Special Issue

Innovation in Oilseed Germplasm Resources and Nutritional Genetic Improvement

Message from the Guest Editors

Oil crops serve as vital sources of edible oils, plant-based proteins, and renewable industrial feedstocks, playing a critical role in food security and sustainable agriculture. Recent advancements in genomic technologies, gene editing, and multi-omics integration have revolutionized the genetic enhancement of oil crops, enabling targeted improvements in fatty acid profiles, protein quality, and micronutrient content. This Special Issue aims to highlight cutting-edge research on the genetic dissection and innovation of nutritional traits in oil crops . We welcome contributions addressing the following topics:

1. Genetic and molecular mechanisms underlying oil biosynthesis, amino acid metabolism, and micronutrient accumulation.
2. Precision breeding strategies such as CRISPR/Cas9, genome editing or rapid breeding.
3. Germplasm innovation through interspecific hybridization, mutagenesis or synthetic biology methods.
4. Metabolic engineering for tailored oil compositions or reduced anti-nutritional factors.
5. AI-driven predictive models linking genotype to nutritional phenotype.
6. Screen and evaluate oil crop germplasm resources to understand components such as lipids and proteins.

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