Influence of Oxidation Conditions on the Yield of 2-Substituted Imidazole-4,5-dicarboxylic Acids

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Abstract—Conditions were found which allow 2-alkyl-substituted imidazole-4,5-dicarboxylic acids to be synthesized in preparative quantities by the oxidation of 2-alkylbenzimidazoles with hydrogen peroxide. It was shown that optimal results can be obtained at the concentration of 2-alkylimidazole in sulfuric acid of 1 M and the hydrogen peroxide : 2-alkylbenzimidazole molar ratio of 11 : 1. Oxidation under these conditions results in higher yields of the target 2-alkylimidazole-4,5-dicarboxylic acids, including those with a branched alkyl group.

Keywords: imidazole-4,5-dicarboxylic acid, oxidation, hydrogen peroxide, 2-alkylbenzimidazoles

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