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Conjugate Addition of Indoles to Nitroalkenes Promoted by Basic Alumina in Solventless Conditions

Roberto Ballini,* Roberto Rabanedo Clemente, Alessandro Palmieri, Marino Petrini*

Dipartimento di Scienze Chimiche, Università di Camerino,

via S. Agostino, 1, 62032 Camerino Italy

Fax: +390737 402297

E-mail: roberto.ballini@unicam.it; marino.petrini@unicam.it

Supporting Information

3-[1-(1-Nitropropyl)hexyl]-1*H*-indole (3a)

Red waxy solid; IR (neat): ν = 1372, 1455, 1538, 1651, 3061, 3098, 3401 cm^{-1} ; ^1H NMR (CDCl_3 , 400 MHz): δ = 0.75–0.86 (m, 5H), 0.96 (t, 1H, J = 7.0 Hz), 1.08–1.29 (m, 6H), 1.48–1.66 (m, 1H), 1.79–2.12 (m, 3H), 3.39 (dt, 0.6H, J = 3.5, 10.9 Hz), 3.51 (q, 0.4 H, J = 7.4 Hz), 4.75 (dt, 0.4 H, J = 3.12, 10.6 Hz), 4.81 (dt, 0.6 H, J = 3.12, 10.6 Hz), 7.01 (dd, 1H, J = 2.7, 15.6 Hz), 7.12–7.18 (m, 1H), 7.21–7.27 (m, 1H), 7.36 (d, 0.4H, J = 8.21 Hz), 7.39 (d, 0.6H, J = 8.22 Hz), 7.64 (s, 0.4H), 7.66 (s, 0.6H), 8.09 (bs, 0.4H), 8.16 (bs, 0.6H); ^{13}C NMR (CDCl_3 , 100 MHz): δ = 10.6, 10.8, 14.1, 14.2, 22.5, 22.6, 24.4, 26.3, 27.1, 27.2, 30.8, 31.6, 31.9, 32.1, 41.3, 41.8, 94.8, 95.7, 111.6, 111.7, 114.0, 114.1, 119.0, 119.3, 119.8, 119.9, 122.4, 122.5, 122.6, 122.7, 126.7, 126.9, 136.5, 136.7; EIMS: m/z = 288, 242, 200, 130 (100), 115, 77, 41, 30. Anal. Calcd. for $\text{C}_{17}\text{H}_{24}\text{N}_2\text{O}_2$ (288.38): C, 70.80; H, 8.39; N, 9.71; Found: C, 7.77; H, 8.41; N, 9.74.

3-[1-(4-Methoxyphenyl)-2-nitropropyl]-1*H*-indole (3b)

Brown waxy solid; IR (neat): ν = 1184, 1305, 1357, 1385, 1460, 1515, 1553, 1581, 1611, 3054, 3401 cm^{-1} ; ^1H NMR (CDCl_3 , 200 MHz): δ = 1.54 (d, 1.5H, J = 6.6 Hz), 1.63 (d, 1.5H, J = 6.6 Hz), 3.75 (s, 1.5H), 3.78 (s, 1.5H), 4.74–4.86 (m, 1H), 5.26–5.46 (m, 1H), 6.79–6.94 (m, 2H), 7.01–7.41 (m, 6H), 7.50 (d, 0.5H, J = 7.7 Hz), 7.68 (d, 0.5H, J = 7.0 Hz), 8.05 (bs, 0.5H), 8.16 (bs, 0.5H); ^{13}C NMR (CDCl_3 , 100 MHz): δ = 19.3, 19.4, 47.0, 47.2, 55.3, 55.4, 87.1, 88.1, 111.4, 111.6, 114.2, 114.4, 114.8, 115.6, 119.0, 119.1, 119.8, 120.1, 120.4, 121.8, 122.6, 122.7, 126.6, 126.7, 128.8, 129.7, 131.5, 132.4, 136.3, 136.4, 158.7, 158.9; EIMS: m/z = 310, 263, 236 (100), 221, 204, 192,

