

## Reactions of 2-mercaptoacetic acid with mucochloric acid and its derivatives

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

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

---

### Abstract

The stable products of reactions of mucochloric acid and some of its ethers with 2-mercaptoacetic acid were synthesized and characterized. The variation of experimental conditions allowed targeted introduction of a sulfur-containing fragment into particular position of the heterocycle: the reaction in aqueous potassium hydroxide gives 3-substituted 2(5H)-furanone the triethylamine additive in nonaqueous solvents facilitates the formation of 4-substituted products, and acid catalysis results in the replacement of the hydroxy (methoxy) group at C(5). (3,4-Dichloro-2-oxo-2,5-dihydrofuran-5-ylthio)ethanoic acid and (3-chloro-5-hydroxy--oxo-2,5dihydrofuran-4-ylthio)ethanoic acid were characterized by X-ray diffraction; their crystal and gas-phase structures were discussed. The 5-monosubstituted product crystallizes as a racemate, while 4monosubstituted product, as a conglomerate. © 2009 Springer Science+Business Media, Inc.

<http://dx.doi.org/10.1007/s11172-009-0019-1>

---

### Keywords

2(5H)-furanones, Mercaptoacetic acid, Mucochloric acid, Quantum chemical calculations, Sulfides, X-ray diffraction