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Genetic, Epigenetic and Metabolic Regulation in Plant Responses to the Environment

Guest Editors:

Prof. Dr. Matteo Busconi

Department of Sustainable Crop Production, Università Cattolica del Sacro Cuore, 29122 Piacenza, Italy

Dr. Luigi Lucini

Department for Sustainable Food Processes, Università Cattolica Del Sacro Cuore, 29122 Piacenza, Italy

Dr. Leilei Zhang

Department for Sustainable Food Processes, Università Cattolica Del Sacro Cuore, 29122 Piacenza, Italy

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Message from the Guest Editors

Plants are sessile organisms characterized by a high degree of metabolic and phenotypic plasticity. Because they are unable to escape their surroundings, plants must cope with variable and sometimes challenging growth conditions that influence their development, reproduction, fitness, and productivity. In response to environmental stimuli, the regulation of gene expression relies on a variety of molecular mechanisms that affect different stages in the flow of genetic information, inducing changes in mRNA transcription, processing, transport, translation, and decay. Gene expression can also be finely tuned by epigenetic regulatory mechanisms, including DNA methylation, histone modification, the exchange of histone variants, interactions between non-coding RNAs, ATP-dependent nucleosome remodeling and noncoding RNAs, that can change the activity and expression patterns of genes. Accordingly, this Special Issue primarily focuses on understanding the genetic, epigenetic and metabolic regulation of plant responses to various environmental stresses (such as heat, drought, and light stress), and the epigenetic mechanisms of stress memory.



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Special Issue



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Editor-in-Chief

Prof. Dr. Dilantha Fernando

Department of Plant Science,
University of Manitoba, Winnipeg,
MB R3T 2N2, Canada

Message from the Editor-in-Chief

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Plants Editorial Office
MDPI, St. Alban-Anlage 66
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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