

Soler-Rivas, C; Garcia-Rosado, A; Polonia, I.¹; Junca-Blanch, G.; Marin, F. R.; Wichers, H. J. (2006) – Microbiological effects of olive mill waste addition to substrates for *Pleurotus pulmonarius* cultivation. *International biodeterioration & biodegradation*, 57 (1): 37-44. Retrieved from: <http://www.sciencedirect.com/science/article/pii/S0964830505001253>. DOI: 10.1016/j.ibiod.2005.10.007

1 - Escola Superior Agrária de Santarém, Inst. Politécnico de Santarém, Apartado 310, 2001-904 Santarém, Portugal

Abstract

When olive mill wastes (OMWs) and vegetation waters (VWs) obtained during the manufacture of olive oil were added as substrate supplements for the cultivation of *Pleurotus pulmonarius* the material modified growth of the mushroom and the endemic microbiota of the substrate, in particular the mushroom-pathogenic bacterium *Pseudomonas tolaasii*, which is responsible for bacterial blotch disease in mushrooms. VW addition to substrates, at up to 30% (v/w), did not interfere with mycelial growth, but inhibited fruit body formation. Supplementation at up to 10% did not inhibit pinhead appearance and reduced *Ps. tolaasii*-related symptoms. In an attempt to identify the compounds responsible for the observed reduction of symptoms, products of acidic, basic or enzymic hydrolysis of oleuropein, together with OMW ethyl acetate extracts and several single compounds, were studied. OMW ethyl acetate extracts and hydroxytyrosol inhibited *Ps. tolaasii* growth, but did not show bactericidal activity. Only 4-methylcatechol and catechol were effective as bactericides against *Ps. tolaasii* (minimum biocidal concentration 5 and 10mM, respectively). Such concentrations were not reached if the wastes were added at 10% v/w; at such levels growth of the bacteria will only be inhibited, not eliminated completely.

Keywords: Mushrooms; *Pleurotus pulmonarius*; *Pseudomonas tolaasii*; Phenols; Olive mill waste; Inhibition; Bactericide