

Supplementary Material

Nano-[Fe₃O₄@SiO₂@RNHMe₂][HSO₄]: an effectual catalyst for the production of 1-amidoalkyl-2-naphthols

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Materials and instruments

The reactants and solvents were purchased from Fluka or Merck Chemical Companies. For identification of the synthesized 1-amidoalkyl-2-naphthols, their melting points/spectral data were compared with those reported in the literature. To observe progress of the reactions, thin layer chromatography (TLC) (silica gel SIL G/UV 254 plates) was applied. To measure melting points, a Thermo Scientific 9200 apparatus was used (in open capillary tubes). A Bruker Avance DPX, FT-NMR spectrometer was utilized for running the NMR spectra. Mass spectra were recorded by a Shimadzu GC-MS-QP 1100 Ex instrument.

Selected spectral data of the synthesized 1-amidoalkyl-2-naphthols

Product 10

^1H NMR (500 MHz, $\text{DMSO}-d_6$): δ (ppm): 1.91 (s, 3H, CH_3), 3.50 (s, 3H, OCH_3), 3.66 (s, 3H, OCH_3), 6.74 (d, $J = 7.9$ Hz, 1H, methine CH), 6.79 (d, $J = 8.7$ Hz, 1H, H_{Ar}), 7.11-7.14 (m, 2H, H_{Ar}), 7.19 (d, $J = 8.1$ Hz, 1H, H_{Ar}), 7.26 (t, $J = 6.9$ Hz, 1H, H_{Ar}), 7.43 (s, 1H, NH), 7.68 (d, $J = 8.6$ Hz, 1H, H_{Ar}), 7.76 (d, $J = 7.8$ Hz, 1H, H_{Ar}), 8.18 (d, $J = 8.4$ Hz, 1H, H_{Ar}), 8.34 (d, $J = 8.1$ Hz, 1H, H_{Ar}), 9.76 (br., 1H, OH). ^{13}C NMR (125 MHz, $\text{DMSO}-d_6$): δ (ppm): 23.2, 45.0, 55.8, 56.5, 111.6, 112.4, 116.4, 119.2, 119.5, 122.7, 123.9, 126.4, 128.8, 129.3, 132.2, 133.1, 151.4, 153.3, 153.8, 168.9.

Product 13

^1H NMR (500 MHz, $\text{DMSO}-d_6$): δ (ppm): 6.78 (d, $J = 8.2$ Hz, 1H, methine CH), 7.22 (m, 2H, H_{Ar}), 7.29 (t, $J = 6.8$ Hz, 1H, H_{Ar}), 7.41 (d, $J = 7.4$ Hz, 1H, H_{Ar}), 7.45-7.46 (m, 3H, H_{Ar}), 7.51 (s, 2H, H_{Ar}), 7.75 (d, $J = 8.5$ Hz, 1H, H_{Ar}), 7.80 (d, $J = 7.6$ Hz, 1H, H_{Ar}), 7.86 (d, $J = 6.8$ Hz, 2H, H_{Ar}), 8.25 (d, $J = 8.2$ Hz, 1H, H_{Ar}), 8.92 (d, $J = 7.1$ Hz, 1H, NH), 10.01 (s, 1H, OH), 10.26 (s, 1H, OH). ^{13}C NMR (125 MHz, $\text{DMSO}-d_6$): δ (ppm): 46.1, 110.4, 117.9, 118.7, 119.4, 123.1, 123.6, 126.9, 127.8, 128.8, 128.9, 129.0, 129.7, 131.0, 131.1, 131.9, 132.1, 133.1, 134.9, 153.8, 154.8, 165.9. Mass: m/z 449 ($\text{M}^+ + 1$), 448 (M^+).