165, 130. Anal. Calcd. for $C_{18}H_{18}N_2O_3$ (310.35): C, 69.66; H, 5.85; N, 9.03; Found: C, 69.63; H, 5.87; N, 9.01

3-(2-Nitro-1-phenethylbutyl)-1*H*-indole (3c)

Brown oil; IR (neat): ν = 1302, 1338, 1373, 1421, 1547, 1618, 3027, 3060, 3084, 3420 cm^{-1} ; 1H NMR ($CDCl_3$, 200 MHz): δ = 0.83 (t, 1.5H, J = 7.3 Hz), 0.97 (t, 1.5H, J = 7.3 Hz), 1.44–1.71 (m, 1H), 1.77–2.73 (m, 5H), 3.36–3.66 (m, 1H), 4.73–4.96 (m, 1H), 6.99–7.15 (m, 3H), 7.16–7.38 (m, 5H), 7.44 (dt, 1H, J = 0.7, 7.0 Hz), 7.68 (d, 1H, J = 7.7 Hz), 8.15–8.31 (m, 1H); ^{13}C NMR ($CDCl_3$, 50 MHz): δ = 10.5, 10.7, 24.5, 26.2, 32.8, 33.5, 33.7, 40.8, 41.2, 94.8, 95.5, 111.7, 111.8, 113.3, 113.4, 119.0, 119.3, 119.9, 120.0, 122.5, 122.7, 123.0, 126.1, 126.2, 126.6, 126.8, 128.4, 128.5, 128.6, 136.5, 136.8, 141.5, 141.7; EIMS: m/z = 322, 276, 234, 172, 156, 143, 130, 117, 103, 91 (100), 77, 65, 51, 39. Anal. Calcd. for $C_{20}H_{22}N_2O_2$ (322.40): C, 74.51; H, 6.88; N, 8.69; Found: C, 74.48; H, 6.91; N, 6.66.

2-Methyl-3-(2-nitro-1-phenethylbutyl)-1*H*-indole (3d)

Brown oil; IR (neat): ν = 1372, 1557, 1621, 3028, 3418 cm^{-1} ; 1H NMR (CD_3COCD_3 , 200 MHz): δ = 0.75 (t, 1.5H, J = 7.3 Hz), 0.96 (t, 1.5H, J = 7.3 Hz), 1.40–1.62 (m, 0.5H), 1.68–2.11 (m, 1.5H), 2.14–2.55 (m, 7H), 3.31–3.52 (m, 1H), 4.92–5.20 (m, 1H), 6.96–7.41 (m, 8H), 7.60–7.74 (m, 1H), 9.97 (bs, 0.5H), 10.18 (bs, 0.5H); ^{13}C NMR (CD_3COCD_3 , 50 MHz): δ = 10.0, 10.1, 25.6, 26.1, 31.7, 32.8, 33.4, 33.7, 40.9, 41.2, 94.4, 94.9, 107.3, 108.2, 111.1, 111.3, 118.6, 118.8, 119.0, 119.4, 120.7, 121.1, 126.1, 128.5, 128.6, 134.1, 136.5, 141.9, 142.2; EIMS: m/z = 336, 290, 248, 185, 170, 157, 144 (100), 130, 117, 91, 77, 65, 42, 30. Anal. Calcd. for $C_{21}H_{24}N_2O_2$ (336.43): C, 74.97; H, 7.19; N, 8.33; Found: C, 75.00 ; H, 7.16 ; N, 8.36.

