

EFFECT OF THE FEED PROCEDURE ON PRODUCTION OF BIOGAS FROM ANAEROBIC DIGESTION OF PEAR RESIDUES USING A CSTR DIGESTER.

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Abstract

The anaerobic digestion for the production of biogas is one of the best alternative management procedures of the fruits and vegetables wastes (FVW) since it simultaneously allows energy recovery and material recycling if the digestate can be used for soil amendment. Nevertheless, the generation of this kind of residues is frequently concentrated in only few weeks per year, imposing a serious economic limitation. Thus, introduction of the FVW into the anaerobic digester of the municipal wastewater treatment plant (MWTP) is a very interesting approach.

The aim of this work was to investigate the digestion of pear residues using the anaerobic sludge obtained from a MWTP digester under mesophilic conditions and to explore the influence of the feed operating conditions using a continuously stirred tank reactor (CSTR) digester. The results indicate that the continuous feed allows the treatment of almost twice as much residue (10.5 vs 6.0 g L⁻¹ d⁻¹). System instabilities are observed at larger OLRs.

Keywords: Fruit and vegetable wastes (FVW); organic loading rate (OLR); methane; anaerobic digestion.