SYNTHESIS OF 1,2,3,4-TETRAHYDROIMIDAZO[1,2-c]-1,2,4-TRIAZINES

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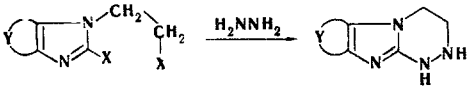
We found that tetrahydro derivatives of imidazotriazines (II-IV) are formed when N-(2-haloethyl)-2-haloimidazoles (benzimidazoles and naphth[1,2-b]-imidazoles) (Ia-c) are heated with hydrazine hydrate in an organic solvent.



I a,b,c

X = Cl, Br

II-IV

EXPERIMENTAL

1,2,3,4-Tetrahydro-6,7-diphenylimidazo[1,2-c]-1,2,4-triazine (II). This compound, with mp 238-240° (from alcohol), was obtained in 45% yield by heating 1-(2-chloroethyl)-2-bromo-4,5-diphenylimidazole in a sealed ampul with excess 85% hydrazine hydrate in alcohol at 180-190°. IR spectrum (in KBr), cm^{-1}: 3270, 3400 (NH); 1500, 1605 (aromatic ring C=C bond).

1,2,3,4-Tetrahydro-1,2,4-triazino[4,3-a]benzimidazole (III). This compound with mp 223-225° (dec., from methanol), was similarly obtained in 76% yield from 1-(2-chloroethyl)-2-chlorobenzimidazole at 150-160°. IR spectrum (in KBr), cm^{-1}: 3230 (NH); 1465, 1530, 1580 (aromatic ring C=C bonds); 1610 (C=N). The PMR spectrum of a trifluoroacetic acid solution contains two triplets at 3.90 and 4.40 (CH_2CH_2) and a singlet at 7.20 ppm (C_6H_5).

1,2,3,4-Tetrahydronaphth[1,2-d]imidazo[3,2-c]-1,2,4-triazine (IV). This compound, with mp 167-168° (dec., from aqueous alcohol), was similarly obtained in 58% yield from 3-(2-chloroethyl)-2-chloronaphth[1,2-d]imidazole at 160-170°. IR spectrum (in KBr), cm^{-1}: 3150 (NH); 1465, 1545, and 1575 (aromatic ring C=C bonds).

All of the compounds obtained were characterized by analysis for C, H, and N.

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