Highly Diastereoselective Strecker Reaction of Enolizable Aliphatic Sulfinimines

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Hydrolysis of (*S,S*)-1-(*p*-Toluenesulfinylamino)-3-methylpentanenitrile **2e:**¹ To an aqueous solution of HCl (6N, 10 mL) was added sulfinylamino nitrile **2e** (500 mg, 2 mmol, >98% de) obtained from the Strecker reaction of (*S*)-(+)-*N*-(iso-butyldiene)-*p*-toluenesulfinamide and purified by chromatography (elute: acetone : CH₂Cl₂ : n-hexane = 5 : 25 : 70). The resulting mixture was stirred at reflux for 6 h. The reaction mixture was diluted with water (10 mL) and extracted with ether (10 mL X 3). The aqueous solution was concentrated to ca. 2 mL and purified with ion exchange resin (Dowex 50X8-500, elute: 1.5N NH₃-H₂O) provided L-leucine **4**: 223 mg, 85% yield. 97% ee, HPLC: Daicel Crownpark (+), aqueous HClO₄, pH = 2, flow rate 0.80 mL/min, *t*R: 3.6 min (*D*)-isomer and 5.1 min (*L*)-isomer, detection at 210 nm. $[\alpha]_{\text{D}}^{20} = +15.8$ (c 1.2, 6N HCl), [lit.:² $[\alpha]_{\text{D}}^{20} = +15.3$ (c 3.96, 6N HCl)]. ¹H-NMR (D₂O, 300 MHz): δ 0.97 (m, 6 H), 1.71-1.75 (m, 3 H), 3.70 (m, 1 H).

References:

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