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Two stage hydrogen production using maize stalk hydrolysate

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Abstract : Fermentative hydrogen production was combined with microbial electrolysis cell for the enhancement of hydrogen production from maize stalk hydrolysate. In the first phase fermentation was carried out in liquid medium by facultative bacterial strain isolated from soilutilizing maize stalkhydrolysate as carbon source. At the end of fermentation, the effluent was collected, and the fermentation end products were analysed. In the second stage, the fermentation effluent was used as feed for microbial electrolysis cell (MEC) for further hydrogen production. Anode of the MEC was a type A carbon cloth enriched with waste water inoculum and cathode was type B carbon cloth. MEC was operated under anaerobic condition by passing nitrogen gas and at applied voltages ranging from 0.3 to 0.8 V. By incorporating MEC, the overall hydrogen production increased by 2.19-fold.
Keywords : Two stage hydrogen production, maize stalk hydrolysate.

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