SUPPORTING INFORMATION

Regiospecific C-Acylation of Pyrroles and Indoles using N-Acylbenzotriazoles

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General Procedure for the Preparation of *N*-Acylbenzotriazoles **1a–g.** A mixture of aromatic or heteroaromatic acid (20 mmol), 1-(methylsulfonyl)benzotriazole^{20a} (20 mmol) and triethylamine (4.0 mL, 28 mmol) was dissolved in THF (120 mL) and the solution was refluxed overnight (except for **1f** which required heating at 40 °C for 2 days). The solvent was evaporated under reduced pressure and the residue was dissolved in chloroform. Aqueous work-up gave the crude product that was recrystallized to give pure *N*-acylbenzotriazoles **1a–g**.

1*H*-1,2,3-Benzotriazol-1-yl(4-methylphenyl)methanone (1a): colorless prisms (from ethanol); mp 123–124 °C (Lit.^{20a} mp 123–124 °C); yield, 91%.

1*H*-1,2,3-Benzotriazol-1-yl(4-nitrophenyl)methanone (1b): yellow needles (from chloroform/ hexanes); mp 192–193 °C (Lit.^{20a} mp 193–194 °C); yield, 81%.

1*H*-1,2,3-Benzotriazol-1-yl[4-(diethylamino)phenyl]methanone (1c): yellow needles (from ethanol/hexanes); mp 85–87 °C (Lit.^{20a} mp 86–87 °C); yield, 87%.

1*H*-1,2,3-Benzotriazol-1-yl(2-furyl)methanone (1d): yellow needles (from methanol); mp 171–173 °C (Lit.³⁵ mp 172–174 °C); yield, 91%.

1*H*-1,2,3-Benzotriazol-1-yl(2-pyridyl)methanone (1e): yellow microcrystals (from chloroform/ hexanes); mp 95–97 °C (Lit.³⁵ mp 97–100 °C); yield, 95%.

1*H*-1,2,3-Benzotriazol-1-yl(1*H*-indol-2-yl)methanone (1f): yellowish microcrystals (from chloroform); mp 215–216 °C; yield, 36%; ¹H NMR (DMSO-*d*₆) δ 7.13–7.22 (m, 1H), 7.36–7.44 (m, 1H), 7.59–7.71 (m, 2H), 7.78–7.90 (m, 2H), 8.04 (s, 1H), 8.32 (d, *J* = 8.2 Hz, 1H), 8.39 (d, *J* = 8.4 Hz, 1H), 12.5 (s, 1H); ¹³C NMR (DMSO-*d*₆) δ 112.9, 114.5, 114.5, 120.1, 120.8, 123.2, 126.4, 126.5, 126.8, 127.0, 130.7, 131.8, 138.4, 144.9, 158.4. Anal. Calcd for C₁₅H₁₀N₄O: C, 68.69; H, 3.84; N, 21.36. Found: C, 68.63; H, 3.87; N, 21.36.

1*H*-1,2,3-Benzotriazol-1-yl(1*H*-pyrrol-2-yl)methanone (1g): yellow prisms (from methanol); mp 159–161 °C (Lit.³⁵ mp 161–162 °C); yield, 86%.

(4-Methylphenyl)(1*H*-pyrrol-2-yl)methanone (3a): white needles (from ethanol); mp 116–117 °C (Lit.^{4c} mp 118–119 °C); yield, 87%; ¹H NMR δ 2.47 (s, 3H), 6.32–6.34 (m, 1H), 6.89 (s, 1H), 7.14 (d, *J* = 0.8 Hz, 1H), 7.29 (d, *J* = 8.0 Hz, 2H), 7.83 (d, *J* = 8.0 Hz, 2H), 10.00 (br s, 1H); ¹³C NMR δ 21.6, 110.8, 119.1, 125.0, 129.0, 129.1, 131.2, 135.6, 142.4, 184.6.

(4-Nitrophenyl)(1*H*-pyrrol-2-yl)methanone (3b): brown microcrystals (from ethanol); mp 160–161 °C (Lit.^{4c} mp 160–162 °C); yield, 60%; ¹H NMR (DMSO-*d*₆) δ 6.34 (s, 1H), 6.83 (s, 1H), 7.32 (s, 1H), 8.03 (d, *J* = 8.4 Hz, 2H), 8.36 (d, *J* = 8.4 Hz, 2H), 12.2 (br s, 1H); ¹³C NMR (DMSO-*d*₆) δ 110.8, 120.5, 123.6, 127.7, 129.8, 130.2, 144.0, 149.0, 181.8.

