

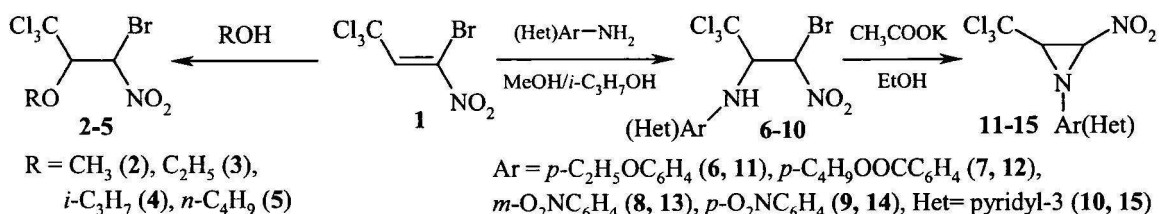
## 1-BROMO-1-NITRO-3,3,3-TRICHLOROPROPENE IN REACTIONS WITH *O*- AND *N*-NUCLEOPHILES

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1-Bromo-1-nitroethenes containing additional withdrawing substituent in  $\beta$ -position to the nitro group and halogen atom represents the original class of nitrocompounds with highly electrophilic double bond. One of them is *Z*-1-bromo-1-nitro-3,3,3-trichloropropene. Its structural data analysis is given in paper [1]. We studied the reaction of alkoxylation of halogenonitroalkene (1). The addition of alcohols to 1-bromo-1-nitro-3,3,3-trichloropropene occurs under refluxing in the excess of alcohol. The alkoxyderivatives (2-5) were isolated by the column chromatography with yields 37-97%. The efficiency of process corresponded to the alcohol reactivity [2].



Earlier, it was reported that the reaction of 1-bromo-1-nitro-3,3,3-trichloropropene (1) with some arylamines and the subsequent treatment of the obtained arylaminobromonitroalkanes with potassium acetate can be considered as method for nitroaziridines synthesis [3, 4]. In purpose to expand the application of this method we increased the number of aromatic amines used in this reaction by introducing the typical electron donating (C<sub>2</sub>H<sub>5</sub>O), electron withdrawing (NO<sub>2</sub>, COOC<sub>4</sub>H<sub>9</sub>) substituents attached to the phenyl ring and heterocyclic amine – 3-aminopyridine.

It was shown that the bromonitroethene (1) reacts with the mentioned amines to form the products of nucleophilic addition (6-10) with yields up to 87%.

Nitroaziridines (11-15), obtained by the refluxing of aryl(heteryl)aminobromonitroalkanes (6-10) in alcohol solution of potassium acetate, were isolated by the column chromatography. The highest yield had nitroaziridine containing *p*-ethoxyphenyl substituent.

The structure of synthesized compounds (2-15) was determined by IR, NMR <sup>1</sup>H and <sup>13</sup>C spectroscopy. The structure of 1-(*m*-nitrophenyl)-2-nitro-3-trichloromethylaziridine (13) was studied by X-ray. The X-ray revealed the *trans*-position of trichloromethyl group to the nitro group and the phenyl ring.

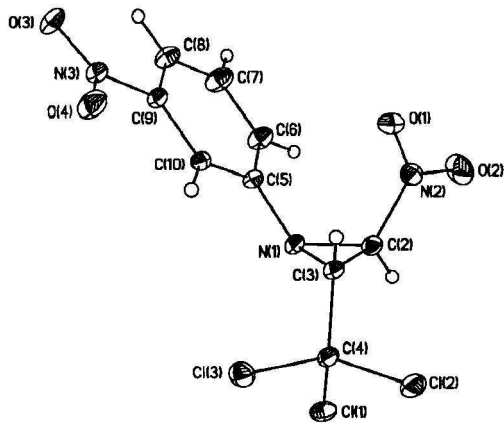


Figure. The X-ray of the compound (13).

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[2] Perekalin V.V., Lipina E.S., Berestovitskaya V.M., Efremov D.A. Nitroalkenes. Conjugated Nitro Compounds. London: John Wiley and Sons, **1994**, 67.

[3] Makarenko S.V., Lysenko K.A., Smirnov A.S., Berestovitskaya V.M. Materiali XVIII Mendeleevskogo s'ezda po obshchei i prikladnoi khimii. M., **2007**, 5, 198.

[4] Stukan E.V., Makarenko S.V., Smirnov A.S., Lysenko K.A., Berestovitskaya V.M. Materiali mezhdynarodnoi konferenzii "Khimia soedinenii s kratnimi uglerod-uglerodnimi svyazami". SPb., **2008**, 216.