

Advances in solid-state fermentation for bioconversion of agricultural wastes to value-added products: Opportunities and challenges

Chaitanya Reddy Chilakamarry^a, A.M. Mimi Sakinah^{a,*}, A.W. Zularisam^b, Ranjna Sirohi^{c,d},
Irshad Ahamad Khilji^e, Noormazlinah Ahmad^a, Ashok Pandey^{d,f}

^a Faculty of Chemical and Process Engineering Technology, Universiti Malaysia Pahang, Gambang, Kuantan, Pahang 26300, Malaysia

^b Faculty of Civil Engineering Technology, Universiti Malaysia Pahang, Gambang, Kuantan, Pahang 26300, Malaysia

^c Department of Chemical and Biological Engineering, Korea University, Seoul, Republic of Korea

^d Centre for Energy and Environmental Sustainability, Lucknow 226 029, India

^e Faculty of Manufacturing and Mechatronics Engineering Technology, Universiti Malaysia Pahang, Kuantan, Pahang 26300, Malaysia

^f Centre for Innovation and Translational Research, CSIR-Indian Institute of Toxicology Research, Lucknow 226 001, India

ABSTRACT

The increase in solid waste has become a common problem and causes environmental pollution worldwide. A green approach to valorise solid waste for sustainable development is required. Agricultural residues are considered suitable for conversion into profitable products through solid-state fermentation (SSF). Agricultural wastes have high organic content that is used as potential substrates to produce value-added products through SSF. The importance of process variables used in solid-phase fermentation is described. The applications of SSF developed products in the food industry as flavouring agents, acidifiers, preservatives and flavour enhancers. SSF produces secondary metabolites and essential enzymes. Wastes from agricultural residues are used as bioremediation agents, biofuels and biocontrol agents through microbial processing. In this review paper, the value addition of agricultural wastes by SSF through green processing is discussed with the current knowledge on the scenarios, sustainability opportunities and future directions of a circular economy for solid waste utilisation.

Keywords: Bioremediation, Biofuel, Enzymes, SSF, Waste

<https://doi.org/10.1016/j.biortech.2021.126065>

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