[4-(Diethylamino)phenyl](1*H*-pyrrol-2-yl)methanone (3c): yellowish plates (from chloroform/ hexanes); mp 100–101 °C; yield, 21%; ¹H NMR δ 1.22 (t, *J* = 7.1 Hz, 6H), 3.44 (q, *J* = 7.1 Hz, 4H), 6.31–6.33 (m, 1H), 6.68 (d, *J* = 9.1 Hz, 2H), 6.91 (s, 1H), 7.07 (s, 1H), 7.93 (d, *J* = 9.0 Hz, 2H), 9.70 (br s, 1H); ¹³C NMR δ 12.5, 44.5, 110.2, 110.4, 117.0, 123.4, 124.7, 131.5, 131.6, 150.7, 182.9. Anal. Calcd for C₁₅H₁₈N₂O: C, 74.35; H, 7.49; N, 11.56. Found: C, 74.71; H, 7.71; N, 11.69.

2-Furyl(1*H*-pyrrol-2-yl)methanone (3d):^{5b} white needles (from chloroform/ hexanes); mp 69 °C; yield, 91%; ¹H NMR δ 6.35–6.37 (m, 1H), 6.56–6.57 (m, 1H), 7.15 (d, *J* = 0.9 Hz, 1H), 7.37 (d, *J* = 3.4 Hz, 1H), 7.41 (s, 1H), 7.64 (s, 1H), 10.4 (br s, 1H); ¹³C NMR δ 111.2, 112.1, 117.6, 118.4, 125.5, 130.0, 145.9, 152.7, 170.6.

2-Pyridinyl(1*H*-pyrrol-2-yl)methanone (3e): reddish prisms (from chloroform/hexanes); mp 70–71 °C (Lit.²⁴ mp 65–67 °C); yield, 47%; ¹H NMR δ 6.37 (dd, *J* = 6.1, 2.4 Hz, 1H), 7.12 (br s, 1H), 7.45–7.50 (m, 2H), 7.90 (td, *J* = 7.8, 1.4 Hz, 1H), 8.27 (d, *J* = 7.8 Hz, 1H), 8.70 (d, *J* = 4.4

Hz, 1H), 11.6 (br s, 1H); ^{13}C NMR δ 111.0, 119.7, 124.0, 124.8, 126.2, 132.0, 137.2, 148.0, 155.3, 177.

1*H*-Indol-2-yl(1*H*-pyrrol-2-yl)methanone (3f): brown microcrystals (from chloroform/hexanes); 168–172 °C; yield, 39%; ^1H NMR δ 6.37–6.40 (m, 1H), 7.13–7.18 (m, 2H), 7.28–7.34 (m, 2H), 7.42–7.46 (m, 2H), 7.73 (d, J = 8.0 Hz, 1H), 9.68 (br s, 1H), 10.1 (br s, 1H); ^{13}C NMR δ 109.2, 111.3, 112.1, 117.3, 120.8, 122.9, 125.0, 125.7, 127.9, 130.7, 134.2, 137.0, 174.8. HRMS calcd for $\text{C}_{13}\text{H}_{10}\text{N}_2\text{O}$ 210.0793, found 210.0793.

Di(1*H*-pyrrol-2-yl)methanone (3g): reddish microcrystals (from chloroform/hexanes); mp 150–152 °C (Lit.²⁵ mp 157–159 °C); yield, 47%; ^1H NMR δ 6.32–6.35 (m, 2H), 7.08 (s, 2H), 7.16 (s, 2H), 10.2 (br s, 2H); ^{13}C NMR δ 110.9, 116.2, 124.2, 130.5, 173.1

(4-Methylphenyl)(1-methyl-1*H*-pyrrol-2-yl)methanone (5a):²⁶ colorless oil; yield, 90%; ^1H NMR δ 2.42 (s, 3H), 4.02 (s, 3H), 6.14 (dd, J = 4.1, 2.4 Hz, 1H), 6.73 (dd, J = 4.4, 1.5 Hz, 1H), 6.88–6.93 (m, 1H), 7.25 (d, J = 7.9 Hz, 2H), 7.72 (d, 7.9 Hz, 2H); ^{13}C NMR δ 21.5, 37.2, 107.9, 122.3, 128.6, 129.3, 130.5, 131.1, 137.1, 141.8, 185.9.

