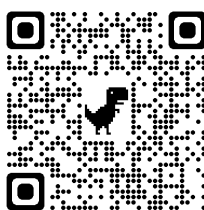


# CURRENT RESEARCH TOPICS IN PHARMACY: *Microbiology Debates*

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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## POMEGRANATE RIND EXTRACT WITH ZN (II) COMBINATION AS A NEW THERAPEUTIC AGENT FOR ORAL CARE PRODUCTS

Vildan CELIKSOY<sup>1,2\*</sup>, Rachael L. MOSES<sup>2,3</sup>, Alastair J. SLOAN<sup>2,3</sup>, Ryan MOSELEY<sup>2</sup>, Charles M. HEARD<sup>1</sup>

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Periodontal diseases, such as gingivitis and periodontitis, are amongst the most common diseases affecting most of the population and have been highly associated with dental plaque. The main strategy to prevent periodontal diseases is through control of dental plaque via physical and chemical methods. However, currently used anti-plaque agents have adverse effects such as tooth staining and taste alteration. Whilst increased antimicrobial resistance is another issue in the management of periodontal diseases. Therefore, the discovery of new alternative treatment agents is necessary. Pomegranate rind extract (PRE) is a well-established folkloric medicine and abundant with hydrolysable tannins, especially punicalagin, with beneficial health properties. More recently, addition of Zn (II) to PRE exerted a synergistic antimicrobial activity against microbes, including some bacteria and viruses [1-2]. Thus, the aim of this study was to investigate potential use of PRE, Zn (II) and PRE/Zn (II) in relation to treating oral diseases. PRE (1-8 mg/mL), Zn (II) (0.39-6.25 mM) and PRE/Zn (II) demonstrated a broad-spectrum antimicrobial activity in planktonic and biofilm conditions against oral microbes. These agents also exhibited anti-adhesive properties by reducing attachment of *S. gordonii*, *S. mutans* and *C. albicans* to glass surfaces. Synergistic antimicrobial activity for PRE/Zn (II) was found against *S. gordonii* and *C. albicans*, it was associated with an increased reactive oxygen species (ROS) level which can be active against *C. albicans* [3]. This work has provided a basis for using PRE and PRE/Zn (II) as a novel therapeutic system for periodontal diseases, such as gingivitis and periodontitis. Moreover, PRE and PRE/Zn (II) could be developed as cost-effective products with potential for improving oral health globally.

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- [2] Celiksoy V, Moses RL, Sloan AJ, Moseley R, Heard CM. Synergistic *in vitro* antimicrobial activity of pomegranate rind extract and zinc (II) against *Micrococcus luteus* under planktonic and biofilm conditions. *Pharmaceutics*. 2021; 13(6): 851. [[CrossRef](#)].
- [3] Celiksoy V, Moses RL, Sloan AJ, Moseley R, Heard CM. Synergistic activity of pomegranate rind extract and Zn (II) against *Candida albicans* under planktonic and biofilm conditions, and a mechanistic insight based upon intracellular ROS induction. *Sci Reports*. 2022; 12(1): 19560. [[CrossRef](#)].