

论文
化学一酶法立体控制合成光学纯3-(2-吡啶基)丙氨酸的新方法

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摘要:

关键词: 光学纯3-(2-吡啶基)丙氨酸 化学一酶法 苯丙氨酸解氨酶 深红酵母

A NEW CHEMOENZYMATIC ROUTE FOR THE STEREOCONTROLLED SYNTHESIS OF OPTICALLY PURE 3-(2-PYRIDYL)ALANINE

JS Zhao;L Zhu and SK Yang

Abstract:

A new chemoenzymatic synthesis of optically pure 3-(2-pyridyl)alanine (IV) was established, which comprised the stereocontrolled amination of olefinic bond in compound 3-(2-pyridyl)acrylic acid (III) catalyzed by L-phenylalanine ammonia-lyase (PAL, EC 4.3.1.5) contained in *Rhodotorula rubra* mycelium. Compound III was prepared chemically from 1,1,1-trichloro-2-hydroxy-3-(2-pyridyl)propane (II) which was formed by addition of chloral to α -picoline (I). The enzymatic amination of compound III was completed in aqueous ammonia solution (6.4 mol/L, pH 10.5, 30°C) with the conversion of 60%. The product IV was separated from the unconverted III by silica gel dry column chromatography and further purified by non-polar resin (CGA-688) column chromatography. The specific rotation $[\alpha]_D^{24} = 36.25^\circ$ (c 0.250, H₂O).

Keywords: Chemoenzymatic synthesis L-Phenylalanine ammonia-lyase (PAL, EC 4.3.1.5) *Rhodotorula rubra* Optically pure 3-(2-pyridyl) alanine

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