(1-Methyl-1*H*-pyrrol-2-yl)(4-nitrophenyl)methanone (5b): white needles (from ethanol); mp 147–148 °C (Lit.²⁷ mp 148–150 °C); yield, 74%; ^1H NMR δ 4.06 (s, 3H), 6.19 (dd, J = 3.6, 1.5 Hz, 1H), 6.69 (dd, J = 4.1, 1.3 Hz, 1H), 7.00 (br s, 1H), 7.92 (d, J = 8.7 Hz, 2H), 8.31 (d, J = 8.7 Hz, 2H); ^{13}C NMR δ 37.5, 108.8, 123.3, 123.6, 129.8, 132.7, 145.3, 149.2, 183.6.

[4-(Diethylamino)phenyl](1-methyl-1*H*-pyrrol-2-yl)methanone (5c): yellowish prisms (from hexanes); mp 82–83 °C; yield, 51%; ^1H NMR δ 1.21 (t, J = 7.0 Hz, 6H), 3.42 (q, J = 7.0 Hz, 4H), 3.97 (s, 3H), 6.13–6.15 (m, 1H), 6.65 (d, J = 8.8 Hz, 2H), 6.73 (dd, J = 3.8, 1.2 Hz, 1H), 6.84 (s, 1H), 7.83 (d, J = 8.8 Hz, 2H); ^{13}C NMR δ 12.5, 36.9, 44.5, 107.3, 110.0, 120.3,

126.2, 129.7, 131.0, 132.0, 150.5, 184.7. Anal. Calcd for $C_{16}H_{20}N_2O$: C, 74.97; H, 7.86; N, 10.93. Found: C, 74.92; H, 8.21; N, 10.87.

2-Furyl(1-methyl-1*H*-pyrrol-2-yl)methanone (5d): colorless oil; yield, 94%; 1H NMR δ 4.00 (s, 3H), 6.20 (dd, $J = 4.1, 1.6$ Hz, 1H), 6.54 (dd, $J = 3.2, 1.4$ Hz, 1H), 6.90 (s, 1H), 7.22 (d, $J = 3.5$ Hz, 1H), 7.29 (dd, $J = 4.1, 1.5$ Hz, 1H), 7.62 (s, 1H); ^{13}C NMR δ 37.5, 108.4, 111.8, 117.5, 120.9, 129.3, 131.4, 145.6, 153.2, 171.9. Anal. Calcd for $C_{10}H_9NO_2$: C, 68.56; H, 5.18; N, 8.00. Found: C, 68.93; H, 5.15; N, 8.27.

(1-Methyl-1*H*-pyrrol-2-yl)(2-pyridinyl)methanone (5e):²⁹ colorless oil; yield, 54%; 1H NMR δ 4.06 (s, 3H), 6.19 (dd, $J = 4.1, 2.5$ Hz, 1H), 6.94 (br s, 1H), 7.30 (dd, $J = 4.1, 1.4$ Hz, 1H), 7.40–7.44 (m, 1H), 7.83 (td, $J = 7.6, 1.2$ Hz, 1H), 7.94 (d, $J = 7.6$ Hz, 1H), 8.69 (d, $J = 4.7$ Hz, 1H); ^{13}C NMR δ 37.8, 108.6, 123.6, 124.7, 125.4, 129.6, 132.1, 136.7, 148.3, 156.7, 182.7

1*H*-Indol-2-yl(1-methyl-1*H*-pyrrol-2-yl)methanone (5f): reddish prisms (from ethanol); mp 129–130 °C; yield, 51%; 1H NMR δ 4.02 (s, 3H), 6.23 (dd, $J = 4.1, 2.5$ Hz, 1H), 6.94 (s, 1H), 7.13–7.26 (m, 3H), 7.33 (t, $J = 7.3$ Hz, 1H), 7.45 (d, $J = 8.3$ Hz, 1H), 7.72 (d, $J = 7.9$ Hz, 1H), 9.57 (br s, 1H); ^{13}C NMR δ 37.1, 108.5, 109.7, 111.9, 120.7, 122.8, 125.5, 127.8, 130.3, 131.2, 135.6, 137.0, 176.4. Anal. Calcd for $C_{14}H_{12}N_2O$: C, 74.98; H, 5.39; N, 12.49. Found: C, 74.72; H, 5.54; N, 12.20.

