

Reactions of 2-sulfanylethanol with mucochloric acid and its derivatives

Devyatova N., Kosolapova L., Kurbangalieva A., Berdnikov E., Lodochnikova O., Litvinov I., Chmutova G.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Mucochloric acid reacted with 2-sulfanylethanol in the presence of triethylamine to give 3-chloro-5-hydroxy-4-(2-hydroxyethylsulfanyl)furan-2(5H)-one which underwent acid-catalyzed cyclization to 7-chloro-2,3,4a,6-tetrahydrofuro[2,3-b][1,4]oxathiin-6-one. Likewise, reactions of 5-alkoxy-3,4-dichlorofuran-2(5H)-ones with 2-sulfanylethanol in the presence of triethylamine involved replacement of chlorine in position 4 of the furan ring with formation of the corresponding 4-(2-hydroxyethylsulfanyl) derivatives. The reaction of mucochloric acid with 2-sulfanylethanol in excess aqueous potassium hydroxide resulted in the formation of an acyclic product, 3-(2-hydroxyethylsulfanyl)-2-chloroprop-2-enoic acid. The structure of 7-chloro-2,3,4a,6-tetrahydrofuro[2,3-b][1,4]oxathiin-6-one and 3-(2-hydroxyethylsulfanyl)-2-chloroprop-2-enoic acid was proved by X-ray analysis. © 2008 MAIK Nauka.

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