MANAGEMENT OF AGRO-INDUSTRIAL WASTES: UTILIZATION OF EXHAUSTED GRAPE MARK AS CO-SUBSTRATE WITH OLIVE POMACE FOR CELLULASES PRODUCTION BY SSF

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The reutilization of biological wastes is of great interest since, due to legislation and environmental reasons, the industry is increasingly being forced to find an alternative use for its residues. Moreover, the use of these wastes considerably reduces the production costs. Olive oil and wine production are the most common food processing activities in the countries of southern Europe. Environmental pollution posed by olive mill wastes is a growing problem especially in the Mediterranean region. Research into finding new uses for wastes from olive oil and wine industry will allow obtaining not only economic benefits, but also environment improvements in areas where industries are located.

In previous studies, several wastes from wineries and olive mills were tested for cellulase production by solid state fermentation (SSF). It was observed that mixture of exhausted grape mark (EGM) with olive pomace (OP) were suitable substrates for cellulase production. After fungi screening study, *Aspergillus ibericus* showed more cellulase activity. To optimize cellulase production a full factorial experimental design 3^2 was planned. The independent variables were % of EGM mixture with olive pomace and urea supplementation and response variable was cellulase activity (U/gds).

The obtained results showed that these agro-industrial wastes were suitable for the production of cellulases, the low amount of EGM favored cellulase production, optimal condition of mixture OP:EGM was 3:1. It was also observed that urea was a positive effect on cellulase production. Thus, demonstrating the effective use of different residues, from industries which are in the same region, to enhance cellulase production.

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