

Organic wastes as an anaerobic digestion feedstock for batch reactors – A review

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Anaerobic digestion process is applied worldwide in the treatment of various organic wastes, allowing energy production from biogas and organic recovery from digested sludge. The anaerobic digestion contributes to the waste management, to achieve the targets of renewable energies by biogas (Cabrita et al., 2016) and to the circular economy by the digested sludge.

In Europe, in 2021 there were 18,843 biogas plants (including landfills) and 1,067 biomethane plants in operation. By 2030, it is estimated that the biogas and biomethane will more than double their production, from 18.4 billion cubic metres (bcm) in 2021 to around 35-45 bcm (EBA, 2022).

Due to the growing demand for biogas and biomethane production, it is extremely important to select the suitable substrate for anaerobic digestion. To achieve this, it is necessary to determine the substrate's physicochemical characteristics and composition, which influence the anaerobic degradability (Daniel et al., 2022) which is reflected in the biogas or methane production and the percentage of solids (total solids or volatile solids) that are destroyed.

Usually, the feedstocks for anaerobic digestion can be divided into solids, slurries and liquids giving the moisture content, or in readily degradable to complex wastes, according to degradable fraction. Therefore, the feedstocks can be divided into animal manure, sludge, food waste, energy crops, and other organic wastes.

The present work intends to present and analyse the different feedstocks characterization for anaerobic digestion. To achieve the objective an extensive literature review was performed to collect the potential feedstocks sources (Figure 1) and characterization in terms of solids (total and volatile), organic matter (chemical oxygen demand) and pH were present.

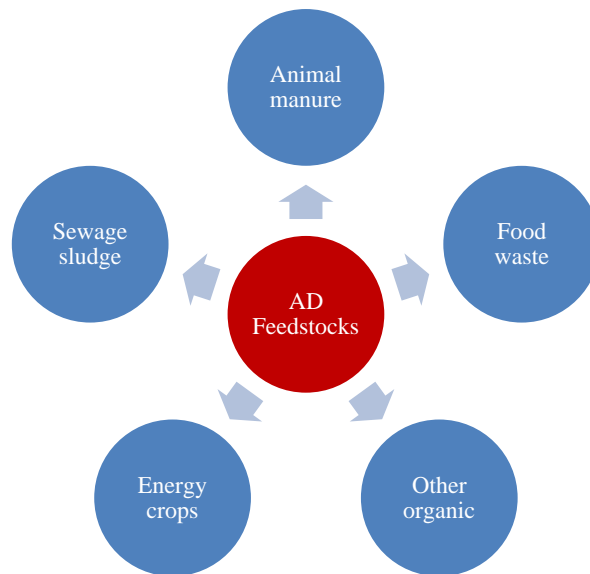


Figure 1. Composter for food wastes

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