(1-Methyl-1*H*-pyrrol-2-yl)(1*H*-pyrrol-2-yl)methanone (5g): reddish prisms (from chloroform/ hexanes); mp 131–132 °C; yield, 75%; 1H NMR δ 3.97 (s, 3H), 6.18 (dd, $J = 4.0, 2.4$ Hz, 1H), 6.31 (dd, $J = 6.1, 2.6$ Hz, 1H), 6.87 (br s, 1H), 6.97 (br s, 1H), 7.05–7.07 (m, 2H), 9.90 (br s, 1H); ^{13}C NMR δ 36.8, 108.1, 110.4, 116.8, 119.4, 123.8, 130.2, 130.3, 131.9, 174.8. Anal. Calcd for $C_{10}H_{10}N_2O$: C, 68.95; H, 5.79; N, 16.08. Found: C, 69.17; H, 5.79; N, 16.16.

(4-Methylphenyl)[1-(triisopropylsilyl)-1*H*-pyrrol-3-yl]methanone (7a): white prisms (from hexanes); mp 82–83 °C; yield, 92%; ^1H NMR δ 1.16 (d, J = 7.4 Hz, 18H), 1.47–1.55 (m, 3H), 2.48 (s, 3H), 6.84–6.85 (m, 2H), 7.31 (d, J = 7.8 Hz, 2H), 7.38 (s, 1H), 7.82 (d, J = 7.8 Hz, 2H); ^{13}C NMR δ 11.5, 17.6, 21.5, 112.4, 125.3, 126.9, 128.8, 129.2, 131.6, 137.5, 141.7, 190.7. Anal. Calcd for $\text{C}_{21}\text{H}_{31}\text{NOSi}$: C, 73.84; H, 9.15; N, 4.10. Found: C, 73.97; H, 5.79; N, 16.16.

(4-Nitrophenyl)[1-(triisopropylsilyl)-1*H*-pyrrol-3-yl]methanone (7b): yellow prisms (from hexanes); mp 131–132 °C; yield, 72%; ^1H NMR δ 1.12 (d, J = 7.4 Hz, 18H), 1.43–1.51 (m, 3H), 6.76–6.77 (m, 1H), 6.81–6.83 (m, 1H), 7.33 (s, 1H), 7.96 (d, J = 8.7 Hz, 2H), 8.32 (d, J = 8.7 Hz, 2H); ^{13}C NMR δ 11.4, 17.6, 112.2, 123.4, 126.1, 126.2, 129.6, 132.3, 145.6, 149.3, 188.8. Anal. Calcd for $\text{C}_{20}\text{H}_{28}\text{N}_2\text{O}_3\text{Si}$: C, 64.48; H, 7.58; N, 7.52. Found: C, 64.84; H, 7.88; N, 7.46.

[4-(Diethylamino)phenyl][1-(triisopropylsilyl)-1*H*-pyrrol-3-yl]methanone (7c): yellow prisms (from hexanes); mp 103–104 °C; yield, 90%; ^1H NMR δ 1.11 (d, J = 7.4 Hz, 18H), 1.20 (t, J = 7.1 Hz, 6H), 1.42–1.50 (m, 3H), 3.42 (q, J = 7.1 Hz, 4H), 6.66 (d, J = 8.9 Hz, 2H), 6.76–6.80 (m, 2H), 7.33 (s, 1H), 7.87 (d, J = 8.9 Hz, 2H); ^{13}C NMR δ 11.4, 12.5, 17.6, 44.3, 109.9, 112.4, 124.7, 126.6, 127.1, 130.3, 131.7, 150.2, 189.2. Anal. Calcd for $\text{C}_{24}\text{H}_{38}\text{N}_2\text{OSi}$: C, 72.31; H, 9.61; N, 7.03. Found: C, 72.71; H, 10.08; N, 6.94.

