



Plants

an Open Access Journal by MDPI

CiteScore: 8.5

Indexed in PubMed

Impact Factor: 4.7

Special Issue Reprint

Plant Chemical Ecology

Edited by: Chui-Hua Kong, Yonggen Lou, Peng Wang and Guoxin Zhou

There are various chemical interactions between plants and other organisms in natural and managed systems. The last decade has seen a dramatic increase in ecological research on chemically mediated interactions between plants and other organisms. Particularly intriguing are their potential importance and application for sustainable agriculture. New research has shown that plants are far more intricate and engaged in their interactions with both living organisms and non-living environments. Allelopathy and allelobiosis cover any positive or negative effects on chemically mediated interactions among plants, possessing important implications and consequences for plant coexistence and community assembly. Furthermore, plants have evolved complicated strategies to cope with herbivore and pathogen infestation, particularly for perception-dependent plant chemical defenses. The defense mechanisms start from the recognition of signals from volatiles derived from interacting organisms, followed by the activation of defense-related signaling pathways. Activation upregulates the expression of defensive genes, increases the level of defensive metabolites, and enhances plant resistance to biotic stresses. Overall, this Reprint focuses on the recent advancements in plant chemical ecology, largely within the context of chemically mediated plant–plant and plant–insect interactions, providing new insights into eco-evolutionary relationships and representing potential strategies for sustainable agriculture. It is intended for researchers and students interested in plant biology and ecology, agronomy, and entomology.



<https://www.mdpi.com/books/reprint/12964>