Chemistry of Heterocyclic Compounds, Vol. 38, No. 6, 2002

4,5,7,10-TETRAHYDRO[1,2]DITHIOLO-[3,4-*c*]PYRROLO[3,2,1-*ij*]QUINOLINE – A NEW HETEROCYCLIC SYSTEM

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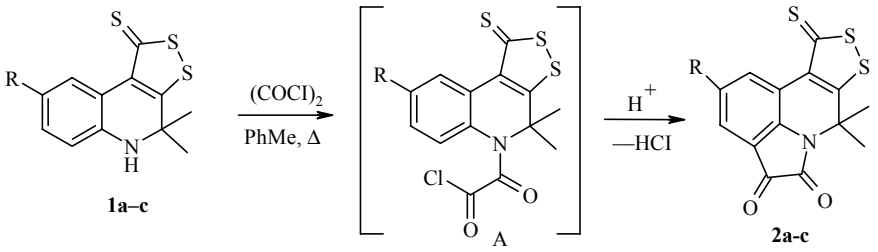
Keywords: 2,3-dithiolo[3,4-*c*]quinoline-1-thione, 4,5,7,10-tetrahydro[1,2,]dithiolo[3,2,1-*if*]quinoline, oxalyl chloride.

We have found that the acylation of 8-R-4,4-dimethyl-4,5-dihydro[1,2]dithiolo[3,4-*c*]quinoline-1-thiones (**1a-1c**) by oxalyl chloride, as in the case of acyl chlorides [1], proceeds exclusively at the nitrogen atom of the dihydroquinoline ring but is accompanied by spontaneous cyclization as in the Shtolle reaction. Derivatives of a new heterocyclic system, namely, 2-R-7,7-dimethyl-10-thioxo-4,5,7,10-tetrahydro[1,2]dithiolo[3,4-*c*]pyrrolo[3,2,1-*if*]quinoline-4,5-diones (**2a-c**) are obtained in 60-80% yield.



1a–c **2a-c**

1, **2 a** R = H, **b** R = Me, **c** R = OMe

This reaction does not require use of a Lewis acid commonly employed as a catalyst in the Shtolle synthesis [2, 3], probably because of the catalytic effect of hydrogen chloride liberated in the first reaction step.

7,7-Dimethyl-10-thioxo-4,5,7,10-tetrahydro[3,4-*c*]pyrrolo[3,2,1-*ij*]quinoline-4,5-dione (2a); mp 300-301°C. ^{1}H NMR spectrum (DMSO-d_6), δ, ppm: 2.12 (6H, s, CMe_2); 6.91 (1H, m, 2-CH arom); 7.11 (1H, m, 1-CH arom); 9.48 (1H, m, 3-CH arom). Mass spectrum, *m/z*: 319 [M^+]. Found, %: C 52.69; H 2.61; N 4.30; S 30.28. $C_{14}H_9NO_2S_3$. Calculated, %: C 52.60; H 2.82; N 4.38; S 30.05.

2,7,7-Trimethyl-10-thioxo-4,5,7,10-tetrahydro[3,4-*c*]pyrrolo[3,2,1-*ij*]quinoline-4,5-dione (2b); mp 254-256°C. ^{1}H NMR spectrum (DMSO-d_6), δ, ppm: 2.15 (6H, s, CMe_2); 2.38 (3H, s, Ar–Me); 6.97 (1H, s, 1-CH arom); 9.42 (1H, s, 3-CH arom). Mass spectrum, *m/z*: 333 [M^+]. Found, %: C 53.69; H 2.65; N 4.37; S 28.98. $C_{15}H_{11}NO_2S_3$. Calculated, %: C 53.98; H 3.30; N 4.20; S 28.79.

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2-Methoxy-7,7-dimethyl-10-thioxo-4,5,7,10-tetrahydro[3,4-*c*]pyrrolo[3,2,1-*ij*]quinoline-4,5-dione (2c); mp 278-279°C. ^{1}H NMR spectrum (DMSO-d_6), δ, ppm: 2.12 (6H, s, CMe_2); 3.82 (3H, s, OMe); 7.04 (1H, s, 1-CH arom); 9.50 (1H, s, 3-CH arom). Mass spectrum, *m/z*: 349 [M^+]. Found, %: C 51.67; H 3.41; N 4.23; S 27.78. $C_{15}H_{11}NO_3S_3$. Calculated, %: C 51.51; H 3.15; N 4.01; S 27.47.

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