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Effective ways the synthesis of pyrrolo[3,2,1-*ij*]quinoline-1,2-dione and the products of its oxidative transformations

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Abstract

Developed an effective way to obtain 5,6-dihydro-4*H*-pyrrolo[3,2,1-*ij*]quinoline-1,2-dione. With gradual addition of a solution of 1,2,3,4-tetrahydroquinoline to a solution of oxalyl chloride in toluene, followed by reflux for 1-1.5 h., Along with a simple acylation, cyclization proceeds at Stolle type of reaction, resulting in a mixture of 5.6-dihydro-4*H*-pyrrolo[3,2,1-*ij*]quinoline-1,2-dione and 1,1'-(1,2-dioxoethane-1,2-diyl)bis-1,2,3,4-tetrahydroquinoline in the ratio 3: 1. The resulting mixture was treated with an excess of 20% solution of NaOH, the insoluble by-product was separated, by acidification of the solution obtained by major product. The optimum conditions for the selective oxidation of the resulting pyrrolo[3,2,1-*ij*]quinoline-1,2-dione: at the last action of *meta*-chloroperbenzoic acid, a 6,7-dihydro-1*H*,5*H*-[1,3]oxazino[5,4,3-*ij*]quinoline-1,3-dione, and the action of sodium peroxodisulfate in sulfuric acid produced its isomer – 6,7-dihydro-1*H*,5*H*-[1,4]oxazino[2,3,4-*ij*] quinoline-2,3-dione.