

Special Issue

Ionic Liquids Utilization as Plant Protection Agents in Agriculture Production

Message from the Guest Editors

One of the most promising innovations for alternative agrochemical formulations is ionic liquids (ILs)—organic salts with unique physicochemical properties, including thermal stability, low volatility, and high solubility. These characteristics enable their application as novel carriers, solvents, and active ingredients in agrochemical formulations. Recent studies have demonstrated the potential of ILs to enhance the bioavailability, efficacy, and environmental safety of plant protection products. Moreover, ILs can be structurally tailored to reduce toxicity and improve biodegradability, aligning their use with the principles of green chemistry. Their multifunctional role opens new possibilities in the design of plant protection strategies, particularly in the context of growing resistance to conventional agents and the need for climate-resilient agricultural practices. This Special Issue is devoted to recent advancements, experimental insights, and critical reviews on the role of ionic liquids in crop protection, including the synthesis of task-specific ILs, their biodegradability, toxicity profiling, and interactions with plant and soil systems.

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Agriculture (ISSN 2077-0472) is an international, cross-disciplinary and scholarly journal on the science and technology of crop and animal production, and management of the natural resource base for agricultural production. We invite submissions from authors according to the aims and scope of the journal described in more detail on this page. *Agriculture* is published in an open access format – articles are published on the journal's website immediately after acceptance, giving the scientific community and the public unlimited and free access to the content.

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