

Biodegradation of olive mill wastewater by non-conventional yeasts

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Olive mill industry is very important in Mediterranean countries, which are responsible for almost all the olive oil sold worldwide. Portugal is one of the ten major producers. Olive oil production results on a large amount of liquid waste, which represents a major environmental problem. The quality and quantity of olive mill wastewater (OMW) constituents depends on many factors, such as, type of olives, type of soil and production process (D'Annibal *et al.*, 2006, Roig *et al.*, 2006). The large variety of components found in OMW (such as lipids and phenolic compounds) difficult their treatment (Niaounakis, 2004). The aim of the present work was the comparison of the potential use of different non-conventional yeasts, to grow and to produce high-value compounds from OMW, while degrading and detoxifying this waste. OMW from different regions of Portugal were collected and characterized. OMW based medium were prepared by supplementing with yeast extract and ammonium chloride proportionally to its organic load. Both strains used in this work (*Yarrowia lipolytica* W29 and *Candida rugosa* PYCC 3238), were able to grow in OMW with chemical oxygen demand (COD) ranging from 20 g/L to 200 g/L, to consume almost all of the sugars present in the media (between 64 % and 91 %) and to significantly reduce COD values (between 30 % and 62 %). However, the *Y. lipolytica* strain revealed to be more efficient than the *C. rugosa* strain for the OMW utilization and degradation.

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2. Roig, A. *et al.* (2006) *Waste Management* **26**:960-969.
3. Niaounakis, M., Halvadakis, C. P. (2004) *Typothito*, George Dardanos, Greece, **14**:430