

Production of L-lysine based chemicals by E. coli whole cell bioconversion

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Whole-cell biocatalysts can produce value-added chemicals from cheap feedstock by avoiding complex cellular metabolism, and they show better stability than enzymes or purified enzymes. Here, we applied whole cell systems to produce glutaric acid and pipercolic acid from L-lysine. As Glutaric acid is a C5 dicarboxylic acid that can be used as a building block for bioplastics and pipercolic acid, a non-proteinogenic amino acid, is a metabolite in lysine metabolism and a key chiral precursor in local anesthesia and macrolide antibiotics, we applied highly efficient whole cells systems by optimization of biocatalyst to enhance the production of both compounds. We showed the possibilities of bioconversion of both compounds from cheap starting material, L-lysine.