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## MYCOREMEDIATION OF OLIVE OIL MILL WASTEWATER USING FREE AND IMMOBILIZED CELL CULTURES

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### Abstract

Olive Oil Mill Wastewaters (OOMW) are recalcitrant to biodegradation for their toxicity due to high values of chemical oxygen demand (COD), biological oxygen demand (BOD), and phenolic compounds. In the present study OOMW, collected in southern Tunisia, were subjected to a biological treatment using free and immobilized *Pycnoporus coccineus* and *Coriolopsis polyzona*. Both species grew vigorously on OOMW and were responsible for color and COD reductions, which were greater in the OOMW treated with *P. coccineus*. This fungus was less affected by oxygen supplementation and exhibited a high tolerance to agitation in comparison to *C. polyzona*. However, it required a nitrogen supplementation to obtain faster and higher COD removal. The immobilized system for both fungi showed high COD decreases during three consecutive batches without remarkable loss of performances. These results suggested that *C. polyzona* and particularly *P. coccineus* might be applicable at large scale for the treatment of OOMW.

**Key words:** biological treatment, cell immobilization, COD removal, decolourization, olive oil mill wastewater

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