Selected original spectrums of the synthesized 1-amidoalkyl-2-naphthols

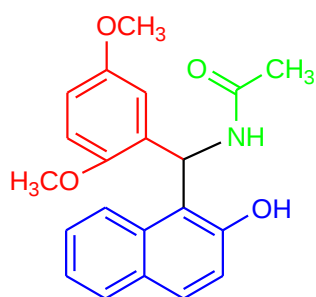
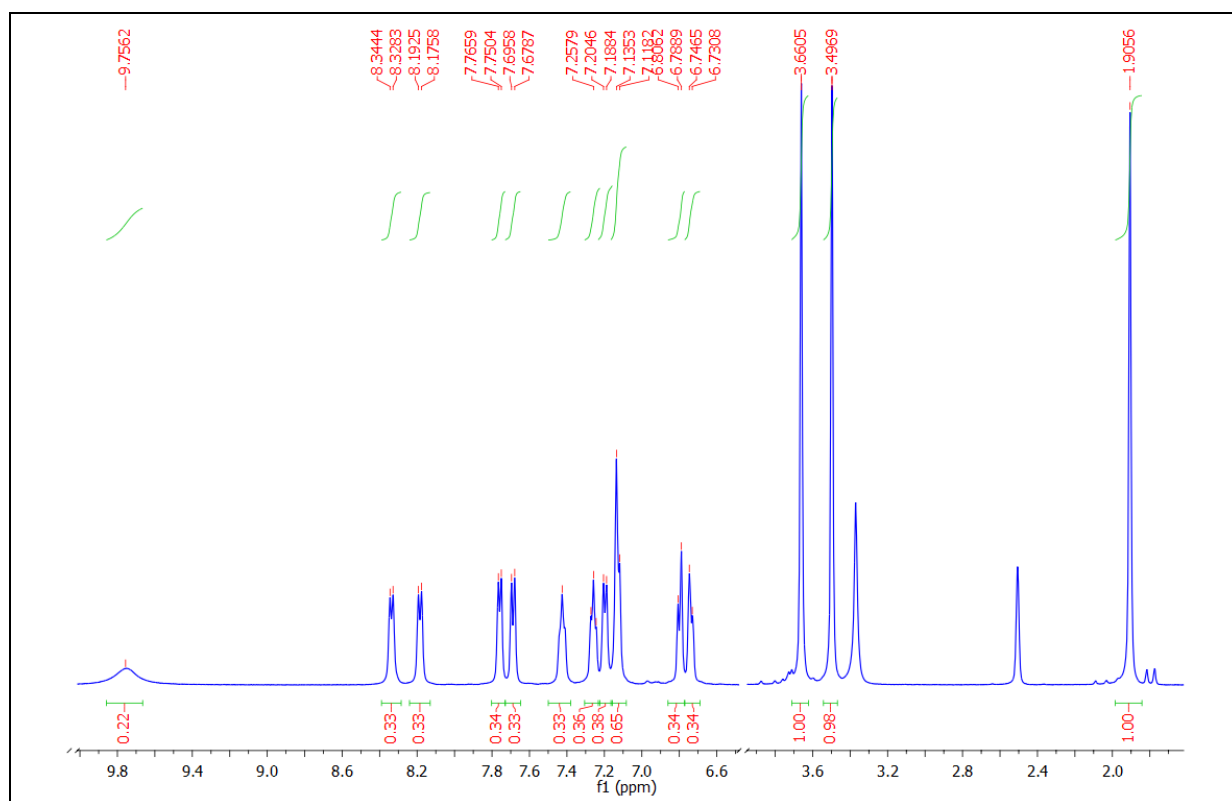


