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Electrochemical reduction of mucochloric acid and its 5-alkoxy derivatives

Latypova L., Yanilkin V., Kurbangalieva A., Berdnikov E., Chmutova G.

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

Abstract

5-Alkoxy-3-chloro-2(5H)-furanones were synthesized by the electrochemical reduction of 5-alkoxy derivatives of mucochloric acid in acetonitrile on the lead electrode in the presence of acetic acid as a proton donor. A combined analysis of the experimental data and quantum chemical calculation of intermediates indicates the EE D C mechanism of reduction, including the tandem transfer of two electrons with chloride ion elimination at the stage of transfer of the second electron and protonation. © 2012 Springer Science+Business Media New York.

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Keywords

2(5H)-furanones, electrochemical reduction, mucochloric acid, quantum chemical calculations, selectivity, voltammetry