Special Issue

The Application of Naturally-Derived Molecules and Their Synthetic Analogs in Agriculture and Fight against Biotic and Abiotic Stresses That Emerged under Climate Change

Message from the Guest Editors

A major challenge in modern ecological agriculture is mitigating the impact of biotic and abiotic stresses caused by climate change on plants. Currently, naturally derived molecules and their synthetic analogs are extensively studied to enhance plant growth parameters. In agriculture, these molecules exhibit diverse biological effects, such as boosting plants' ability to absorb nutrients, enhancing biomass production, and inhibiting pathogen infection. They can function as natural pesticides and fungicides, offering an environmentally friendly alternative to conventional treatments with chemicals harmful to humans and animals, thereby minimizing ecological impact and promoting biodiversity conservation. Furthermore, these compounds may enhance plant tolerance to various stresses, including drought, salinity, pathogens, and extreme temperatures, by modulating pathways such as phytohormonal or redox-related processes. Synthetic analogs of naturally derived substances are engineered to improve efficacy, stability, and specificity in targeting stress-induced mechanisms, reducing crop losses.

Guest Editors

Dr. Agata Kućko

Department of Plant Physiology, Institute of Biology, Nowoursynowska 159 St., Bldg. 37, 02-776 Warsaw, Poland

Dr. Emilia Wilmowicz

Department of Plant Physiology and Biotechnology, Nicolaus Copernicus University, ul. Lwowska 1, 87-100 Toruń, Poland

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

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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, 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

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