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Valorisation of food wastes through acidogenic fermentation

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Food wastes are produced in large quantities in markets, intensive production areas and in canned vegetable companies. Solid waste generation from these companies is a major source of pollution in landfills where they are deposited and have many environmental problems associated. An efficient alternative to prevent this accumulation is the re-valorisation through acidogenic fermentation to produce volatile fatty acids (VFA), precursors for the production of polyhydroxyalkanoates (PHAs). In this work, five different types of wastes were used: Potato solids from a chips factory, salad from vegetable factory and three wine wastes generated in different stages of winemaking process. The diversity of these wastes related with their origin, composition and production period needs to be studied separately. In a batch experiment, we compared all of them to evaluate VFAs productivity and distribution. The highest yield was reached with potato solids (0.8 g VFA/g VS waste), salad waste (0.75 g VFA/g VS waste) and marc grape (0.7 g VFA/g VS waste). The VFA profile showed acetic and butyric as predominant acids in the potato and salad wastes. In the case of two wine substrates produced in different stages of distillery wine, the degree of acidification was lower than 0.25 g VFA/g VS waste added. The predominant acids were acetic and propionic in all of wine wastes. These results will help to optimize the acidogenic fermentation of each particular waste and to stablish a new strategy for their co-digestion.

Biography

M C Veiga obtained her PhD in the field of Environmental Bioengineering from the University of Santiago de Compostela. Afterwards, she had a Postdoctoral position at Michigan State University. At present, she coordinates the Environmental Engineering Group at University of A Coruña. Her primary research interests are on the development of sustainable processes for the removal of pollutants from wastewater and production of biopolymers from renewable sources.

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