

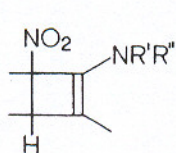
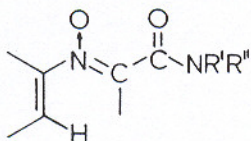
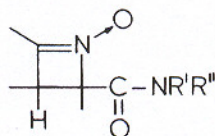
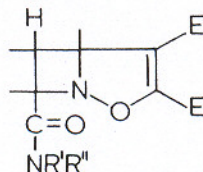
NOVEL HETEROCYCLES BY REACTION OF NITROALKENES AND YNAMINES

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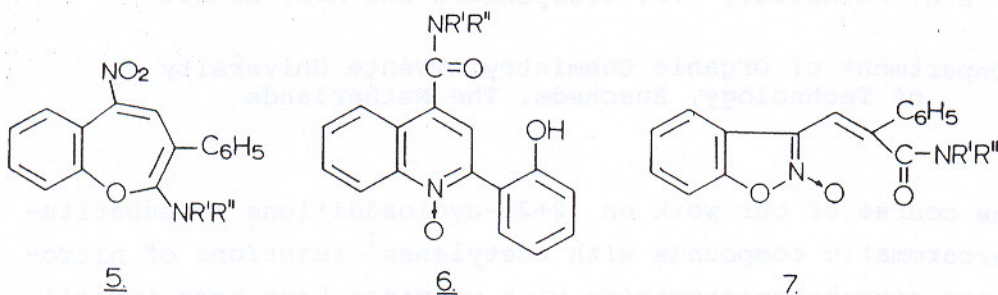
In the course of our work on (2+2)-cycloadditions of substituted heteroaromatic compounds with acetylenes¹ reactions of nitroalkenes and nitroheteroaromatics with ynamines have been investigated.

We found that nitroalkenes react with ynamines at room temperature to give three different types of 1:1 reaction products viz. 3-nitrocyclobutenes (1), nitrones (2) and 2,3-dihydro-azet-N-oxides (3). The latter type of product represents the first well-established examples of "stable" 4-membered cyclic nitrones. Their structure has been unequivocally established by single-crystal X-ray analysis. These cyclic nitrones yielded the expected bicyclic 1,3-dipolar adducts (4) with DMAD. From the reactions of ynamines with 3-nitro-1-benzothiophen and with 4-nitroisothiazole mixtures of nitrone (2) and cyclobutenes (1) were obtained. The corresponding cyclic nitrones were absent in these reaction mixtures.

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3-Nitro-1-benzofuran reacts with ynamines in a completely different manner. Three 1:1 reaction products were obtained viz. a 1-benzoxepin (5), a quinoline N-oxide (6) and a 1,2-benzisoxazole N-oxide (7).

Formation of 2,3 and 5-7 in these reactions proceeds via a 1,4-dipolar intermediate.



1. D.N. Reinhoudt, Adv. Heterocycl. Chem. 21, 253 (1977).