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Performance monitoring of a Field-Batch Biogas Digester fed with agricultural wastes at different mixing ratios

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Abstract content
   (Max 300 words)

Biogas technology converts organic wastes into biogas, which consists of about 80% methane. The digester effluent after digestion can be used as manure. The co-digestion of cow dung, donkey dung, goat dung and horse dung at different mixing ratios was investigated. The investigation was carried out using a 1 m3 field batch biogas digester. The co-digestion of 25% cow dung and 25% donkey dung with 25% horse dung and 25% donkey dung produced the highest total biogas yield of 6.96 m3. However, the co-digestion of 37.5% cow dung and 37.5% donkey dung with 12.5% horse dung and 12.5% goat dung produced a total biogas yield of 6.3 m3. In addition, the co-digestion of 12.5% cow dung and 12.5% donkey dung with 37.5% horse dung and 37.5% goat dung produced the least total biogas yield of 5.82 m3. The substrates were analyzed for total solids, volatile solids, total alkalinity and calorific value before they were co-digested at different mixing ratios. The ammonia-nitrogen for all the mixtures was within the expected range (150 to 1000 mg/L) for optimum methane production while the pH values ranged from 6.8-8.1 for all co-digestion trials. The mixture of 25% cow dung and 25% donkey dung co-digested with 25% goat dung and 25% horse dung produced the biogas yield with the highest methane yield of 70% than the other mixing ratios.

Apply to be
 considered for a student
   award (Yes / No)?

Yes

Level for award
 (Hons, MSc,
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PhD

Main supervisor (name and email)
and his / her institution

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Would you like to <br> submit a short paper <br> for the Conference
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Yes

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