SYNTHESIS OF 5-CARBETHOXY-6-METHYLTHIENO[3,2-b]PYRROLE

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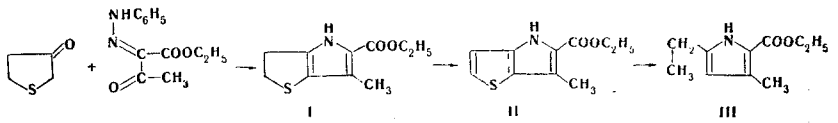
We have found that a substituted 2,3-dihydrothieno[3,2-b]pyrrole (I) is formed in 50% yield in the reduction of a mixture of phenylazoacetoacetic ester and 3-thiophenone with zinc dust in acetic acid. The dehydrogenation of I with chloranil gives thieno[3,2-b]pyrrole (II), which is an isostere of indole.

The known 2-ethyl-4-methyl-5-carbethoxypyrrole (III) [1] is obtained in the desulfuration of I with Raney nickel. The proposed synthetic route makes it possible to obtain thieno[3,2-b]pyrroles that do not have substituents in the thiophene ring.



I II III

EXPERIMENTAL

2,3-Dihydro-5-carbethoxy-6-methylthieno[3,2-b]pyrrole (I). This compound was obtained in 50% yield and had mp 150-151°C (from methanol). Found,%: C 56.9; H 6.3; N 6.4; S 15.2. $C_{10}H_{13}NO_2S$. Calculated,%: C 56.8; H 6.2; N 6.6; S 15.2.

5-Carbethoxy-6-methylthieno[3,2-b]pyrrole (II). This compound was obtained in 63% yield and had mp 140-141° (from methanol). Found,%: C 57.3; H 5.4; N 6.7; S 15.4. $C_{10}H_{11}NO_2S$. Calculated,%: C 57.3; H 5.3; N 6.7; S 15.3. When II was heated with Raney nickel, III with mp 73-74° [1] was obtained in 78% yield.

LITERATURE CITED

1. H. Fischer and H. Orth, Chemie Des Pyrrols, Johnson (1969).

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