Fig. S1. The ¹H NMR spectrum of product **10**

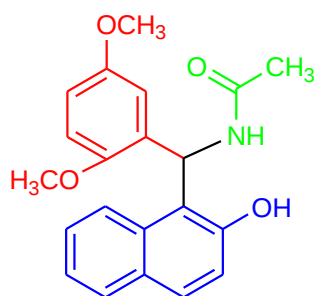
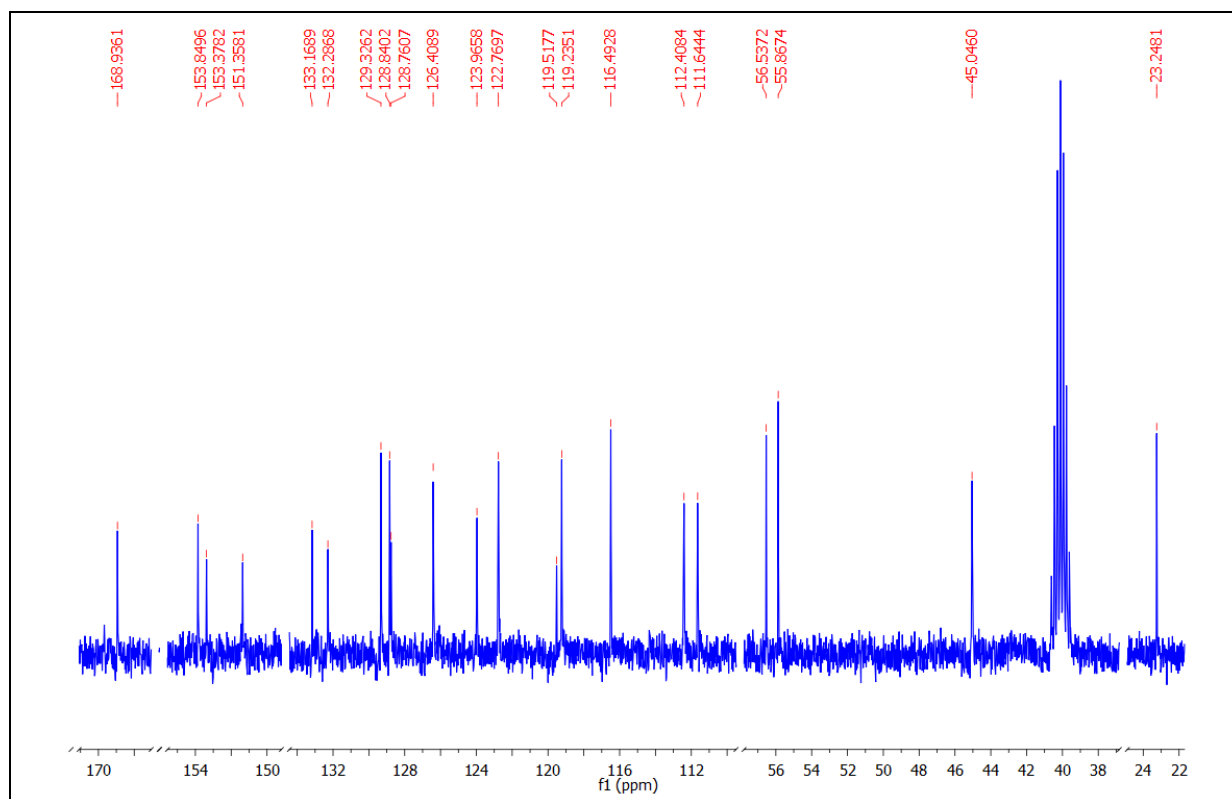


Fig. S2. The ^{13}C NMR spectrum of product **10**

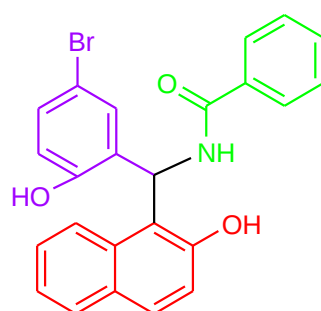
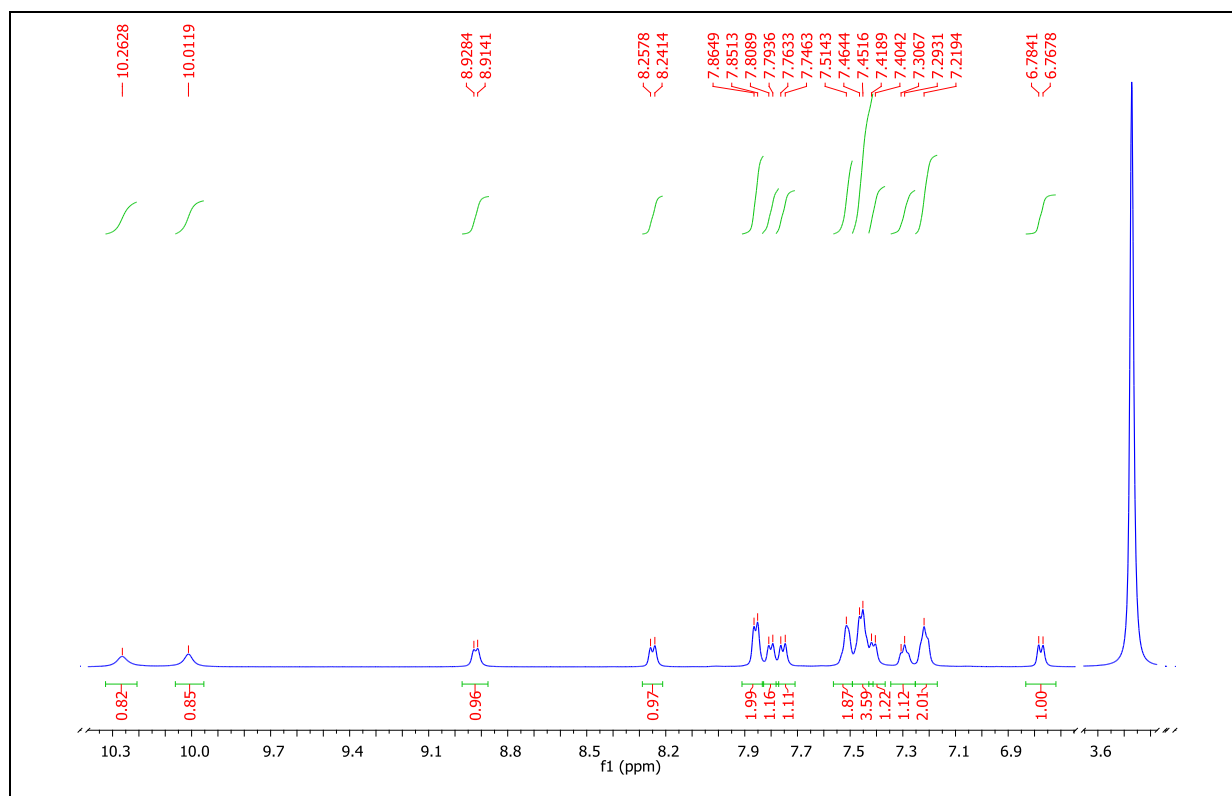


