

Special Issue

Advances in Phytochemical Research: Molecular Pathways in Health and Disease

Message from the Guest Editors

Bioactive phytochemicals, including flavonoids, alkaloids, and terpenoids, have been reported to regulate cellular processes such as inflammation, oxidative stress, and apoptosis. Based on these mechanisms, we can develop new therapeutic strategies for diseases such as cancer, cardiovascular disorders, and metabolic syndromes, promoting the use of natural products in preventive and therapeutic medicine. Clinical trials and epidemiological studies continue to support the notion that a diet rich in phytochemicals correlates with improved health outcomes and may help prevent various diseases. Importantly, recent advancements in bioinformatics and molecular biology techniques have led to a better understanding of the mechanisms through which these phytochemicals exert their effects. By studying specific molecular pathways, such as NF- κ B and MAPK signaling, we can uncover how phytochemicals can modulate gene expression and protein function. Therefore, the aim of this Special Issue is to provide an overview of advances in phytochemical research by exploring how plant-derived compounds affect molecular pathways implicated in health and disease.

Guest Editors

Dr. Christiana Charalambous

Department of Basic and Clinical Sciences, University of Nicosia Medical School, 1683 Nicosia, Cyprus

Dr. Christiana Neophytou

Apoptosis and Cancer Chemoresistance Laboratory, Basic and Translational Cancer Research Center, Department of Life Sciences, European University Cyprus, Nicosia 2404, Cyprus

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Editor-in-Chief

Prof. Dr. Madhav Bhatia

Department of Pathology and Biomedical Science, University of Otago,
Christchurch, 2 Riccarton Avenue, P.O. Box 4345, Christchurch 8140,
New Zealand

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