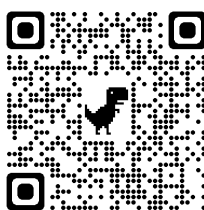


# CURRENT RESEARCH TOPICS IN PHARMACY: *Microbiology Debates*

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

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## PLANT PHENOLICS AND THEIR SYNTHETIC DERIVATIVES AS INHIBITORS OF *HELICOBACTER PYLORI*: SUGGESTION FOR A NEW MECHANISM OF ACTION

Simone CARRADORI 

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*Helicobacter pylori* is a Gram-negative neutrophilic pathogen, which can cause chronic gastritis, peptic ulcers, and gastric cancer in humans. Current therapeutic multi-options regimens suffer from an emerging bacterial resistance rate and poor patient compliance. To improve the discovery of compounds targeting bacterial alternative enzymes or essential pathways such as carbonic anhydrases (CAs). Two isoforms belonging to the  $\alpha$ - and the  $\beta$ - classes, namely Hp $\alpha$ CA and Hp $\beta$ CA, were cloned, purified and characterized. They act in a complex interplay with urease. We have assessed the anti-*H. pylori* activity of some important plant secondary metabolites such as thymol, carvacrol, eugenol, and vanillin in terms of CA inhibition, isoform selectivity, growth impairment, biofilm production, and release of associated outer membrane vesicles-eDNA. In addition, chemical modifications were performed to improve the pharmacodynamic and pharmacokinetic profile. Cytotoxicity was also evaluated against human fibroblast (normal cell line) and AGS (cancer cell line). The microbiological results comprehended the evaluation in vitro of *H. pylori* CA inhibition, in silico analysis of the structural requirements to display such isoform selectivity, and the assessment of their limited toxicity against three probiotic species with respect to amoxicillin. Plant secondary metabolites could thus be considered as new lead compounds as alternative *H. pylori* CA inhibitors or to be used in association with current drugs for the management of *H. pylori* infection and limiting the spread of antibiotic resistance.

**Keywords:** Carvacrol, thymol, eugenol, vanillin, *Helicobacter pylori*, carbonic anhydrase