2-Furyl[1-(triisopropylsilyl)-1*H*-pyrrol-3-yl]methanone (7d): yellow prisms (from hexanes); mp 76–77 °C; yield, 89%; ^1H NMR δ 1.13 (d, J = 7.5 Hz, 18H), 1.45–1.53 (m, 3H), 6.55 (dd, J = 4.5, 1.7 Hz, 1H), 6.77–6.79 (m, 1H), 6.99 (d, J = 1.5 Hz, 1H), 7.27 (d, J = 3.0 Hz, 1H), 7.62 (d, J = 0.7 Hz, 1H), 7.73 (s, 1H); ^{13}C NMR δ 11.5, 17.6, 111.8, 111.9, 116.9, 125.2, 125.8, 131.4, 145.2, 154.1, 176.6. Anal. Calcd for $\text{C}_{18}\text{H}_{27}\text{NO}_2\text{Si}$: C, 68.09; H, 8.57; N, 4.41. Found: C, 68.52; H, 9.40; N, 4.34.

2-Pyridinyl[1-(triisopropylsilyl)-1*H*-pyrrol-3-yl]methanone (7e): reddish plates (from hexanes); mp 82–83 °C; yield, 54%; ¹H NMR δ 1.13 (d, *J* = 7.5 Hz, 18H), 1.44–1.55 (m, 3H), 6.76–6.78 (m, 1H), 7.08–7.09 (m, 1H), 7.39–7.44 (m, 1H), 7.84 (t, *J* = 7.8 Hz, 1H), 8.06–8.09 (m, 2H), 8.69–8.71 (m, 1H); ¹³C NMR δ 11.5, 17.7, 113.0, 123.6, 124.9, 125.6, 134.4, 136.7, 148.3, 156.5, 187.2. Anal. Calcd for C₁₉H₂₈N₂OSi: C, 69.46; H, 8.59; N, 8.53. Found: C, 69.62; H, 8.90; N, 8.49.

1*H*-Pyrrol-2-yl[1-(triisopropylsilyl)-1*H*-pyrrol-3-yl]methanone (7g): white needles (from hexanes); mp 115–116 °C; yield, 78%; ¹H NMR δ 1.12 (d, *J* = 7.4 Hz, 18H), 1.42–1.55 (m, 3H), 6.30–6.33 (m, 1H), 6.78–6.80 (m, 1H), 6.89 (br s, 1H), 6.98 (br s, 1H), 7.06 (br s, 1H), 7.54 (s, 1H), 9.85 (br s, 1H); ¹³C NMR δ 11.5, 17.7, 110.3, 111.5, 115.6, 123.3, 125.2, 126.4, 129.9, 132.3, 179.0. Anal. Calcd for C₁₈H₂₈N₂OSi: C, 68.30; H, 8.92; N, 8.85. Found: C, 68.53; H, 9.25; N, 8.82.

(4-Methylphenyl)(1*H*-pyrrol-3-yl)methanone (8a). To a solution of (4-methylphenyl)[1-(triisopropylsilyl)-1*H*-pyrrol-3-yl]methanone (**7a**) (0.100 g, 0.29 mmol) in dry THF (2 mL), tetra-*n*-butylammonium fluoride (0.078 g, 0.30 mmol) was added at 25 °C. After 5 min. stirring, THF was evaporated under reduced pressure and the residue was dissolved in ethyl acetate. Aqueous work-up followed by recrystallization gave (4-methylphenyl)(1*H*-pyrrol-3-yl)methanone (**8a**) in 98 % yield as white microcrystals (from toluene/hexanes); mp 127–128 °C (Lit.³⁶ mp 130 °C); ¹H NMR δ 2.42 (s, 3H), 6.75 (s, 1H), 6.81 (d, *J* = 1.9 Hz, 1H), 7.26 (d, *J* = 8.0 Hz, 2H), 7.33 (s, 1H), 7.75 (d, *J* = 8.0 Hz, 2H), 9.20 (br s, 1H); ¹³C NMR δ 21.5, 110.4, 119.4, 124.7, 125.5, 128.8, 129.1, 137.2, 142.0, 191.1.

