SYNTHESIS OF A NEW HETEROCYCLIC SYSTEM – THE THIONAPHTHENO[2,3-c]PYRYLIUM ION

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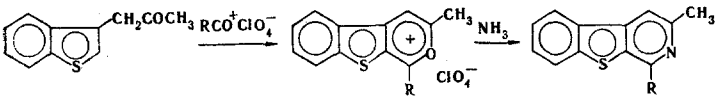
We have accomplished the synthesis of thionaphtheno[2,3-c]pyrylium salts by acylation of 3-acetonylthionaphthene with carboxylic acid anhydrides in the presence of perchloric acid.



The crystalline thionaphtheno[2,3-c]pyrylium perchlorates were isolated in 75-80% yields. They are converted to thionaphtheno[2,3-c]-pyridines by the action of ammonia. The latter are of interest in that they are isosteres of β-carbolines found in nature (the alkaloids harman and harmine) and have physiological activity. Preliminary tests have shown that they are actually of promise for the search for both active antidepressants and tranquilizers.

It should be noted that the thionaphtheno[2,3-c]pyrylium cation is a new heteroaromatic system.

EXPERIMENTAL

2,4-Dimethylthionaphtheno[2,3-c]pyrylium Perchlorate. This compound, with mp 194-195° (from alcohol), was obtained in 80% yield. Found, %: C 49.8; H 3.8; Cl 10.9; S 10.0. $C_{13}H_{11}ClO_5S$. Calculated, %: C 49.6; H 3.5; Cl 11.3; S 10.2. IR spectra: 1623, 1550, 1115, 790, 750, 630 cm^{-1}.

2-Ethyl-4-methylthionaphtheno[2,3-c]pyrylium Perchlorate. This compound, with mp 199-200° (from alcohol), was obtained in 75% yield. Found, %: C 50.7; H 3.7; Cl 10.6; S 9.7. $C_{14}H_{13}ClO_5S$. Calculated, %: C 51.2; H 3.9; Cl 10.7; S 9.8.

2,4-Dimethylthionaphtheno[2,3-c]pyridine. This compound, with mp 94-95°, was obtained in 95% yield. Found, %: C 72.6; H 5.4; N 6.4; S 15.3. $C_{13}H_{11}NS$. Calculated, %: C 73.2; H 5.2; N 6.6; S 15.0.

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