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Novel sulfones based on the dithioderivatives of 2(5*H*)-furanone

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Abstract

The synthetic methods of new sulfones based on dithio-derivatives of 2(5*H*)-furanone were investigated. The action of excess amount of hydrogen peroxide solution in acetic acid to furanone *bis*-thioethers based on ethane-1,2-dithiol allowed to obtain corresponding disulfones. 3-Chloro-4,5-di-[(4-methylphenyl)sulfanyl]-2(5*H*)-furanone oxidizes to disulfone derivative by using of *m*-chloroperbenzoic acid as the reagent, while hydrogen peroxide in acetic acid causes the cleavage of C^5-S bond forming 3-chloro-5-hydroxy-4-[(4-methylphenyl)sulfonyl]-2(5*H*)-furanone and tosylacetic acid. Monosulfone based on 4,5-dithio-derivative was synthesized via thiolation reaction of 3,4-dichloro-5-[(4-methylphenyl)sulfonyl]-2(5*H*)-furanone under the base catalysis conditions. The structure of the three new sulfone derivatives of furanone was characterized by X-ray analysis.