(1*H*-Indol-3-yl)(4-methylphenyl)methanone (10a): white microcrystals (from ethanol); mp 179–180 °C (Lit.³⁰ mp 179–181 °C); yield, 92%; ¹H NMR δ 2.42 (s, 3H), 7.24–7.30 (m, 4H),

7.37–7.40 (m, 1H), 7.60 (d, $J = 3.0$ Hz, 1H), 7.72 (d, $J = 8.0$ Hz, 2H), 8.39–8.42 (m, 1H), 9.61 (br s, 1H); ^{13}C NMR δ 21.5, 111.6, 116.8, 122.2, 122.6, 123.8, 126.4, 128.9, 129.0, 134.2, 136.5, 137.8, 141.9, 191.8.

1*H*-Indol-3-yl(4-nitrophenyl)methanone (10b):³¹ yellow microcrystals (from ethanol); mp 232–233 °C; yield, 66%; ^1H NMR (DMSO- d_6) δ 7.26–7.30 (m, 2H), 7.53–7.58 (m, 1H), 8.00–8.02 (m, 3H), 8.24 (m, 1H), 8.37 (d, $J = 8.0$ Hz, 2H), 12.2 (br s, 1H); ^{13}C NMR (DMSO- d_6) δ 112.4, 114.8, 121.4, 122.4, 123.5, 123.7, 126.0, 129.6, 136.8, 136.9, 146.0, 148.7, 188.2.

[4-(Diethylamino)phenyl](1*H*-indol-3-yl)methanone (10c): yellow microcrystals (from ethanol); mp 249–250 °C; yield, 66%; ^1H NMR δ 1.14(t, $J = 7.0$ Hz, 6H), 3.42 (q, $J = 7.0$ Hz, 4H), 6.73 (d, $J = 8.9$ Hz, 2H), 7.16–7.25 (m, 2H), 7.50 (d, $J = 7.2$ Hz, 1H), 7.73 (d, $J = 8.9$ Hz, 2H), 7.93 (d, $J = 2.9$ Hz, 1H), 8.20 (d, $J = 7.0$ Hz, 1H), 11.9 (s, 1H); ^{13}C NMR δ 12.4, 43.8, 110.2, 112.0, 115.3, 121.2, 121.5, 122.6, 126.5, 126.7, 131.0, 133.4, 136.5, 149.9, 188.1. Anal. Calcd for $\text{C}_{19}\text{H}_{20}\text{N}_2\text{O}$: C, 78.05; H, 6.89; N, 9.58. Found: C, 77.86; H, 6.99; N, 9.53.

2-Furyl(1*H*-indol-3-yl)methanone (10d):^{10b} white microcrystals (from ethanol); mp 181–182 °C; yield, 64%; ^1H NMR δ 6.57–6.59 (m, 1H), 7.28–7.36 (m, 3H), 7.43–7.46 (m, 1H), 7.61 (s, 1H), 8.41 (s, 1H), 8.54–8.57 (m, 1H), 9.15 (br s, 1H); ^{13}C NMR δ 111.4, 112.1, 115.6, 116.6, 122.6, 122.8, 123.9, 126.7, 133.2, 135.9, 145.0, 154.3, 176.8.

1*H*-Indol-3-yl(2-pyridinyl)methanone (10e): white prisms (from benzene); mp 187–188 °C (Lit.³² mp 189–190 °C); yield, 73%; ^1H NMR (DMSO- d_6) δ 7.24–7.28 (m, 2H), 7.53–7.56 (m, 1H), 7.60–7.64 (m, 1H), 8.02–8.04 (m, 2H), 8.40–8.42 (m, 1H), 8.76 (d, $J = 7.7$ Hz, 1H), 8.84 (s, 1H), 12.1 (br s, 1H); ^{13}C NMR (DMSO- d_6) δ 112.2, 113.7, 121.7, 122.1, 122.9, 123.0, 126.1, 126.9, 136.1, 137.4, 137.9, 148.5, 156.2, 186.1.

1*H*-Indol-2-yl(1*H*-indol-3-yl)methanone (10f): brownish microcrystals (from chloroform/hexanes); mp 258–260 °C (Lit.³³ mp 260–261 °C); yield, 86%; ¹H NMR (DMSO-*d*₆) δ 7.09 (t, *J* = 7.2 Hz, 1H), 7.12–7.29 (m, 3H), 7.36 (d, *J* = 1.4 Hz, 1H), 7.50–7.56 (m, 2H), 7.72 (d, *J* = 8.0 Hz, 1H), 8.30–8.34 (m, 1H), 8.48 (d, *J* = 3.1 Hz, 1H), 11.8 (s, 1H), 12.1 (s, 1H); ¹³C NMR (DMSO-*d*₆) δ 107.1, 112.1, 112.4, 114.9, 119.8, 121.4, 121.6, 122.1, 122.9, 124.2, 126.3, 127.2, 133.7, 136.2, 136.4, 137.0, 180.4.

