYAMAN
Marmara University, Istanbul, Turkey

The vaccination in Albania : An assessment of the level of knowledge and behaviour of the population regarding vaccines.- Assoc.Prof. Mirela MIRAÇI
University of Medicine, Tirana, Albania

Chicken contamination with thermotolerant Campylobacter in Tunisia: Antibiotic resistance and virulence profiling –Dr.Awatef BEJAOU
Institut Pasteur de Tunis, Tunis, Tunisia

Second Session- Moderator: Esra TATAR 16.00-17.45 PM

Plant phenolics and their synthetic derivatives as inhibitors of *Helicobacter pylori* : Suggestion for a new mechanism of action -
Assoc.Prof. Simone CARRADORI
"G. d'Annunzio" University of Chieti-Pescara University, Chieti Italy

Pomegranate rind extract with Zn (II) combination as a new therapeutic agent for oral care products- Dr.Vildan ÇELİKSOY
Cardiff University, Cardiff, UK

The antimicrobial effects of honey and other bee-derived products- Dr.Saira KHAN
Cardiff University, Cardiff, UK

Chair

Prof. Hatice Kübra ELÇİOĞLU

Vice Chairs

Prof. Levent KABASAKAL & Assoc. Prof. Esra TATAR

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CHICKEN CONTAMINATION WITH THERMOTOLERANT *CAMPYLOBACTER* IN TUNISIA: ANTIBIOTIC RESISTANCE AND VIRULENCE PROFILING

Awatef BÉJAOUÏ

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Thermotolerant campylobacters, particularly *C. jejuni* and *C. coli*, have emerged as the most common cause of bacterial foodborne disease worldwide, with a significant impact on human health and a corresponding economic burden. The major source of human infection is the handling and consumption of contaminated chicken meat. Furthermore, the emergence of antibiotic resistance in foodborne pathogens is currently considered a real global health concern. This is why we have undertaken a study to assess the occurrence of *Campylobacter* contamination in chicken carcasses and to investigate antimicrobial resistance (AMR), as well as the AMR molecular mechanisms. The study was performed on 257 samples collected from abattoirs and retail shops in northeastern Tunisia. The overall isolation rate (IR) was 18.7%, including 68.7% of *C. jejuni* and 31.2% of *C. coli*. The occurrence of *Campylobacter* was 23.2%, and 13% in samples from slaughterhouses and retail shops, respectively. The highest rate of *Campylobacter* contamination was observed in neck skin samples (31.3%), followed by giblets (14.7%), and meat (10%). Antibiotic resistance was tested against eight antibiotics and high resistance rates were observed against tetracycline (100%), erythromycin (97.9%), ciprofloxacin (73%), nalidixic acid (85.4%), ampicillin (83.3%), amoxicillin/clavulanic acid (22.9%), chloramphenicol (75%), and gentamicin (27.1%). All isolates were multidrug-resistant, and 22 resistance patterns were found. All isolates were screened for AMR genes and we detected: *tet(O)*, *tet(A)*, *tet(B)*, *tet(L)*, *cmeB*, *ermB*, *blaOXA-61*, and *aphA-3*. Moreover, we detected mutations in *gyrA* (C257T) and 23S *rRNA* (A2075G/A2074C) genes. The virulence genotypes were also determined, and all isolates carried the motility (*flaA*) and invasion (*cadF*) genes. Most of them also harbored the *cdtA*, *cdtB*, and *cdtC* genes, encoding the *Campylobacter* toxin. The screening of the *cgtB* and the *wlaN* genes, involved in Guillain-Barré Syndrome expression, revealed the presence of the *cgtB* in 21.2% of *C. jejuni* strains, whereas none of them carried the *wlaN* gene. Our findings highlight the emergence of *Campylobacter* strains simultaneously harboring several virulence and AMR determinants, which emphasizes the risk of transmission of MDR strains to humans via the food chain.

Keywords: *Campylobacter*, chicken, antimicrobial resistance, AMR determinants.