Fig. S3. The ¹H NMR spectrum of product **13**

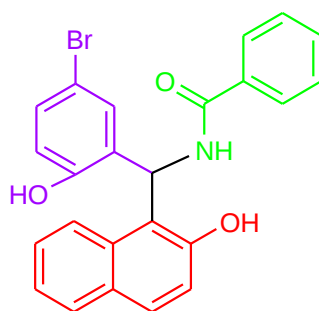
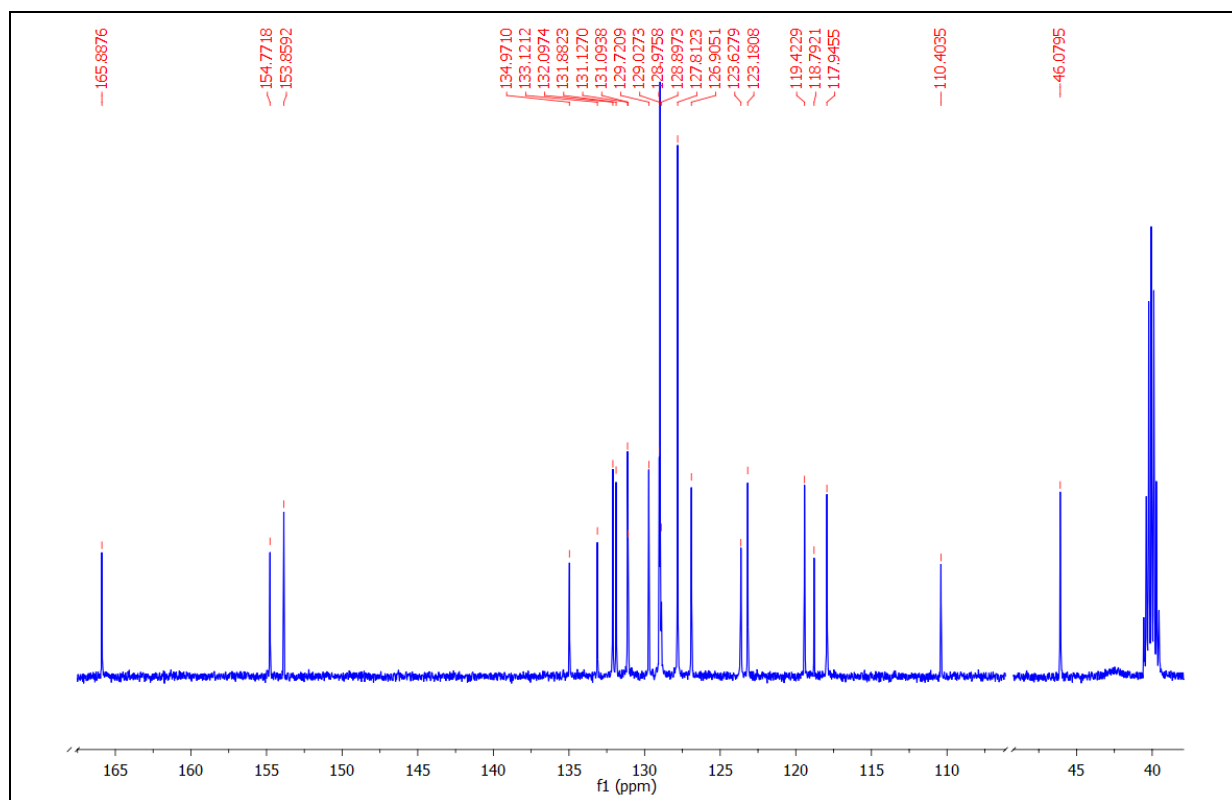


