

Influence of Different Culture Conditions of *Penicillium roqueforti* on Biotransformation of Lupeol

Polizeli, A.M.¹; Moraes, M.A.²; Polizeli, M.L.T.M.¹; Cappelaro, J.L.³; Lopes, N.P.³; Turatti, I.C.C.³; Figueiredo, U.S.⁴; Furtado, N.A.J.C.³

¹ FFCLRP, Universidade de São Paulo, Ribeirão Preto, SP, Brazil.

² FEIS, Universidade Estadual Paulista, Ilha Solteira, SP, Brazil.

³ FCFRP, Universidade de São Paulo, Ribeirão Preto, SP, Brazil.

⁴ ICET, Universidade Federal de Mato Grosso, Cuiabá, MT, Brazil.

Microbial transformation has been used as an useful tool to enhance the structural diversity of natural triterpenes. The great potential of fungi regarding to their aggressive growth, biomass production and extensive hyphal surface area make them an attractive approach to be explored for biotransformation. In this work, the influence of different culture conditions of *Penicillium roqueforti* on biotransformation of lupeol was investigated by using submerged shaken liquid culture. The fungus was first cultivated in a rich pre-fermentative medium. The resulting mycelia were harvested and transferred to different fermentative media. Lupeol was added as solution in dimethylsulfoxide and the cultures were incubated for 10 days. Samples of each culture were taken every 24 hours, extracted with ethyl acetate, and analyzed by GC/MS. Experiments were also run with control flasks. The ability of the fungus *Penicillium roqueforti* to biotransform the pentacyclic triterpene lupeol was demonstrated only when the fungus culture was developed in the Koch's K1 medium for 7 days. The data obtained from mass spectrometry analysis suggest that the biotransformation product could be produced from lupeol as a result of successive oxidations in its isopropenyl side chain, followed by successive decarboxylations.

Keywords: *Penicillium roqueforti*, Biotransformation, Lupeol

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