3-(1-Ethyl-2-nitropropyl)-2-methyl-1*H*-indole (3e)

Yellow oil; IR (neat): ν = 1246, 1301, 1359, 1386, 1461, 1548, 1582, 1621, 3056, 3408 cm^{-1} ; 1H NMR (CD_3COCD_3 , 200 MHz): δ = 0.66–0.80 (m, 3H), 1.30 (d, 1.5H, J = 6.6 Hz), 1.69 (d, 1.5H, J = 6.6 Hz), 1.84–2.17 (m, 2H), 2.36 (s, 1.5H), 2.47 (s, 1.5H), 3.21–3.39 (m, 1H), 5.09–5.31 (m, 1H), 6.91–7.12 (m, 2H), 7.28 (dd, 0.5H, J = 2.2, 7.0 Hz), 7.34 (dd, 0.5H, J = 1.7, 6.6 Hz), 7.53–7.64 (m, 1H), 9.98 (bs, 0.5 H), 10.16 (bs, 0.5H); ^{13}C NMR (CD_3COCD_3 , 50 MHz): δ = 11.8, 12.1, 12.4, 12.6, 18.8, 18.9, 23.3, 24.9, 44.8, 45.0, 88.2, 88.5, 107.8, 108.8, 111.6, 111.8, 119.2, 119.4, 119.5, 119.8, 121.2, 121.5, 127.6, 127.9, 134.6, 135.1, 137.0, 137.1; EIMS m/z = 246, 200, 172 (100), 158, 144, 128, 115, 77, 42, 30. Anal. Calcd. for $C_{14}H_{18}N_2O_2$ (246.30): C, 68.27; H, 7.37; N, 11.37; Found: C, 68.23 ; H, 7.40 ; N, 11.34.

3-[1-(4-Methoxyphenyl)-2-nitropropyl]-2-methyl-1H-indole (3f)

Brown viscous oil; IR (neat): ν = 1180, 1303, 1359, 1387, 1462, 1513, 1549, 1582, 1610, 3055, 3408 cm^{-1} ; ^1H NMR (CDCl_3 , 400 MHz): δ = 1.49 (d, 1H, J = 6.7 Hz), 1.63 (d, 2H, J = 6.3 Hz), 2.38 (s, 2H), 2.42 (s, 1H), 3.72 (s, 1H), 3.75 (s, 2H), 4.62 (d, 0.3H, J = 11.7 Hz), 4.69 (d, 0.7H, J = 11.3 Hz), 5.70–5.82 (m, 1H), 6.78 (d, 1H, J = 8.6 Hz), 6.84 (d, 1H, J = 8.6 Hz), 7.00–7.19 (m, 3H), 7.31 (d, 0.6H, J = 9.0 Hz), 7.36 (d, 1.4H, J = 9.0 Hz), 7.58–7.62 (m, 0.3H), 7.72–7.78 (m, 1.4H), 7.89 (bs, 0.3H); ^{13}C NMR (CDCl_3 , 100 MHz): δ = 12.1, 12.2, 19.4, 19.7, 47.0, 47.7, 55.1, 55.2, 85.9, 86.6, 109.8, 110.2, 110.7, 110.8, 114.0, 114.2, 118.7, 118.9, 119.6, 119.9, 121.0, 121.3, 126.6, 126.7, 128.4, 129.3, 131.9, 132.1, 132.4, 132.5, 135.3, 135.4, 158.4, 158.5; EIMS: m/z = 324, 278, 250 (100), 206, 146. Anal. Calcd. for $\text{C}_{19}\text{H}_{20}\text{N}_2\text{O}_3$ (324.37): C, 70.35; H, 6.21; N, 8.64; Found: C, 70.39; H, 6.23; N, 8.67.

2-Methyl-3-[1-(1-nitroethyl)butyl]-1H-indole (3g)

