Selective reduction and dehydrogenation of 6-benzylideneoctahydropyrrolo[1,2-*a*]pyrimidines and 5-benzylidenehexahydropyrrolo[1,2-*a*]imidazoles as new approaches to *N*-(ω-aminoalkyl)pyrrolidines and bicyclic amidines

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N-*[3-(2-Benzyl-4,4-dimethylpyrrolidin-1-yl)propyl]*-N-*methylamine* **2c** was obtained from aminal **1c** in 83% yield. ^{1}H NMR, δ: 0.91 (s, 3H, CH$_3$), 1.04 (s, 3H, CH$_3$), 1.33 (dd, 1H, CHCH$\underline{H}$CMe$_2$, ^2J=12.7 Hz, ^3J=8.4 Hz), 1.45 (dd, 1H, CHC$\underline{H}$HCMe$_2$, ^2J=12.7 Hz, ^3J=7.2 Hz), 1.55-1.75 (m, 2H, NCH$_2$C$\underline{H}_2$CH$_2$NH$_2$), 1.93 (d, 1H, NC$\underline{H}$HCMe$_2$, J=9.1 Hz), 2.02 (br. s, 1H, NH), 2.16 (ddd, 1H, NCH$\underline{H}$(CH$_2$)$_2$NHMe), ^2J=11.7 Hz, ^3J=7.2 Hz, ^3J=5.1 Hz), 2.40 (dd, 1H, PhC$\underline{H}$H, ^2J=12.5 Hz, ^3J=9.4 Hz), 2.41 (s, 3H, NH$\underline{Me}$); 2.48-2.62 (m, 1H, PhCH$_2$C$\underline{H}$), 2.61 (t, 2H, C$\underline{H}_2$NHCH$_3$, J=6.7 Hz), 2.82-2.96 (m, 1H, NCH$\underline{H}$(CH$_2$)$_2$NHCH$_3$), 2.92 (d, 1H, NC$\underline{H}$HCMe$_2$, J=9 Hz), 3.00 (dd, 1H, PhC$\underline{H}$H, J=12.5 Hz, J=3.6 Hz), 7.05-7.30 (m, 5H, Ph). ^{13}C NMR, δ: 28.5 (NCH$_2$$\underline{C}H_2CH_2$N); 29.1 (CH$_3$); 30.3 (CH$_3$); 35.6 ($\underline{C}Me_2$); 36.5 (NCH$_3$); 41.1 ($\underline{C}H_2$Ph); 46.3 (C-3, *cyclo*-C$_4$N); 51.1 ($\underline{C}$H$_2$NMe); 53.2 (NCH$_2$); 66.9 (C-2, *cyclo*-C$_4$N); 68.3 (C-5, *cyclo*-C$_4$N)); 125.9, 128.1, 129.2 (Ph); 140.0 (C-1, Ph). Mass spectrum, *m/z* (%): 169 ([M-CH$_2$Ph]$^+$, 27), 112 ([M-CH$_2$Ph-C$_3$H$_7$N]$^+$, 100), 44 ([C$_2$H$_6$N]$^+$, 8). Found (%): C, 78.51; H, 10.60; N, 10.41. Calculated for C$_{17}$H$_{28}$N$_2$ (%): C, 78.41; H, 10.84; N, 10.76.

[3-(2-Benzylpyrrolidin-1-yl)propyl]amine **2e** was obtained from aminal **1d** in 88% yield. ^{1}H NMR, δ: 1.35-1.75 (m, 8H, CHC$\underline{H}_2$C$\underline{H}_2$, NCH$_2$C$\underline{H}_2$CH$_2$N$\underline{H}_2$); 2.0-2.23 (m, 2H); 2.34-2.53 (m, 2H); 2.71 (t, 2H, C$\underline{H}_2$NH$_2$, J=6.8 Hz); 2.80-3.03 (m, 2H); 3.09-3.20 (m, 1H). ^{13}C NMR, δ: 21.7 (C-4, *cyclo*-C$_4$N); 30.2 (NCH$_2$$\underline{C}H_2CH_2$N); 32.4 (C-3, *cyclo*-C$_4$N); 40.7, 40.9 ($\underline{C}H_2Ph, CH_2NH_2$); 52.4 (NCH$_2$); 54.0 (C-5, cyclo-C$_4$N); 66.3 (C-2, *cyclo*-C$_4$N); 125.7, 128.0, 129.0 (Ph); 139.9 (C-1, Ph). Mass spectrum, *m/z* (%): 127 ([M-CH$_2$Ph]$^+$, 42), 84 ([M-CH$_2$Ph-C$_3$H$_7$N]$^+$. Found (%): C, 77.35; H, 9.95; N, 12.54. Calculated for C$_{14}$H$_{22}$N$_2$ (%): C, 77.01; H, 10.16; N, 12.83.

N-*[3-(2-Benzylpyrrolidin-1-yl)propyl]*-N-*methylamine* **2f** was obtained from aminal **1e** in 80% yield. ^{1}H NMR, δ: 1.40-1.78 (m, 7H, CHC$\underline{H_2}$C$\underline{H_2}$, NCH$_2$C$\underline{H_2}$CH$_2$N$\underline{H}$CH$_3$); 2.05-2.28 (m, 2H); 2.35-2.55 (m, 2H); 2.41 (s, 3H, NCH$_3$); 2.62 (t, 2H, C$\underline{H_2}$NHCH$_3$, J=6.8 Hz); 2.85-3.05 (m, 2H); 3.15-3.26 (m, 1H). ^{13}C NMR, δ: 21.9 (C-4, *cyclo*-C$_4$N); 28.8 (NCH$_2$$\underline{C}H_2CH_2$N); 30.3 (C-3, *cyclo*-C$_4$N); 36.5 (NCH$_3$); 40.9 ($\underline{C}H_2$Ph); 50.8, 53.1 (N$\underline{C}H_2CH_2$$\underline{C}H_2NCH_3$); 54.1 (C-5, *cyclo*-C$_4$N); 66.4 (C-2, *cyclo*-C$_4$N); 125.8, 128.1, 129.1 (Ph); 139.9 (C-1, Ph). Mass spectrum, *m/z* (%): 141 ([M-CH$_2$Ph]$^+$, 31), 84 ([M-CH$_2$Ph-C$_3$H$_7$N]$^+$, 100), 44 ([C$_2$H$_6$N]$^+$, 10). Found (%): C, 77.59; H, 10.19; N, 12.25. Calculated for C$_{15}$H$_{24}$N$_2$ (%): C, 77.53; H, 10.41; N, 12.06.