

Special Issue

Molecular Mechanisms Underlying Abiotic Stress Tolerance in Plants: From Gene Regulation to Adaptive Traits

Message from the Guest Editor

Brief Overview: Abiotic stresses (e.g., drought, salt, heat, and light fluctuation) pose severe threats to forest productivity and ecological stability worldwide. This Special Issue aims to showcase cutting-edge research on the molecular mechanisms of abiotic stress tolerance in plants, integrating multi-omics approaches, functional gene validation, and evolutionary analyses to bridge the gap between basic research and practical applications. Scope of Accepted Manuscripts:

- Genome-wide identification and functional characterization of stress-responsive gene families (e.g., TCP, GATA, BES1, LBD, CAMTA) in plants;
- Transcriptional, post-transcriptional, and epigenetic regulation of abiotic stress signaling pathways;
- Multi-omics analyses (genomics, transcriptomics, metabolomics, proteomics) of stress adaptation in key forest species (e.g., *Phoebe bournei*, *Cunninghamia lanceolata*, *Eucalyptus grandis*);
- Functional validation of stress-tolerant genes via genetic transformation, gene editing, or reverse genetics;
- Evolutionary dynamics of stress-adaptive traits and their genetic basis in plant populations;
- Development of molecular markers for stress-tolerance breeding in plants.

Guest Editor

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Message from the Editor-in-Chief

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