



plants

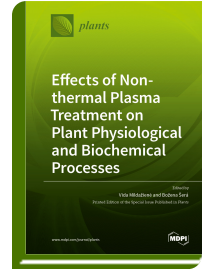


Special Issue Reprint

Effects of Non-thermal Plasma Treatment on Plant Physiological and Biochemical Processes

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The potential of cold plasma-based applications in sustainable agriculture is supported by numerous studies which have gathered experimental evidence that the plasma treatment of seeds, water or plants can be used to improve yields, increase the size and the robustness of plants and to reduce the need of antifungal agents, as well as other chemicals. However, the development of reliable and manageable agro-biotechnologies is ultimately based on the understanding of the molecular mechanisms underlying such effects. Despite considerable efforts, such knowledge still remains elusive. Recent breakthroughs in this area are strongly linked to recent discoveries in plant physiology and biochemistry related to topics of plant plasticity, adaptability, stress response and communication. Short plasma treatments of plant materials can induce various changes in plant development and metabolism that persist for a long time. We are only just beginning to understand how to use very complex molecular mechanisms for the mobilisation of plant resources and for the improvement in agricultural plant performance. It is likely that investigations of plasma-induced changes in plant physiological and biochemical processes may reveal new facts of both fundamental and applied importance. This Special Issue of *Plants* aims to present the most recent findings on changes in plant signal transduction, metabolism, development and physiological processes induced by the exposure of seeds or plants to cold plasma or plasma-activated water, leading to increased plant productivity.



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