1*H*-Indol-3-yl(1*H*-pyrrol-2-yl)methanone (10g): reddish plates (from chloroform/hexanes); mp 226–228 °C; yield, 15%; ¹H NMR (DMSO-*d*₆) δ 6.24 (br s, 1H), 7.02 (br s, 1H), 7.08 (br s, 1H), 7.09–7.25 (m, 2H), 7.50 (d, *J* = 8.2 Hz, 1H), 8.25–8.27 (m, 2H), 11.8 (br s, 1H), 11.9 (br s, 1H); ¹³C NMR (DMSO-*d*₆) δ 109.4, 111.9, 114.7, 114.8, 121.1, 121.4, 122.6, 123.6, 126.5, 131.9, 132.1, 136.3, 178.5. Anal. Calcd for C₁₃H₁₀N₂O: C, 74.27; H, 4.79; N, 13.32. Found: C, 74.05; H, 4.66; N, 13.30.

(1-Methyl-1*H*-indol-3-yl)(4-methylphenyl)methanone (12a):³⁴ reddish needles (from ethanol); mp 139–140 °C; yield, 92%; ¹H NMR δ 2.42 (s, 3H), 3.80 (s, 3H), 7.26 (d, *J* = 7.9 Hz, 2H), 7.31–7.33 (m, 3H), 7.50 (s, 1H), 7.71 (d, *J* = 7.9 Hz, 2H), 8.39–8.43 (m, 1H); ¹³C NMR δ 21.5, 33.4, 109.5, 115.6, 122.5, 122.6, 123.4, 127.2, 128.8, 128.9, 137.4, 137.5, 138.1, 141.5, 190.6.

(1-Methyl-1*H*-indol-3-yl)(4-nitrophenyl)methanone (12b): white prisms (from ethanol); mp 183–184 °C; yield, 74%; ¹H NMR (DMSO-*d*₆) δ 3.88 (s, 3H), 7.30–7.38 (m, 2H), 7.59 (d, *J* = 8.1 Hz, 1H), 7.98 (d, *J* = 8.6 Hz, 2H), 8.04 (s, 1H), 8.29 (d, *J* = 7.0 Hz, 1H), 8.35 (d, *J* = 8.6 Hz, 2H); ¹³C NMR (DMSO-*d*₆) δ 33.3, 110.9, 113.6, 121.6, 122.7, 123.5, 123.6, 126.4, 129.5, 137.5, 140.4, 145.9, 148.6, 187.6. Anal. Calcd for C₁₆H₁₂N₂O₃: C, 68.56; H, 4.32; N, 9.99. Found: C, 68.37; H, 4.22; N, 9.82.

[4-(Diethylamino)phenyl](1-methyl-1*H*-indol-3-yl)methanone (12c): yellowish needles (from chloroform/hexanes); mp 115–116 °C; yield, 79%; ¹H NMR δ 1.20 (t, *J* = 7.1 Hz, 6H), 3.41 (q, *J* = 7.1 Hz, 4H), 3.79 (s, 3H), 6.66 (d, *J* = 8.9 Hz, 2H), 7.27–7.33 (m, 3H), 7.55 (s, 1H), 7.82 (d, *J* = 8.9 Hz, 2H), 8.34–8.37 (m, 1H); ¹³C NMR δ 12.5, 33.3, 44.4, 109.3, 110.1, 115.8, 121.8, 122.6, 123.0, 127.2, 127.5, 131.4, 136.0, 137.2, 150.2, 189.1. Anal. Calcd for C₂₀H₂₂N₂O: C, 78.40; H, 7.24; N, 9.14. Found: C, 78.18; H, 7.37; N, 9.13.