Yellow oil; IR (neat): ν = 742, 1244, 1301, 1358, 1386, 1461, 1548, 1582, 3056, 3408 cm^{-1} ; ^1H NMR (CDCl_3 , 200 MHz): δ = 0.76–0.95 (m, 3H), 1.03–1.25 (m, 2H), 1.32 (d, 1.5H, J = 6.6 Hz), 1.46–1.81 (m, 1H), 1.73 (d, 1.5H, J = 6.6 Hz), 1.92–2.18 (m, 1H), 2.32 (s, 1.5H), 2.43 (s, 1.5H), 3.27–3.49 (m, 1H), 5.05–5.24 (m, 1H), 7.04–7.38 (m, 3H), 7.55 (s, 0.5H), 7.58 (s, 0.5H), 7.84 (bs, 0.5H), 7.95 (bs, 0.5H); ^{13}C NMR (CDCl_3 , 50 MHz): δ = 12.0, 12.3, 14.0, 14.1, 18.3, 18.9, 20.9, 21.0, 31.6, 33.3, 42.2, 42.4, 87.7, 87.9, 108.5, 108.9, 110.9, 118.8, 118.9, 119.5, 119.7, 121.2, 121.5, 127.0, 133.3, 135.7, 135.8; EIMS: m/z = 260, 214, 186, 171, 158, 144 (100), 128, 115, 77. Anal. Calcd. for $\text{C}_{15}\text{H}_{20}\text{N}_2\text{O}_2$ (260.33): C, 69.21; H, 7.74; N, 10.76; Found: C, 69.25; H, 7.72; N, 10.79.

***trans*-2-Methyl-3-(2-nitrocyclohexyl)-1H-indole (3h)**

Yellow solid, mp. 152–154°C; IR (nujol): ν = 1290, 1377, 1456, 1538, 1581, 1621, 3393 cm^{-1} ; ^1H NMR (CD_3COCD_3 , 400 MHz) δ = 1.48–1.63 (m, 1H), 1.64–1.78 (m, 1H), 1.82–2.07 (m, 4H), 2.09–2.27 (m, 1H), 2.34–2.45 (m, 4H), 3.44 (dt, 1H, J = 3.9, 11.5 Hz), 5.21 (dt, J = 3.9, 11.5 Hz), 6.92–7.05 (m, 2H), 7.26 (d, 1H, J = 7.4 Hz), 7.68 (d, J = 7.7 Hz), 9.88 (bs, 1H); ^{13}C NMR (CD_3COCD_3 , 100 MHz): δ = 11.7, 25.0, 26.4, 31.9, 33.5, 40.8, 90.3, 110.5, 111.6, 119.5, 121.1, 121.2, 127.7, 133.3, 136.9; EIMS: m/z = 258, 211, 196, 182, 168, 154, 144 (100), 128, 115, 77. Anal. Calcd. for $\text{C}_{15}\text{H}_{18}\text{N}_2\text{O}_2$ (258.32): C, 69.75; H, 7.02; N, 10.84; Found: C, 69.78; H, 6.99; N, 10.86.

Ethyl 2-(2-methyl-1*H*-3-indolyl)-3-nitropentanoate (3i)

Yellow oil; IR (neat): ν = 1019, 1191, 1305, 1338, 1372, 1461, 1551, 1583, 1731, 3058, 3400 cm^{-1} ; ^1H NMR (CDCl_3 , 200 MHz): δ = 0.87 (t, 2.4H, J = 7.3 Hz), 1.04–1.24 (m, 3.6H), 1.56–1.89 (m, 1H), 2.02–2.26 (m, 1H), 2.32 (s, 0.6H), 2.45 (s, 2.4H), 3.93–4.30 (m, 2H), 4.36 (d, 0.2H, J = 11.7 Hz), 4.55 (d, 0.8H, J = 10.6 Hz), 5.39–5.56 (m, 1H), 7.05–7.34 (m, 3H), 7.57–7.69 (m, 0.8H), 7.72–7.82 (m, 0.2H), 8.18 (bs, 0.2H), 8.38 (bs, 0.8H); ^{13}C NMR (CDCl_3 , 50 MHz): δ = 9.6, 10.6, 11.5, 11.9, 14.0, 14.1, 25.2, 26.7, 45.6, 47.1, 60.9, 61.6, 88.2, 90.4, 103.5, 103.69, 110.8, 110.9, 118.5, 118.8, 120.0, 120.2, 121.4, 121.8, 126.5, 126.6, 134.3, 134.5, 135.3, 135.5, 170.4, 171.4; EIMS: m/z = 304, 258, 216 (100), 185, 170, 146, 128, 115, 77, 29. Anal. Calcd. for $\text{C}_{16}\text{H}_{20}\text{N}_2\text{O}_4$ (304.34): C, 63.14; H, 6.62; N, 9.20; Found: C, 63.11; H, 6.60; N, 9.23.

