ALKYL 3-BROMO-3-NITROACRYLATES ARE PROMISING SUBSTRATES IN THE SYNTHESIS OF ACYCLIC, CARBO-, AND HETEROCYCLIC STRUCTURES

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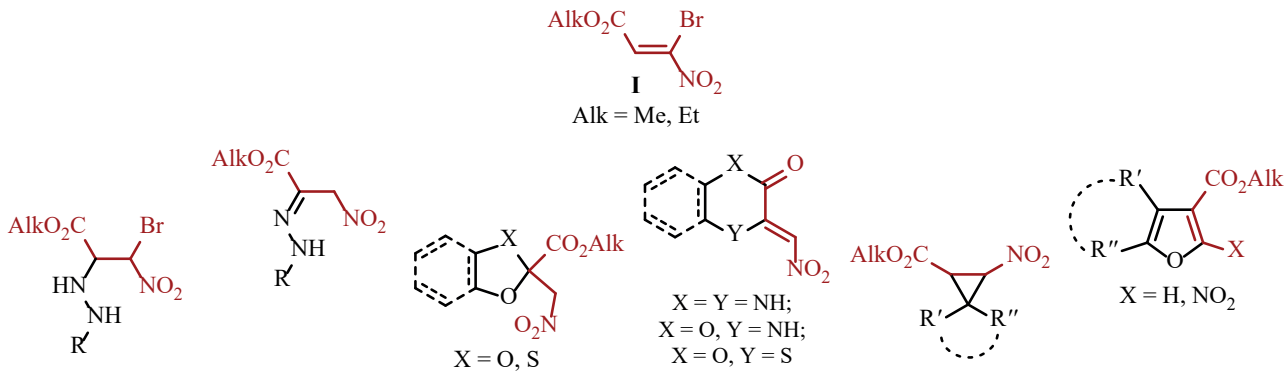
Alkyl 3-bromo-3-nitroacrylates – the original representatives of *gem*-halonitroalkenes containing several electrophilic reaction centers and being promising substrates for constructing various types of structures when interacting with nucleophilic reagents.

The chemical behavior of alkyl 3-bromo-3-nitroacrylates **I** studied by us in reactions with representatives of acyclic and cyclic CH-acids (diketones, ketoesters, diesters, cyclic amides), aliphatic and aromatic 1,4-binucleophilic reagents (ethane-1,2-diamine, 2-aminoethan-1-ol, 2-mercaptoethan-1-ol, pyrocatechol, benzene-1,2-diamine, 2-aminophenol, 2-aminobenzenethiol), as well as with substituted hydrazines, demonstrated the wide possibilities of synthesis various open-chain, carbo- and heterocyclic compounds on their basis.



It has been shown that *gem*-bromonitroacrylates in reactions with nucleophilic reagents initially form Michael adducts, which undergo various transformation pathways:

– elimination of HBr and subsequent isomerization of the resulting C=C bond;

– elimination of HBr and intramolecular heterocyclization due to the second act of nucleophilic addition;

– intramolecular *N*- or *O*-acylation with the participation of an ester group and subsequent elimination of HBr;

– intramolecular *C*-alkylation with the participation of a bromonitromethyl group;

– intramolecular *O*-alkylation with the participation of a bromonitromethyl group.

The resulting polyfunctional acyclic, carbo- and heterocyclic structures are of interest as potential biologically active compounds.

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