

MA0013307

Supporting Information

Synthesis of Z-serinol

To a solution of Z-serine (23.9 g, 100 mmol) in dimethoxyethane (10 mL), 4-methylmorpholine (10.1 g, 100 mmol) and isobutyl chloroformate (13.7 g, 100 mmol) were added at -15 °C. The precipitated white mass was filtered off. To the reaction mixture first an aqueous NaBH₄ (3.8 g, 150 mmol) solution (10 mL) was added quickly, and then water (400 mL). The resulting mixture was stirred for 1 h, and then extracted with ethyl acetate (400 mL) five times. Yield 66%, mp 109 °C, ¹H NMR δ (DMSO-*d*₆) 3.35~3.66 (m, 5 H), 4.59 (t, *J*= 5.5 Hz, 2 H, -OH), 5.01 (s, 2 H, C₆H₅CH₂-), 6.88 (d, *J*= 8.0 Hz, 1 H, -NH-), 7.30-7.38 (m, 5 H, C₆H₅-) ppm, ¹³C NMR δ (DMSO-*d*₆) 55.0 (>CH-), 60.5 (-CH₂OH), 65.1 (C₆H₅CH₂-), 127.8, 128.3, 137.2 (C₆H₅-), 156.0 (-CO-NH-) ppm, IR (KBr) 3298, 3063, 2969, 1688 (>C=O), 1541, 1312, 1254, 1073, 1042, 974, 729, 694 cm⁻¹.

Synthesis of Z-threoninol

The title compound was synthesized from Z-Thr in a similar manner as Z-serinol. Yield 75%, mp 62-63 °C, ¹H NMR δ (CDCl₃) 1.18 (d, *J*= 6.0 Hz, 3 H, -CH₃), 2.80-3.20 (br, 2 H, -OH), 3.57 (s, 1 H, -NH-CH<), 3.78 (d, *J*= 3.5 Hz, 2 H, -CH₂OH), 4.12 (d, *J*= 5.0 Hz, 1 H, >CH-CH₃), 5.10 (s, 2 H, -CH₂-O-), 5.59 (d, *J*= 8.5 Hz, 1 H, -NH-), 7.26-7.35 (m, 5 H, C₆H₅-) ppm, ¹³C NMR δ (CDCl₃) 20.2 (-CH₃), 56.3 (-CH₂OH), 64.5 (-NH-CH<), 67.0 (C₆H₅CH₂-), 68.3 (>CH-CH₃), 128.0, 128.2, 128.5, 136.3 (C₆H₅-), 157.1 (-CO-NH-) ppm, IR (NaCl) 3401, 2975, 1697 (>C=O), 1535, 1412, 1255, 1070, 740, 698 cm⁻¹, [α]_D²⁵= -21.0 ° (*c*=1.00, CHCl₃).

Synthesis of Boc-threoninol

The title compound was synthesized from Boc-Thr in a similar manner as Z-serinol. Yield 77 %, ^1H NMR δ (CDCl_3) 1.23 (d, J = 6.0 Hz, 3 H, $-\text{CH}_3$), 1.43-1.49 (m, 9 H, $-\text{C}(\text{CH}_3)_3$), 2.45~2.80 (br, 2 H, $-\text{OH}$), 3.52 (s, 1 H, $-\text{NH}-\text{CH}<$), 3.83 (d, J = 3.5 Hz, 2 H, $-\text{CH}_2\text{OH}$), 4.15 (d, J = 5.0 Hz, 1 H, $>\text{CH}-\text{CH}_3$), 5.24 (s, 1 H, $-\text{NH}-$) ppm, ^{13}C NMR δ (CDCl_3) 20.4 ($>\text{CH}-\text{CH}_3$), 28.4 ($-\text{C}(\text{CH}_3)_3$), 56.3 ($-\text{CH}_2-$), 64.5 ($-\text{NH}-\text{CH}<$), 68.3 ($>\text{CH}-\text{CH}_3$), 80.7 ($-\text{C}(\text{CH}_3)_3$), 157.1 ($-\text{CO}-\text{NH}-$) ppm, IR (NaCl) 3369, 2976, 2934, 1689 ($>\text{C}=\text{O}$), 1508, 1456, 1368, 1169, 1064, 868, 795 cm^{-1} .