5-Methoxy-3-(2-nitro-1-phenylethyl)-1*H*-indole (3j)

Yellow viscous oil; IR (neat): ν = 1373, 1481, 1558, 3066, 3397 cm^{-1} ; ^1H NMR (CDCl_3 , 200 MHz): δ = 3.79 (s, 3H), 4.84–5.20 (m, 3H), 6.81–6.93 (m, 2H), 6.99 (d, 1H, J = 2.2 Hz), 7.21–7.40 (m, 6H), 8.06 (bs, 1H); ^{13}C NMR (CDCl_3 , 50 MHz): δ = 41.7, 56.0, 79.6, 101.0, 112.3, 112.8, 114.1, 122.5, 126.7, 127.7, 127.9, 129.0, 131.7, 139.3, 154.3; EIMS: m/z = 296, 249 (100), 236, 218, 204, 162, 130, 103, 77. Anal. Calcd. for $\text{C}_{17}\text{H}_{16}\text{N}_2\text{O}_3$ (296.32): C, 68.91; H, 5.44; N, 9.45; Found: C, 61.88; H, 5.47; N, 9.42.

5-Methoxy-3-(2-nitro-1-phenethylbutyl)-1*H*-indole (3k)

Brown viscous oil; IR (neat): ν = 1211, 1372, 1538, 1582, 1625, 3026, 3061, 3419 cm^{-1} ; ^1H NMR (CDCl_3 , 400 MHz): δ = 0.80 (t, 1.5H, J = 7.3 Hz), 0.92 (t, 1.5H, J = 7.3 Hz), 1.49–1.63 (m, 1H), 1.77–2.04 (m, 2H), 2.08–2.23 (m, 1H), 2.33–2.65 (m, 2H), 3.35 (dt, 0.5H, J = 2.7, 10.6 Hz), 3.44–3.50 (m, 0.5H), 3.88 (s, 3H), 4.66–4.79 (m, 1H), 6.88–6.94 (m, 1H), 6.99–7.05 (m, 3H), 7.06–7.09 (m, 1H), 7.14–7.33 (m, 4H), 8.06 (bs, 0.5H), 8.11 (bs, 0.5H); ^{13}C NMR (CDCl_3 , 100 MHz): δ = 10.6, 10.8, 24.4, 26.3, 32.8, 33.4, 33.7, 33.8, 40.6, 40.9, 56.1, 56.2, 94.7, 95.6, 101.2, 112.3, 112.4, 112.5, 112.8, 113.3, 113.4, 123.4, 123.5, 126.1, 126.2, 127.3, 127.5, 128.5, 128.6, 128.7, 131.7, 131.9, 141.5, 141.7, 154.3, 154.4; EIMS: m/z = 352, 306, 264, 202, 186, 173, 160, 117, 91 (100), 77, 65. Anal. Calcd. for $\text{C}_{21}\text{H}_{24}\text{N}_2\text{O}_3$ (352.43): C, 71.57; H, 6.86; N, 7.95; Found: C, 71.53; H, 6.89; N, 7.94.

3-(1-Cyclohexyl-2-nitroethyl)-1*H*-5-indolyl methyl ether (3l)

Brown waxy solid; IR (nujol): ν = 1216, 1377, 1455, 1552, 1621, 3386 cm^{-1} ; ^1H NMR (CDCl_3 , 400 MHz): δ = 0.97–1.29 (m, 5H), 1.60–1.88 (m, 6H), 3.61–3.68 (m, 1H), 3.88 (s, 3H), 4.69 (dd, 1H, J = 9.8, 12.1 Hz), 4.81 (dd, 1H, J = 6.3, 12.1 Hz), 6.88 (dd, 1H, J = 2.3, 8.6 Hz), 6.92 (d, 1H, J = 2.7

