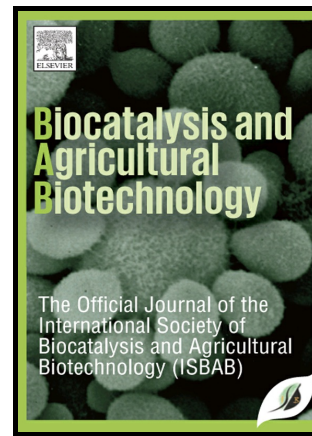


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Anaerobic Digestion of Crop Residues: Technological Developments and Environmental Impact in the Indian Context

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Abstract

India is an agrarian country generating surplus amounts of paddy, wheat, and maize crop residues at large scale, which are not being managed properly. The anaerobic digestion is an efficient way of managing these residues in an environmentally friendly manner. It results in high calorific methane gas and fertile rich digestate. The current study focused on reviewing the availability, methane potential of crop residues and technological developments to improve the methane production of crop residues. It is found that the methane potential from the anaerobic digestion of surplus paddy, wheat, and maize residues is estimated as 18,677 Mm³/year (632 ×10⁹ MJ/year) in India. The resulted methane potential of crop residues could substitute 52 Mt/year of coal utilization that evades 46 Mt/year of CO₂ emissions from releasing into the atmosphere.

Keywords:

Biogas; Methane; Anaerobic digestion; Crop residues; India;

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