

微生物转化芳基丙烯酸类物质不对称合成L- α -氨基酸的新方法

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摘要 反式- β -芳基丙烯酸(1)和氨经具有苯丙氨酸解氨酶活性的红酵母细胞催化,直接合成得到七种L- β -芳基- α -丙氨酸(2),收率为7.9~68.2%。其构型通过它们的圆二色谱在215nm处的正Cotton效应以及与文献比较比旋光值得到证实。用L-4-羟脯氨酸手性高效配体交换液相色谱柱拆分2,结果表明其对映体过量均不少于95%。

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A new asymmetric synthesis of L- α -amino acid via microbial transformation

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Abstract A new route to the direct synthesis of L- β -aryl- α -alanine (2) was established by using the red yeast (*Rhodotorula rubra*, *Rhodotorula glutinis*) cells containing L-phenylalanine ammonia-lyase (PAL, EC 4.3.1.5) activity to catalyze the addition of ammonia to olefinic bond in trans- β -arylacrylic acid (1). Seven of L- α -amino acid 2 were prepared with the following yields: L-o-nitrophenylalanine (2a, 27.3%), L-m-nitrophenylalanine (2b, 10.2%), L-o-chlorophenylalanine (2c, 68.2%), L-m-chlorophenylalanine (2d, 42.1%), L-m-methylphenylalanine (2e, 49.1%), L-m-aminophenylalanine (2g, 7.9%) and L-4-pyridylalanine (2h, 7.9%), They were all confirmed as L-isomers owing to the positive Cotton effects of their circular dichroism near 215nm. The specific optical rotations of products 2c, 2d and 2e were also comparable to those in literature. The enantiomeric excess (e. e) value were determined to be no less than 95% on a L-4-hydroxyproline-bonded high-performance ligand exchange column.

Key words [INFRARED SPECTROPHOTOMETRY](#) [NMR SPECTROMETRY](#) [AMMONIA](#) [ACRYLIC ACID P](#) [MICROBIAL TRANSFORMATION](#) [ALANINE P](#) [RHODOTORULA](#)

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