

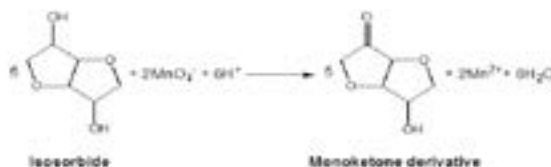
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Mechanism of oxidations of a chiral biomass-derived substrate namely isosorbide

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Isosorbide is considered to be a versatile biogenic platform compound for the production of chemicals and has been widely used for the synthesis of elaborate molecules including chiral ionic liquids, phase-transfer catalysts and ligands (amino alcohols, amines, mono- and diphosphines, etc.). Moreover, isosorbide has been used as a starting material for pharmaceutical applications as well as for organic solvents or fuels and as a building block for biopolymers. Oxidation reactions are very important in organic synthesis. Among the important oxidizing agents, permanganate ion is widely used in the oxidation of various organic compounds in neutral, alkaline and acidic media. The mechanism of oxidation reactions by permanganate ion is governed by pH of the medium. In this work, we present the kinetic study of the reactivity of isosorbide towards permanganate ion in different acidic media, in both perchloric and sulfuric acid solutions and we propose the oxidation mechanism of such diol. The final oxidation product of isosorbide was identified by both spectroscopic and chemical tools as the corresponding monoketone derivative, namely (1S, 4S, 5R)-4-hydroxy-2, 6-dioxabicyclo[3.3.0] octan-8-one.



Biography

Basim H Asghar is from Umm Al-Qura University, Saudi Arabia.

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