2-Furyl(1-methyl-1*H*-indol-3-yl)methanone (12d): yellowish prisms (from chloroform/hexanes); mp 124–125 °C; yield, 90%; ¹H NMR δ 3.80 (s, 3H), 6.54 (dd, *J* = 3.4, 1.6 Hz, 1H), 7.27–7.33 (m, 4H), 7.57 (s, 1H), 8.17 (s, 1H), 8.52–8.55 (m, 1H); ¹³C NMR δ 33.5, 109.5, 111.9, 113.8, 116.0, 122.6, 122.7, 123.4, 127.5, 136.9, 137.2, 144.6, 154.5, 176.0. Anal. Calcd for C₁₄H₁₁NO₂: C, 74.65; H, 4.92; N, 6.22. Found: C, 74.46; H, 4.83; N, 6.14.

(1-Methyl-1*H*-indol-3-yl)(2-pyridinyl)methanone (12e): reddish microcrystals (from ethanol); mp 107–108 °C; yield, 70%; ¹H NMR δ 3.84 (s, 3H), 7.33–7.36 (m, 3H), 7.40–7.45 (m, 1H), 7.83–7.89 (m, 1H), 8.16 (d, *J* = 7.7 Hz, 1H), 8.60–8.63 (m, 1H), 8.68–8.71 (m, 2H); ¹³C NMR δ 33.5, 109.5, 113.7, 122.8, 122.9, 123.3, 123.5, 125.6, 128.1, 136.9, 137.0, 140.5, 148.0, 156.7, 186.2. Anal. Calcd for C₁₅H₁₂N₂O: C, 76.25; H, 5.12; N, 11.86. Found: C, 75.95; H, 5.01; N, 11.76.

1*H*-Indol-2-yl(1-methyl-1*H*-indol-3-yl)methanone (12f): yellowish microcrystals (from ethyl acetate/hexanes); mp 185–186 °C; yield, 27%; ¹H NMR δ 3.88 (s, 3H), 7.13–7.20 (m, 2H), 7.29–7.37 (m, 4H), 7.51 (d, *J* = 8.4 Hz, 1H), 7.72 (d, *J* = 8.0 Hz, 1H), 7.98 (s, 1H), 8.49–8.52 (m, 1H), 9.85 (br s, 1H); ¹³C NMR δ 33.6, 107.9, 109.7, 112.2, 115.3, 120.6, 122.5, 122.6, 123.6, 125.2, 127.2, 127.8, 135.9, 136.2, 136.9, 137.4, 180.7. Anal. Calcd for C₁₈H₁₄N₂O: C, 78.81; H, 5.14; N, 10.21. Found: C, 78.67; H, 5.29; N, 10.02.

(1-Methyl-1*H*-indol-3-yl)(1*H*-pyrrol-2-yl)methanone (12g): yellowish microcrystals (from chloroform/hexanes); mp 130–131 °C; yield, 48%; ¹H NMR δ 3.87 (s, 3H), 6.31–6.34 (m, 1H), 6.95 (br s, 1H), 7.10 (br s, 1H), 7.28–7.37 (m, 3H), 7.86 (s, 1H), 8.40–8.43 (m, 1H), 10.0 (br s, 1H); ¹³C NMR δ 33.5, 109.5, 110.2, 114.9, 115.0, 122.2, 122.5, 123.2, 123.3, 127.3, 132.4, 134.9, 137.3, 178.9. Anal. Calcd for C₁₄H₁₂N₂O: C, 74.98; H, 5.39; N, 12.49. Found: C, 74.87; H, 5.43; N, 12.37.

INDEX	FREQUENCY	PPM	HEIGHT
1	3020.261	10.065	21.1
2	2904.890	9.681	38.4
3	2324.598	7.747	88.9
4	2316.632	7.720	95.6
5	2297.932	7.458	85.9
6	2229.554	7.430	141.6
7	2226.258	7.419	152.6
8	2203.458	7.343	64.2
9	2196.316	7.319	162.0
10	2184.092	7.279	17.8
11	2173.517	7.244	73.8
12	2153.739	7.178	73.0
13	2145.773	7.151	136.8
14	2142.476	7.140	120.9
15	2139.592	7.130	108.3
16	1920.661	6.401	47.9
17	1918.326	6.393	85.4
18	1914.618	6.381	79.2
19	1912.283	6.373	38.8
20	376.880	1.256	40.6
21	-0.000	-0.000	83.9