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Waste to Wealth: Pineapple Processing Waste for Production of Sustainable Bioenergy and Biochemicals

Invited Talk

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Abstract

Agricultural residues could play a vital role in meeting the ever-growing demand for energy and bulk chemicals while securing an adequate food supply for society. Fossil-based fuels have been viewed with concern due to their unwanted environmental impacts. Biobased fuels have high potential for sustainable energy production and are hailed as fuels for future generations. Agro-industrial waste could be a major source of alternative energy and biochemicals while corroborating a low-carbon economy.

Processing of pineapple generates about 60% waste by weight in the form of peel, core, crown, and pomace, which can be converted to bioethanol, biohydrogen, biobutanol, and biomethane, which are environment-friendly bioenergy sources. Vermicompost, animal feed, and silage could be readily prepared using the waste. Bioconversion to organic acids, bromelain enzyme, and other valued compounds were also extracted to add value and support the bioeconomy.

Keywords: Agricultural waste, pineapple processing, bioenergy, value addition