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Biofuel production from agriculture-based waste

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Biofuels have been in use in some parts of the world commercially. In countries, such as the United States and Brazil, bioethanol has been used as a fuel source in combination with traditional fuel. Biofuel is not only a replenishable resource but also possesses a smaller carbon emission rate and hence is environment-friendly. One of the primary reasons for the limited use of biofuel is the high production cost. The high cost stems from the high cost required for pre-treatment of the waste accumulated. This is owing to the presence of the cell wall in the biowaste. The breakdown of this cell wall is termed pre-treatment. The cost associated with pre-treatment can be brought down potentially with the employment of genetically modified recombinant bacteria used in the pre-treatment process. Instead of traditional methods, the genetically modified bacteria can be used to produce a higher output of natural enzymes responsible for the cell wall breakdown. This could potentially lead to cost reduction of the upstream process. Eventually, the biofuel production from agricultural wastes, such as crop residues, livestock wastes, fruit and vegetable wastes, etc. could doubtlessly be economical as well as environment-friendly.

Keywords: Agricultural waste, Biofuel, Bioethanol, Recombinant DNA technology

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