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Vegetable Genomics and Breeding Research

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Vegetables are of critical importance to the human diet, providing the vitamins, minerals, and dietary fiber necessary for sustaining health. In light of a rising global population and increasing demand for nutritious vegetables, there is an urgent need to enhance vegetable production, quality, and resilience to environmental challenges. Genomics and breeding research have emerged as powerful tools in achieving these objectives by unraveling the genetic bases of important traits and developing novel technologies and applications to breed new vegetable varieties with desirable characteristics.

This Special Issue, entitled “Vegetable Genomics and Breeding Research”, comprises nine insightful and original research and review articles that aspire to shed light on recent advances in understanding the genetic mechanisms behind quality and stress-resistance traits in vegetables, as well as the application of cutting-edge breeding methodologies for vegetable crops. It provides valuable insights into the molecular bases of important quality and resistance traits in vegetables, which underpin the implementation of new breeding technologies facilitating the development of new cultivars. The development of multi-omics approaches, artificial intelligence, speed breeding, and molecular breeding technologies, along with their applications in vegetable breeding, will enhance the efficiency, precision, and adaptability of vegetable breeding in the future, promising to address the needs of consumers, growers, and the global climate challenge.

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