INTRODUCTION OF THE PHENANTHRIDINE RESIDUE INTO NUCLEOPHILIC ORGANIC COMPOUNDS

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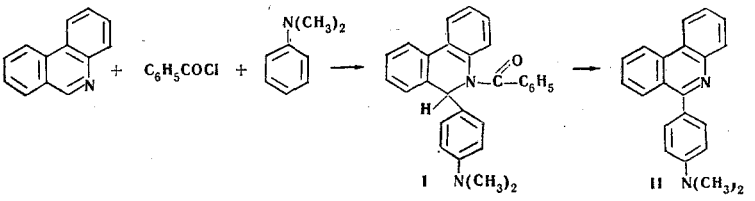
Existing methods for the preparation of 6-substituted phenanthridines from o-aminobiphenyl are inconvenient as a result of the inaccessibility of the latter. We have developed a very simple method for the preparation of these derivatives by reaction of phenanthridine, which is an unsaleable by-product of the coking process, with nucleophilic organic compounds, in the presence of acyl halides.

Thus, on heating phenanthridine with dimethylaniline and benzoyl chloride, 5-benzoyl-6-p-dimethylaminophenyl-5, 6-dihydrophenanthridine (I) was obtained in high yield. Alkaline hydrolysis of this afforded the known 6-p-dimethylaminophenylphenanthridine (II) [1].



Similarly, the phenanthridine residue was readily introduced into the activated aromatic rings of 1-alkyl-1, 2, 3, 4-tetrahydroquinolines, 1-alkyl-2, 3-dihydroindoles, and into the molecules of nucleophilic five-membered heterocycles and ketones.

The yields and properties of the compounds obtained are given in Table 1.

TABLE 1

R	Mp, °C (solvent)	Molecular formula	Found, % C	Found, % H	Found, % N	Calculated, % C	Calculated, % H	Calculated, % N	Yield, %
p-$C_6H_4N(CH_3)_2$	184—185 C_2H_5OH: petroleum ether, 5:1)	$C_{28}H_{24}N_2O$	82,92	6,06	6,74	83,13	5,98	6,93	65
1-CH_3-1,2,3,4-tetrahydro-6-quinolyl	184—186 isoamyl alcohol	$C_{30}H_{26}N_2O$	83,71	6,58	6,31	83,69	6,09	6,50	60
1-CH_3-2,3-dihydro-5-indolyl	115—116 amyl alcohol	$C_{29}H_{24}N_2O$	83,19	5,93	6,71	83,62	5,81	6,72	62
$C_6H_5CCH_2$ ‖ O	149—150 ethanol	$C_{28}H_{21}NO_2$	82,96	5,26	3,96	83,35	5,25	3,47	17
CH_2C ‖ O (S)	209—210 ethanol	$C_{26}H_{19}NO_2S$	76,4	5,0	3,50	76,26	4,67	3,43	15

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LITERATURE CITED

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