Inductive Hydroxyhalogenation of Bicyclo[2.2.1]heptenes and Synthesis of Amino Alcohols from the Reaction Products

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Abstract—A method of synthesis of aminobicycloheptanols by the hydroxyhalogenation of bicyclo[2.2.1]-heptene and its alkyl derivatives in a cycloolefin–oxidant–hydrogen halide system to induce electrophilic intermediates followed by substitution of the halogen atoms by amino groups of different compositions and structures. It was found that the selectivity of the reaction depends on the formation/consumption rate ratio for the electrophilic intermediate. A high selectivity with respect to hydroxyhalides takes place, when the consumption rate of the latter intermediate is higher than its formation rate. An increase in the pH of the medium becomes higher than 10.5 decreases the yield of amino alcohols and changes the reaction direction due to acceleration of dehydrohalogenation and formation of the corresponding epoxides.

Keywords: halobicycloheptanol, aminolysis, aminobicycloheptanols, inductive addition, antimicrobial and bactericidal properties

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