

3<sup>rd</sup> International Conference and Exhibition on

# Biopolymers & Bioplastics

September 12-14, 2016 San Antonio, USA

## Biodegradable polymers from brewery wastewater

M C Veiga, M Romasanta and C Kennes

University of A Coruña, Spain

Brewery mills generate large volumes of wastewater that is characterized by high content of easily degradable organic matter, mainly volatile fatty acids, ethanol and sugars that can be used as substrate to produce polyhydroxyalkanoates (PHA). The PHA production process was developed in a three-step process: Acidogenic fermentation of wastewater, selection of a culture with high storage capacity fed with acidogenic effluent and finally a storage step. The acidogenic fermentation of brewery wastewater was carried out in a sequencing batch reactor (SBR) at pH 6, obtaining an acidification of 70%. Fed-batch assays were performed using the enriched biomass, obtaining a maximum of 70% PHA on a cell dry weight basis and a storage yield of 0.75 Cmmol PHA/Cmmol VFA. Moreover, some polymer properties like temperature melting and crystallization or thermal stability were determined. A study of the mixed microbial cultures was also performed in order to identify the dominant strains of PHA accumulating microorganisms. To further assess the industrial relevance of the waste-based PHA process, the second step was studied in a semi-pilot scale reactor.

### Biography

M C Veiga obtained her PhD in the field of Environmental Bioengineering from the University of Santiago de Compostela. Afterwards she held 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.

veiga@udc.es

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