Special Issue

Biotechnological Approaches to the Valorization of Agro-Industrial By-Products

Message from the Guest Editors

Agro-industrial by-products, often regarded as waste, represent a vast and underutilized resource with significant economic and environmental potential. In recent years, biotechnological approaches have emerged as powerful tools for the transformation of these residues into high-value products. Through microbial fermentation, enzymatic treatments, and genetic engineering, it is now possible to extract bioactive compounds and produce biofuels, bioplastics, animal feed, and other bioproducts from materials such as fruit peels, cereal husks, and dairy waste. These strategies not only contribute to waste reduction and environmental sustainability, but also support the development of a circular bioeconomy. By optimizing the use of raw materials and reducing our dependency on fossil-based resources, biotechnology plays a crucial role in creating sustainable and innovative solutions for the food, pharmaceutical, and energy industries.

Keywords: fruit and vegetable by-products; residues; aquafeed; bioactive; antimicrobial; f unctional; food

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