

# Special Issue

## The Application of Naturally Derived Molecules and Their Synthetic Analogs in Agriculture and the 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.

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### Guest Editors

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### Editor-in-Chief

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