Hz), 7.05 (d, 1H, $J = 2.3$ Hz), 7.22 (d, 1H, $J = 8.6$ Hz), 8.06 (bs, 1H); ^{13}C NMR (CDCl_3 , 100 MHz): $\delta = 26.2, 26.3, 26.4, 30.4, 31.3, 40.6, 41.8, 56.1, 78.6, 101.4, 112.1, 112.2, 113.0, 123.1, 127.6, 131.5, 154.1$; EIMS: $m/z = 302, 240, 173$ (100), 160, 130, 115, 103, 77, 55, 41. Anal. Calcd. for $\text{C}_{17}\text{H}_{22}\text{N}_2\text{O}_3$ (302.37): C, 67.53; H, 7.33; N, 9.26; Found: C, 67.58; H, 7.36; N, 9.23.

5-Methoxy-3-[2-nitro-1-(4-nitrophenyl)butyl]-1H-indole (3m)

Brown waxy solid; IR (nujol): $\nu = 1209, 1345, 1376, 1519, 1550, 3411\text{ cm}^{-1}$; ^1H NMR (CDCl_3 , 200 MHz): $\delta = 0.92\text{--}1.074$ (m, 3H), 1.50–1.76 (m, 0.5H), 1.83–2.19 (m, 1.5H), 3.79 (s, 1.5H), 3.88 (s, 1.5H), 4.84 (d, 0.5H, $J = 11.4$ Hz), 4.91 (d, 0.5H, $J = 10.3$ Hz), 5.10–5.35 (m, 1H), 6.79–6.94 (m, 1.5H), 7.00 (d, 0.5H, $J = 2.6$ Hz), 7.09 (d, 0.5H, $J = 1.8$ Hz), 7.17–7.33 (m, 1.5), 7.51 (d, 1H, $J = 5.5$ Hz), 7.56 (d, 1H, $J = 5.5$ Hz), 8.08–8.30 (m, 3H); ^{13}C NMR (CDCl_3 , 100 MHz): $\delta = 10.6, 10.7, 26.6, 26.8, 46.8, 46.9, 56.0, 56.2, 92.8, 94.0, 100.7, 100.8, 112.3, 112.6, 112.8, 113.1, 113.6, 121.6, 122.6, 124.2, 124.4, 126.8, 126.9, 128.7, 129.5, 131.4, 131.5, 147.2, 147.3, 147.4, 147.7, 154.4, 154.8$; EIMS: $m/z = 322, 307, 291, 275, 261, 246, 230, 217, 200, 189, 160, 147$. Anal. Calcd. for $\text{C}_{19}\text{H}_{19}\text{N}_3\text{O}_5$ (369.37): C, 61.78; H, 5.18; N, 11.38; Found: C, 61.81; H, 5.20; N, 11.35.

3-(1-Ethyl-2-nitropropyl)-1H-5-indolyl methyl ether (3n)

Brown oil; IR (neat): $\nu = 1211, 1359, 1388, 1485, 1542, 1583, 1625, 3054, 3419\text{ cm}^{-1}$; ^1H NMR (CDCl_3 , 400 MHz): $\delta = 0.80$ (t, 1.5H, $J = 7.0$ Hz), 0.88 (t, 1.5H, $J = 7.0$ Hz), 1.37 (d, 1.5H, $J = 7.0$ Hz), 1.55 (d, 1.5H, $J = 7.0$ Hz), 1.65–1.92 (m, 2H), 3.32 (dt, 0.5H, $J = 3.5, 10.6$ Hz), 3.46–3.53 (m, 0.5H), 3.89 (s, 3H), 4.86–4.98 (m, 1H), 6.86–6.91 (m, 1H), 6.97 (dd, 1H, $J = 2.3, 7.0$ Hz), 7.08 (dd, 1H, $J = 2.3, 14.9$ Hz), 7.24 (t, 1H, $J = 9.4$ Hz), 8.21 (bs, 0.5H), 8.28 (bs, 0.5H); ^{13}C NMR (CDCl_3 , 100 MHz): $\delta = 12.0, 12.1, 16.2, 18.3, 22.9, 25.2, 43.4, 44.1, 56.1, 87.2, 88.2, 100.9, 101.2, 112.2, 112.3, 112.4, 112.7, 113.3, 123.2, 123.6, 127.3, 127.4, 131.7, 131.8, 154.1$; EIMS: $m/z = 262, 216, 188$ (100), 174, 160, 147, 130, 115. Anal. Calcd. for $\text{C}_{14}\text{H}_{18}\text{N}_2\text{O}_3$ (262.30): C, 64.11; H, 6.92; N, 10.68; Found: C, 64.14; H, 6.90; N, 10.70.

