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**Comparison of batch and fed-batch lipase production from olive mill wastewater by *Yarrowia lipolytica* and *Candida cylindracea***

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Olive mill wastewater (OMW) is a liquid waste that results in large amounts from the olive oil manufacturing industry. The quality and quantity of OMW constituents are dependent of many factors, such as olives type and maturity, climatic conditions and region of origin, cultivation methods, and technology used for oil extraction. From the 3-phases centrifugation process around 1.6 cubic meters of OMW per ton of olives processed are generated. These liquid wastes present an environmental problem and many solutions have been proposed for it, such as its use as culture medium for different lipolytic yeast strains. The aim of this work is the comparison of batch and fed-batch mode of operation for the lipase production and the OMW degradation by two strains, *Yarrowia lipolytica* W29 and *Candida cylindracea* CBS 7869. OMW collected from 3-phase continuous olive mills were used (COD of 30 to 261 g/L). OMW used without dilution was supplemented with ammonium chloride and yeast extract proportionally to the COD values. Batch and fed-batch cultures were conducted in a fermenter of 2 L of capacity at pH 7.2, 500 rpm, with constant or variable aeration rate for batch or fed-batch operation, respectively. Batch operation was more adequate to lipase production than fed-batch for both strains but the difference was more significant for *Candida cylindracea* that revealed to be the most efficient strain for lipase production. However, the final media of the fed-batch cultures presented lower values of COD and sugars concentration indicating a higher level of organic matter degradation. Fed-batch operation was further optimized and the best results of lipase production and OMW degradation where obtained when the operation started with the batch phase in YPD medium instead of OMW based medium.

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