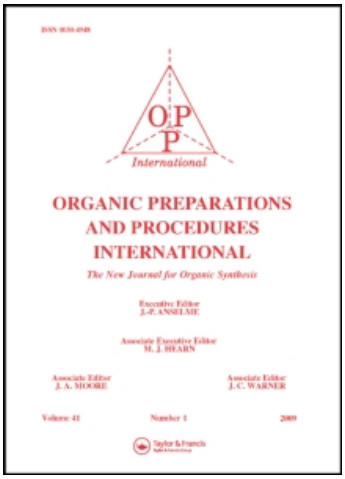

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REDUCTIVE ALKYLATION OF ANILINE WITH 2-INDANONE AND 2-TETRALONE

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OPPI BRIEFS

REDUCTIVE ALKYLATION OF ANILINE WITH 2-INDANONE AND 2-TETRALONE

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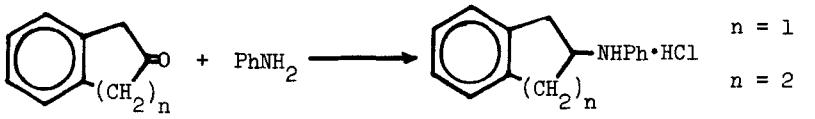
N-(2-Indanyl)aniline hydrochloride(IIa) and 1,2,3,4-tetrahydro-N-phenyl-2-naphthylamine hydrochloride(IIb), important intermediates in the synthesis of local anesthetics and antiarrhythmic drugs,[1,2] have been pre-



I II

pared by reductive alkylation of aniline with the appropriate ketone I as a direct route to II.[3] A wide variety of solvent, catalyst and temperature parameters were studied. It was only when aniline was used as both reactant and solvent that consistently good yields of II were obtained.

EXPERIMENTAL

Melting points are uncorrected. NMR spectra were determined at 60 MHz on a Varian HA60 spectrometer.

N-(2-Indanyl)aniline hydrochloride(IIa).- A mixture of 2-indanone (13.2 g., 0.1 mole), 180 ml of aniline and 6 g. of 5% Pd/C catalyst in a 500 ml

hydrogenation vessel was hydrogenated at an initial hydrogen pressure of 60 psi (Parr apparatus) at room temperature until theoretical uptake of hydrogen was complete (2.5 hrs.). The catalyst was removed by filtration and the reaction vessel and catalyst washed with 100 ml of $CHCl_3$. The filtrate and washings were stirred for 15 min. in a mixture of 200 ml of conc. HCl and 800 ml of water. The $CHCl_3$ layer was separated and the aqueous layer extracted twice with 100 ml portions of $CHCl_3$. The $CHCl_3$ extracts were dried over $MgSO_4$ and concentrated to a residue that crystallized upon addition of 100 ml of acetone. The acetone slurry was cooled to 5° and the crystals collected, washed with cold acetone and air dried to provide 20.2 g of white crystals. Recrystallization from ethanol-ether gave 17.6 g (72%) of IIa, mp. 174-176°, lit.[1] 175-180°; tlc (SiO_2, EtOAc, I_2) one spot; NMR ($CDCl_3$): δ2.8-4.5 (aliphatic, 5H), 6.9-7.9 (aromatic, 9H), 11.7 (HCl + NH,2H). Mass spectrum: M^+=m/e 209 (98%), base peak m/e 104.

Anal. Calcd. for $C_{15}H_{16}NCl$: C, 73.31, H, 6.56; N, 5.70.
Found: C, 73.05; H, 6.38; N, 5.54.

1,2,3,4-Tetrahydro-N-phenyl-2-naphthylamine hydrochloride(IIb) was similarly obtained from hydrogenation of 14.5 g (0.1 mole) of 2-tetralone (Ib) with 180 ml of aniline (overnight). After work up 23 g of crude IIb was obtained. Recrystallization from ethanol-ether provided 14 g (54%) of white crystals, mp. 187-189°, lit.[2] 193-196°; tlc (SiO_2, EtOAc, I_2) one spot; NMR ($CDCl_3$): δ1.8-4.0 (aliphatic, 7H), 6.8-7.9 (aromatic, 9H), 11.7 (HCl + NH,2H). Mass spectrum: M^+=m/e 223 (80%), base peak m/e 132.

Anal. Calcd. for $C_{16}H_{18}NCl$: C, 73.98; H, 6.98; N, 5.39.
Found: C, 73.82; H, 7.34; N, 5.25.

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3. IIa and IIb are most commonly prepared by the reduction of I to the corresponding alcohols which are then converted to the mesylate. Reaction of the mesylates with an excess of aniline provides IIa and IIb.[1,2]

SULTAMO - STEROIDS II†

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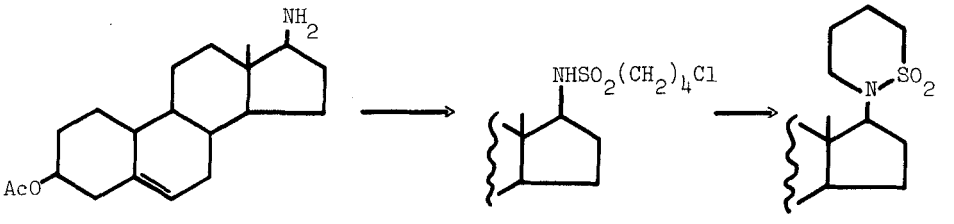
Further syntheses in the sultamo steroids are reported.[1] Cyclization of II to III occurred without racemization.[2] III showed the characteris-



I II III

tic sultam band[3] at 1290 cm^{-1} and SO_2 absorptions at 1330 and 1130 cm^{-1} while II displayed absorptions at 1350 and 1150 cm^{-1} (SO_2). The nmr spectrum of III showed two singlets for the two angular methyl groups at