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UASB biomethanation reactor performance in fruit processing industrial wastes

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ABSTRACT : An upflow anaerobic sludge blanket (UASB) reactor was successfully developed and field tested for energy production from biomethanation of fruit processing industry wastes. The performance of the reactor in terms of reduction in pollution, total biogas production and quality of biogas were evaluated by monitoring physico-chemical characteristics of the influent and effluent, daily biogas production, COD removal efficiency and methane content. The organic loading rate and HRT were optimised based on the maximum values of total biogas production, COD removal efficiency and specific biogas production. The optimum organic loading rate observed to be 2.67 kg of COD/m^3/day, when the reactor was operated at three days HRT. The specific gas production was 0.577 m^3/kg of COD removed per day and the COD removal efficiency was 70 per cent.

KEY WORDS : UASB reactor, Fruit wastes, Biomethanation, COD removal, Biogas

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