A SYNTHESIS OF (±)-3-HYDROXYHOMOAPORPHINES

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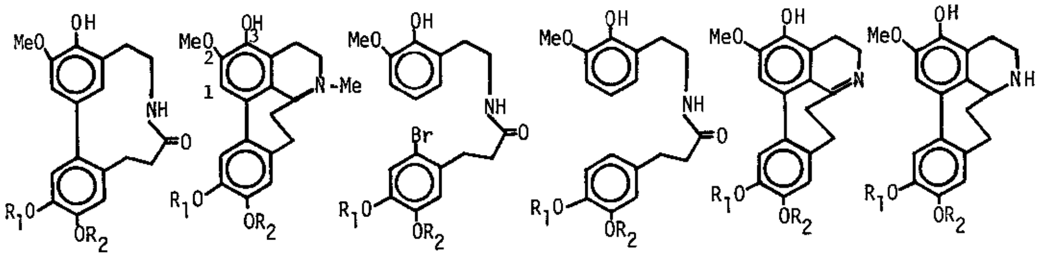
In the course of our studies on photochemical reaction of a phenolic N-(β-phenethyl) phenylpropionamide, we found that the photocyclization gave useful key compounds(1) for synthesis of (±)-3-hydroxyhomoaporphines(2).

A methanolic solution of amide(3a) or (3b) in the presence of KOH under N_2 was irradiated at 0-5°C by a 200W high pressure mercury lamp for 1-2 hr to give a lactam(1a) (mp 265-267°C, 40.1%) [NMR($CDCl_3$)δ:6.33, 6.60(each 1H, d, J=3.2Hz, Ar-H), 6.70, 6.80(each 1H, s, Ar-H); MS: m/z 357(M^+)] or (1b) (mp 281-284°C, 43.5%) [NMR($CDCl_3$)δ:6.28, 6.56(each 1H, d, J=3.2Hz, Ar-H), 6.67, 6.68(each 1H, s, Ar-H); MS: m/z 341(M^+)] and a debrominated amide(4a) (32.8%) or (4b) (37.4%), respectively. Bischler-Napieralski reaction ($POCl_3$,CH_3CN, reflux) of 1a gave 6,6a-dehydrohomoaporphine(5a) (oil, 61.6%) [NMR($CDCl_3$)δ:6.60, 6.64, 6.72(each 1H, s, Ar-H); MS: m/z 339(M^+)], reduction of which with $NaBH_4$ in MeOH afforded N-norhomoaporphine (6a) (oil, 86.8%) [NMR($CDCl_3$)δ:6.60, 6.62, 6.70(each 1H, s, Ar-H)]. N-Methylation (CH_2O-MeOH;$NaBH_4$) of 6a gave 2a(oil) [NMR($CDCl_3$)δ:2.31(3H, s, N-CH_3) 6.58, 6.60, 6.68(each 1H, s, Ar-H)] in good yield. Attempts to synthesize some (±)-3-hydroxyhomoaporphines by the present method will be described.



1 2 3 4 5 6

a: R_1=R_2=Me
b: R_1+ R_2=-CH_2-