Biotransformation of phloretin using Bacillus subtilis spore displayed tyrosinase

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Using *Bacillus subtilis* spore displayed tyrosinase from BM3, biotransformation of phloretin, one of the dihydrochalcone found in apple bark, was tried. After HPLC analysis, biotransformed product was identified and it was further analyzed using LC/MSMS and 1H-NMR to be revealed as 3'-hydroxyphloretin. 100 % conversion of 1 mM phloretin was obtained after 7 hr incubation at 37°C. To exploit the inherent stability of *Bacillus* spore, which is used as immobilizing vehicle for the tyrosinase, repeated usage of spore displayed tyrosinase was tried. The spores were collected by centrifugation and the reaction was re-performed in the same way as in the initial experiment, and the biotransformation proceeded through 7 recycling cycles without showing any decrease of activity.