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Biotransformation of vincamine using microbial cultures

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Microbial transformation is a complementary tool in the investigation of drug metabolism. In the present investigation, biotransformation of vincamine was studied using microbial cultures. Bacterial, fungal, and yeast cultures were employed to elucidate the metabolism of vincamine. The results indicate that a number of microorganisms metabolized vincamine to various levels to yield three major metabolites, which were identified by HPLC-DAD and LC-MS-MS analyses. HPLC analysis of the extracts of the cultures showed that 16 out of 39 cultures were able to metabolize vincamine to produce one or more metabolites and the biotransformed products are more polar than the substrate vincamine. Out of 16 cultures maximum biotransformation of vincamine was observed with the cultures of *Absidia coerulea* MTCC 1335. The major metabolite was hydroxylated metabolite of vincamine, while the other metabolites were produced by dihydroxylation and methyl hydroxylation which are not seen in mammalian metabolism. The results will support the formation of new metabolites and more polar metabolites which have significance in the improvement of pharmacokinetic parameters of vincamine derivatives. The effect of optimizing parameters such as different media, incubation period, pH of the medium, temperature, glucose concentration and drug concentration were also studied and reported.

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