

Special Issue

Physiological and Biochemical Responses of Plants to Heavy Metal Toxicity

Message from the Guest Editors

Heavy metal toxicity represents a critical environmental threat that significantly impacts plant growth, productivity, and survival. Plants exposed to heavy metals exhibit a wide range of physiological and biochemical responses, including disruption of nutrient homeostasis, alterations in photosynthesis, oxidative stress induction, changes in hormone signaling, and activation of antioxidant defense systems. This Special Issue aims to bring together novel insights into the molecular, physiological, and biochemical mechanisms underlying plant responses to heavy metal stress. We welcome contributions exploring metal uptake, transport, sequestration, and detoxification strategies; the roles of reactive oxygen species (ROS) and antioxidant defense; cross-talk between phytohormones; and metabolic adjustments that sustain plant resilience. Studies that integrate omics technologies, phytoremediation approaches, seed priming strategies, and plant–microbe interactions in the context of heavy metal stress are especially encouraged.

Guest Editors

Dr. Erna Karalija

Laboratory for Plant Physiology and Molecular Biology, Department of Biology, Faculty of Science, University of Sarajevo, 71000 Sarajevo, Bosnia and Herzegovina

Dr. Dunja Šamec

Department of Food Technology, University North, Trg Dr. Žarka Dolinara 1, 48000 Koprivnica, Croatia

Deadline for manuscript submissions

31 May 2026



Plants

an Open Access Journal
by MDPI

Impact Factor 4.1
CiteScore 7.6
Indexed in PubMed



mdpi.com/si/253689

Plants
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
plants@mdpi.com

[mdpi.com/journal/
plants](https://mdpi.com/journal/plants)





Plants

an Open Access Journal
by MDPI

Impact Factor 4.1
CiteScore 7.6
Indexed in PubMed



[mdpi.com/journal/
plants](https://mdpi.com/journal/plants)



About the Journal

Message from the Editor-in-Chief

Plants is an open access journal which provides an advanced forum for research findings in areas related to plant function, its physiology, biology, taxonomy, stresses, and its interactions with other organisms. It publishes original research articles, reviews, reports, and conference proceedings (peer reviewed full articles) and communications. In original research papers, it is important that full experimental details are provided. We also encourage timely reviews and commentaries on topics of interest to the plant research community.

Editor-in-Chief

Prof. Dr. Dilantha Fernando
Department of Plant Science, University of Manitoba, Winnipeg, MB
R3T 2N2, Canada

Author Benefits

Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:

indexed within Scopus, SCIE (Web of Science), PubMed, PMC, PubAg, AGRIS, CAPlus / SciFinder, and other databases.

Journal Rank:

JCR - Q1 (Plant Sciences) / CiteScore - Q1 (Ecology, Evolution, Behavior and Systematics)