

Special Issue on
Flavonoids: Advances, Challenges, and Perspectives

CALL FOR PAPERS

Flavonoids are widely distributed low-molecular-weight polyphenolic secondary metabolites in plants. They have a diverse range of biological activities and play pivotal roles in plant growth regulation, antioxidant activity, enzyme inhibition, pigment development, and blockage of UV light. In addition, flavonoids can protect humans against the free radicals that are associated with the development of cancer and atherosclerosis, thus serving as important dietary supplements and nutraceuticals.

The biosynthesis of flavonoids in plants is stimulated by environmental factors such as heavy metals and drought. However, the detailed mechanism of this biosynthesis is not very well defined. The current industrial flavonoid production heavily relies on extraction from plants, which is neither environmental-friendly nor sustainable. In the past two decades, there have been extensive studies on flavonoid biosynthesis using plant cells or microbial cells, but the yields or productivities are too low for industrial applications. Given the global recognition of the benefits of and the increasing need for these compounds, it is critically important to understand in detail the regulatory mechanisms of flavonoid biosynthesis, to explore ways of improving the efficiencies of flavonoid syntheses in biological hosts and/or to develop green extraction technologies.

This special issue aims to bring together a number of studies that provide in-depth knowledge and perspectives on a comprehensive understanding of flavonoid metabolism and regulation and the expression of genes involved in the flavonoid biosynthetic pathway in various organisms. In addition, this issue aims to explore and clarify how biosynthesis efficiency could be improved in microbial and plant hosts using modern biotechnology and metabolic engineering strategies. Original research articles on plant extraction, flavonoid biosynthesis and its regulation, and new medicinal functions of flavonoids are welcome. Critical reviews summarizing significant findings in the field of gene regulation of flavonoid biosynthesis are also encouraged.

Potential topics include but are not limited to the following:

- ▶ Flavonoid biosynthesis in plants: new discoveries of the regulation of the flavonoid pathways in plants
- ▶ The impact of environmental factors on flavonoid biosynthesis: the effect of factors such as drought, heavy metals, and increased CO₂ levels in the atmosphere on the regulation and production of flavonoids in plants
- ▶ The biosynthesis of flavonoids by microorganisms: new metabolic engineering strategies for flavonoid biosynthesis, reports on the bioproduction of new flavonoids
- ▶ Recent advances in separation technology of flavonoids from plants
- ▶ New medicinal functions of flavonoids: reports on the medical assessment of known or unknown flavonoid molecules
- ▶ Reviews summarizing significant findings in the field of gene regulation of flavonoid biosynthesis in plants, microbial production of flavonoids, separation technologies, and medical applications of flavonoids

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/jchem/biochemistry/facaa/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

Lead Guest Editor

Xia Jia, Chang'an University, Xi'an, China

jiaxia@chd.edu.cn

Guest Editors

Jian Zha, Shaanxi University of Science and Technology, Xi'an, China

zhajian1985@sust.edu.cn

Peng Xu, University of Maryland, Baltimore, USA

pengxu@umbc.edu

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