3-[1-(1-Nitroethyl)butyl]-1H-5-indolol (3o)

Brown oil; IR (neat): $\nu = 801, 1194, 1360, 1386, 1626, 3418\text{ cm}^{-1}$; ^1H NMR (CD_3COCD_3 , 200 MHz): $\delta = 0.77\text{--}0.93$ (m, 3H), 1.08–1.29 (m, 2H), 1.34 (d, 1.5H, $J = 6.6$ Hz), 1.56 (d, 1.5H, $J = 6.2$ Hz), 1.64–1.99 (m, 2H), 3.29–3.60 (m, 1H), 4.86–5.09 (m, 1H), 6.68–6.80 (m, 1H), 6.97–7.07 (m, 1H), 7.12–7.30 (m, 2H), 7.65 (bs, 1H), 9.91 (bs, 0.5H), 10.00 (bs, 0.5H); ^{13}C NMR (CD_3COCD_3 , 50 MHz): $\delta = 14.1, 14.3, 16.8, 18.3, 21.2, 21.3, 32.8, 35.0, 42.4, 42.9, 88.3, 88.9, 103.6, 112.4, 112.6, 112.8, 112.9, 113.0, 124.5, 125.1, 128.6, 128.7, 132.5, 132.6, 151.8$; EIMS: $m/z = 262, 216, 188$,

173, 160, 146 (100), 133, 115. Anal. Calcd. for $C_{14}H_{18}N_2O_3$ (262.31): C, 64.11; H, 6.92; N, 10.68; Found: C, 64.08; H, 6.95; N, 10.71.

3-[1-(4-Methoxyphenyl)-2-nitropropyl]-1*H*-5-indolol (3p)

Brown waxy solid; IR (nujol): ν = 1307, 1359, 1387, 1520, 1555, 1583, 1617, 3060, 3412 cm^{-1} ; ^1H NMR (CD_3COCD_3 , 200 MHz): δ = 1.46 (d, 1.5H, J = 6.6 Hz), 1.61 (d, 1.5H, J = 6.6 Hz), 3.71 (s, 1.5H), 3.75 (s, 1.5H), 4.63 (d, 0.5H, J = 11.0 Hz), 4.72 (d, 0.5H, J = 11.0 Hz), 5.39-5.67 (m, 1H), 6.63-7.03 (m, 4H), 7.05-7.30 (m, 1H), 7.31-7.84 (m, 4H), 9.92 (bs, 0.5H), 10.04 (bs, 0.5H); ^{13}C NMR (CD_3COCD_3 , 50 MHz): δ = 19.6, 19.7, 47.8, 48.2, 55.4, 55.5, 87.7, 88.7, 103.6, 103.8, 112.6, 112.8, 114.6, 114.8, 122.5, 123.8, 128.6, 129.8, 130.6, 131.0, 132.3, 133.1, 134.2, 151.7, 151.9, 159.6, 159.8; EIMS: m/z = 326, 279, 267, 252 (100), 160, 132, 77. Anal. Calcd. for $C_{18}H_{18}N_2O_4$ (326.35): C, 66.25; H, 5.56; N, 8.58; Found: C, 66.29; H, 5.53; N, 8.55.