CURRENT RESEARCH TOPICS IN PHARMACY: **Herbal Drug Research**

November 24th, 2022 14.00 PM ISTANBUL

**FOR REGISTRATION:**

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**First Session - Moderator: Betul OKUYAN 14.00-15.30 PM**

- **Welcome** - Prof. Hatice Kübra ELÇİOĞLU
- **Safety of herbal drugs** - Assist.Prof. Ayfer BECEREN
  Marmara University, Istanbul, Turkey
- **Antibacterial herbal effect applied in cosmetic emulsion preservation** - Dr. Rezarta SHKRELI
  Aldent University, Tirana, Albania
- **R&D studies in the development of traditional herbal medicinal products** - Prof. İ. İrem TATLI ÇANKAYA
  Hacettepe University, Ankara, Turkey

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**Second Session - Moderator: Betul OKUYAN 16.00-17.30 PM**

- **The role of metabolomics in medicinal plant science** - Prof. Emirhan NEMUTLU
  Hacettepe University, Ankara, Turkey
- **Using diterpenoids from Plectranthus spp. As starting tool in drug development** - Assoc.Prof. Patricia RIJO
  Lusofona University, Lisbon, Portugal
- **Herbal drugs as novel antibacterials** - Assoc. Prof. Entela HALOCI
  University of Medicine, Tirana, Albania
- **The potential of certain phytochemicals as essential nutrients** - Asst.Prof. Lukasz CIESŁA
  The University of Alabama, Tuscaloosa, USA

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Chair
Prof. Hatice Kübra ELÇİOĞLU

Vice Chair
Prof. Levent KABAŞAKAL & Assoc. Prof. Esra TATAR

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THE POTENTIAL OF CERTAIN PHYTOCHEMICALS AS ESSENTIAL NUTRIENTS

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Diet rich with vegetables, fruit and herbs has been associated with lowering the risk of noncommunicable aging associated diseases. Vitamins, minerals and certain dietary factors present in unprocessed plant-based products have been considered to be responsible for beneficial effects of dietary patterns rich in these products. Oxidized fatty acids and their derivatives have been previously shown to play an important role in signaling in many different cell types. We hypothesize that other classes of membrane associated lipophilic compounds together with n-3 fatty acid oxidation products play important role in cellular signaling. The following are several examples of compounds that are stable soft electrophiles or form stable soft electrophiles upon oxidation: flavonoids, vitamin E vitamers, numerous carotenoids or omega-3 fatty acids. All these compounds have been associated with lowering the risk of aging-associated diseases, by for example actively targeting inflammatory responses. Our work identified a specific group of lipophilic soft electrophiles that exert protection in Drosophila and mammalian models of Parkinson’s disease. Our data unravel specific structural features of selected electrophiles that are essential for signaling activity. Lipidomic and proteomic experiments further indicate that essential soft electrophiles interact with electrophile-responsive regulatory cellular proteins especially rich in reactive nucleophiles such as cysteine residues. Soft electrophilic molecules modulate cellular activity through non-enzymatic post-translational modifications, previously mostly considered as indicators of oxidative/metabolic stress and disease. I will discuss the evidence that lipophilic soft electrophiles associating with cell membranes may also play an essential role in human nutrition, following the concept of vitamin P proposed by the discoverer of vitamin C, Dr. Szent-Györgyi.

Keywords: soft electrophile, essential nutrient, diet, phytochemical