1-ARYL-3-NITROPROP-2-EN-1-ONES IN REACTIONS WITH SUBSTITUTED HYDRAZINES

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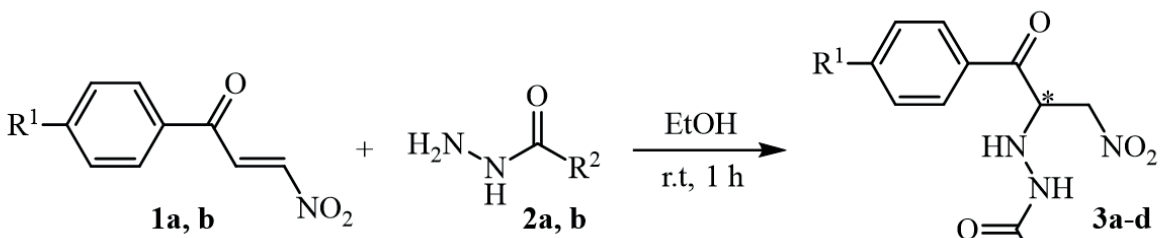
1-Aryl-3-nitroprop-2-en-1-ones, containing in their structure a C=C bond conjugated with two acceptor substituents, are attractive substrates in reactions with nucleophilic reagents.

It has been previously shown that structurally similar alkyl 3-nitroacrylates react with carboxylic acid hydrazides and hydrazinecarboxamide to form Michael adducts [1, 2].

We have studied the interaction of 1-aryl-3-nitroprop-2-en-1-ones **1a, b** [3] with representatives of substituted hydrazines – benzohydrazide **2a** and *N*-phenylhydrazinecarboxamide **2b**. The reaction proceeds in ethanol solution at room temperature and leads to the formation of corresponding aza-Michael adducts **3a-d** with yields up to 92%.



R^1 = H (**1a**, **3a**, **b**), Me (**1b**, **3c**, **d**); R^2 = Ph (**2a**, **3a**, **c**), NHPh (**2b**, **3b**, **d**)

The structure of synthesized compounds **3a-d** was characterized by a complex of physicochemical methods (IR, NMR ^{1}H, ^{13}C spectroscopy with ^{1}H–^{13}C HMQC and ^{1}H–^{13}C HMBC experiments). The structural feature of adducts **3a-d** is the presence of an asymmetric carbon atom, which causes the manifestation diastereotopy effect in the ^{1}H NMR spectra of protons of the CH_2NO_2 group.

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References:

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2. Pelipko, V.V., Adyukov, I.S., Baichurin, R.I., Makarenko, S.V. *Rus. J. Gen. Chem*. Vol. 92 (2022) P. 141-146.
3. Adyukov I.S., Pelipko V.V., Litvinov I.A., Makarenko, S.V. Materialy Mezhdunarodnoj nauchnoj konferencii studentov, aspirantov i molodyh uchyonyh «Lomonosov-2023», sekciya «Himiya» (2023) P. 496.