

Repeated Usage of Bacillus subtilis Spore Displayed Tyrosinase for the Biotransformation of Phloretin

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In this study, we tried the biotransformation of phloretin using Bacillus subtilis spore displayed tyrosinase from Bacillus megaterium. Phloretin is mainly found in the root bark of apple trees and in apples where it acts as a natural antibacterial plant defense metabolite. The cell surface expression of tyrosinase was verified by flow cytometry using FITC labelled anti-His6tag antibody. After 7 hr of incubation at 37°C, we confirmed that phloretin was biotransformed into a new product by HPLC analysis. And It was further analyzed using LC/MSMS and 1H-NMR to be revealed as 3'-hydroxyphloretin. In addition, the spores were washed with Tris-HCl buffer and reused in the reaction. The biotransformation proceeded through 7 recycling reactions without showing any decrease of the enzymatic activity.