



Phytochemicals in medicine and food (5-ISPMPF, 2021)

Jianbo Xiao · Jelena Popović Đorđević · Esra Capanoglu



Published online: 17 November 2023

© The Author(s), under exclusive licence to Springer Nature B.V. 2023

The 5th International Symposium on Phytochemicals in Medicine and Food (5-ISPMPF) was held online from August 25th to September 1st, and at Nanchang University, Nanchang, China from October 18th to 20th, 2021 due to the coronavirus pandemic. 5-ISPMPF was organized with the sponsorship of International Association of Dietetic Nutrition and Safety (IADNS), Phytochemical Society of Europe (PSE), Physiological Society of Japan, and Phytochemical Society of Asia (PSA). Over 410 scientists from 62 countries and another 350 scientists from China were registered to attend both the online and onsite 5-ISPMPF conferences, jointly organized by Nanchang University, Jiangsu University and University of Vigo. 5-ISPMPF

has also been supported by prestigious international journals including Food Chemistry, Food Chemistry X, Oxidative Medicine and Cellular Longevity, Phytochemistry Reviews, and several others. The international organizing committee and scientific committee board of 5-ISPMPF assembled an exciting and diverse program, featuring 16 plenary lectures, 82 invited lectures, 142 oral presentations, a graduate student forum consisting of 70 short lectures, and more than 100 posters, which were all dedicated to creating a stage for exchanging the up-to-date research results on phytochemicals for food and human health.

Various natural bioactive compounds such as flavonoids, isoflavonoids, catechins, stilbenoids, polysaccharides, and saponins have been evaluated which have attracted significant attention due to their beneficial health effects. Li et al. (<https://link.springer.com/article/10.1007/s11101-023-09890-z>) reviewed the bioactivity and application of anthocyanins in skin protection and cosmetics and mentioned about anthocyanin stabilization, pyranoanthocyanin use, and the effects of anthocyanins on the gut-skin axis. The chemistry and biological merits in context to molecular docking studies of natural acylated flavonoids were summarized by Ahmed F. Essa et al. (<https://link.springer.com/article/10.1007/s11101-022-09840-1>) with respect to 123 compounds which have potential antimicrobial, antiparasitic, anti-inflammatory, anti-nociceptive, analgesic and anti-complementary effects. Docking simulations conducted by Molecular

J. Xiao (✉)

Department of Analytical Chemistry and Food Science,
Faculty of Food Science and Technology, University of
Vigo-Ourense Campus, 32004 Ourense, Spain
e-mail: jianboxiao@yahoo.com

J. P. Đorđević (✉)

Chair of Chemistry and Biochemistry, University of
Belgrade - Faculty of Agriculture, Nemanjina 6,
Belgrade 11080, Serbia
e-mail: jelenadj@agrif.bg.ac.rs

E. Capanoglu (✉)

Department of Food Engineering, Faculty of Chemical
and Metallurgical Engineering, Istanbul Technical
University, Istanbul, Turkey
e-mail: capanogl@itu.edu.tr

Operating Environment (MOE) of acylated flavonoids revealed that aromatic acyls i.e., galloyl derivatives improved the efficacy through enhancement of binding affinities to molecular targets due to plenty of donating and accepting centers. Carpena and co-workers (<https://link.springer.com/article/10.1007/s11101-022-09826-z>) overviewed the fundamental composition of red algae and their most studied biological properties. Sulfated polysaccharides, mainly agar and carrageenans, are the most relevant and exploited compounds of red algae together with other potential molecules including essential fatty acids, phycobiliproteins, vitamins, minerals, and other secondary metabolites. Lin et al. (<https://link.springer.com/article/10.1007/s11101-022-09837-w>) outlined the metabolism and bioavailability of plant flavonoids with different structures and their multifunctional role in inhibiting chronic kidney disease and discussed how plant flavonoids regulate the intestinal flora of chronic kidney disease patients and further improve renal health through the gut-kidney axis. Guevara-Terán et al. (<https://link.springer.com/article/10.1007/s11101-022-09834-z>) focused on possible variations on physicochemical composition and antioxidant capacity of strawberries in regard to altitude through a meta-analysis indicating that altitude does not affect the physicochemical composition and antioxidant capacity of strawberries. Fan et al. (<https://link.springer.com/article/10.1007/s11101-022-09842-z>) reviewed the phytochemical and pharmacological investigations of *Duchesnea* genus and prospected the applications of multiple targets UF-LC-MS has a great application space in the screening of active components present in *Duchesnea* genus. Sakna et al. (<https://link.springer.com/article/10.1007/s11101-022-09835-y>) comprehensively reviewed the phytochemical

diversity and pharmacological effects of triterpenes of genus *Ziziphus* including treating headaches, obesity, common colds, diabetes, hypertension, and infections. Ullah et al. (<https://link.springer.com/article/10.1007/s11101-022-09838-9>) emphasized the emerging role of polyphenols in chronic fatigue syndrome (CFS) from both preclinical and clinical studies. Polyphenols, in particular flavonoids, resveratrol and curcumin, possess the potential to fight against CFS, and thus they can be used to develop effective therapeutic agents in this regard. Popović-Djordjević et al. (<https://link.springer.com/article/10.1007/s11101-023-09883-y>) summarized the chemical and nutritional properties of medlar fruit, as well as the traditional medicinal uses and biological activity of the medlar plant. El-Seedi et al. (<https://link.springer.com/article/10.1007/s11101-022-09836-x>) focused on plants including *Annona crassiflora* Mart., *A. muricata* L., and *A. montana* Macfad. which are attractive potential sources as alternative molluscicides and novel entity to treat schistosomiasis owned to their diverse biologically potent compounds including saponins, alkaloids, terpenoids, and tannins. All these plants are indicated to have a high potential for their contribution to feasible and effective medicines and/or pesticides.

The guest editors sincerely thank the authors for their valuable contributions. We are happy to be able to bring this Special Issue to our valued readers covering a variety of interesting and novel topics on different phytochemicals which have been attracting the attention of many scientists last years.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.