Food waste-based value-added products and linkages in a circular bioeconomy: Pitfalls and future directions

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Abstract

Using potential cutting-edge technologies for the valorization of food waste is necessary for the circular bioeconomy concept. This strategy can address resource and environmental issues that arise from capital loss and greenhouse gas(es) build-up. The use of food waste as a feedstock for bioprocesses to create biobased products from waste sources in a continuous cycle offers up new economic growth opportunities. Technological advances including bioreactors, enzyme immobilization-, ultrasound-, and microwave-assisted extraction, and their combination reduce the global concern brought on by improper food waste management. By applying cutting-edge procedures, food waste is decomposed, producing bio-based materials including bioenergy, biofertilizers, bioactive compounds, biofuels and bioplastics etc. Authors have performed a study that offers a quality test of chosen food waste samples for proper waste management. Food waste was characterized by using standard methods for its further use to obtain value-added products from it. The talk will go over the author's research on using food waste to create value from it. Additionally, it will discuss the technological challenges and potential solutions associated with using the waste-to-resources nexus in a circular bioeconomy.

Keywords: Bioproducts; Biofertilizer; Food waste; Sustainability; Waste biorefinery