Fig. S4. The ^{13}C NMR spectrum of product **13**

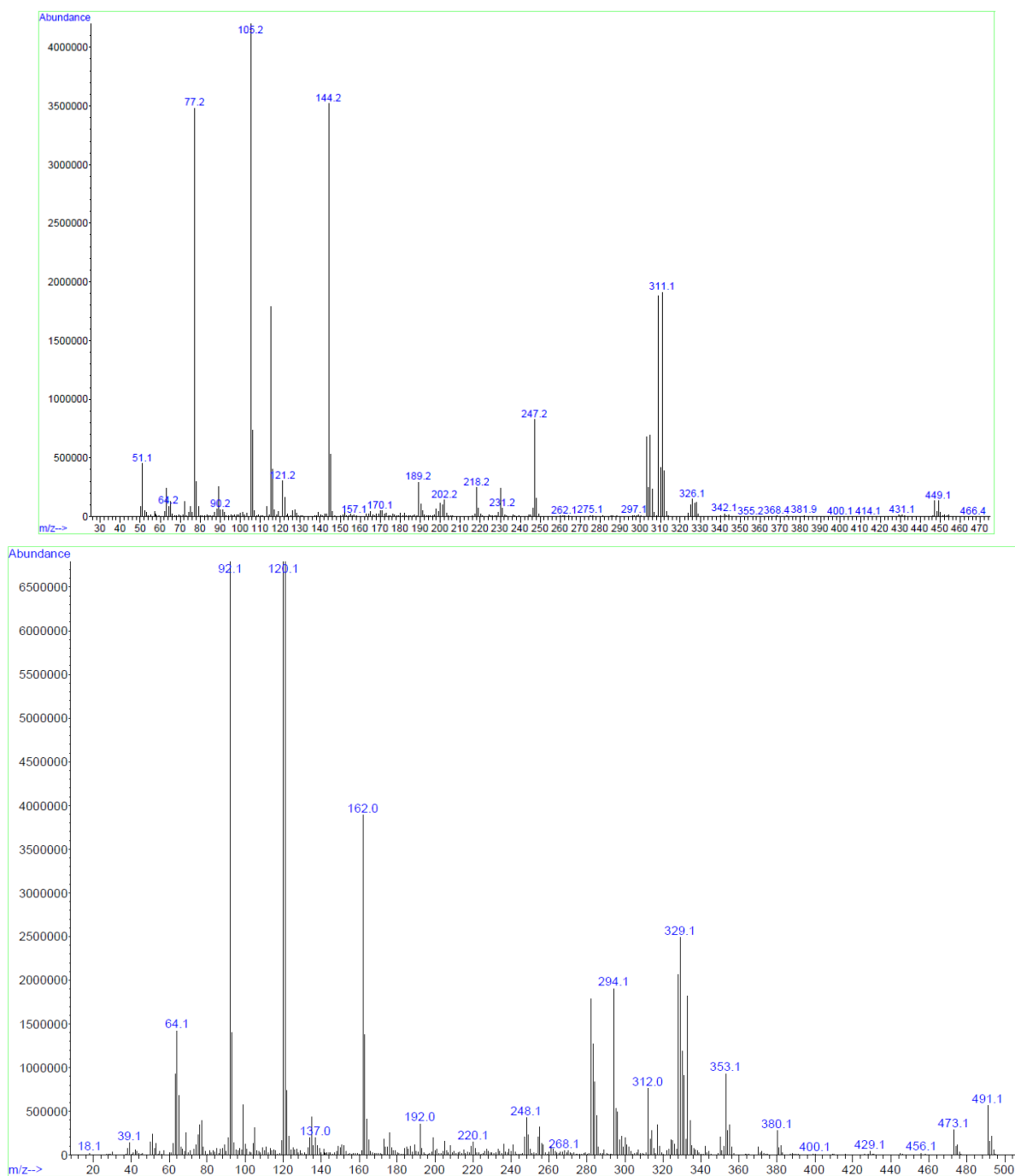


Fig. S5. The mass spectrum of product **13**