

Special Issue

The Role of Abscisic Acid in Plant Abiotic Stress Responses

Message from the Guest Editors

Plant growth and development are altered by environmental abiotic stresses, the harmful effects of which are increased by climate change and global warming. To hamper the consequences of abiotic stress, plants have designed molecular mechanisms of resilience to produce a large number of stress-responsive gene products. Some of them are involved in short-term plant responses to avoid abiotic stress, but others are involved in long-term plant stress tolerance. Abiotic stress-responsive gene products include chaperone proteins, enzymes involved in phytohormones biosynthesis and metabolism, water channel and transport proteins, detoxification enzymes, and a variety of signal transduction proteins including kinases, phosphatases, and transcription factors. Among plant hormones controlling molecular mechanisms of resilience, abscisic acid (ABA) has been regarded as the universal stress hormone. However, hormonal crosstalk with other hormones is crucial to fine-tune plant stress responses, especially when a combination of abiotic stresses occur in crop fields.

Guest Editors

Dr. Miguel González-Guzmán

Department of Biology, Biochemist and Environmental Sciences, School of Technology and Experimental Sciences (ESTCE),12071 Castelló de la Plana, Spain

Dr. Vicente Arbona

Departamento de Biología, Bioquímica i Ciències Naturals, Universitat Jaume I, Castelló de la Plana, Spain

Deadline for manuscript submissions

closed (30 June 2020)



Plants

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CiteScore 6.5
Indexed in PubMed



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4052 Basel, Switzerland
Tel: +41 61 683 77 34
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Editor-in-Chief

Prof. Dr. Dilantha Fernando

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

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