SYNTHESIS OF NEW PHARMACOLOGICALLY ORIENTED NO-DONOR FUROXAN-BASED HETEROCYCLIC ENSEMBLES

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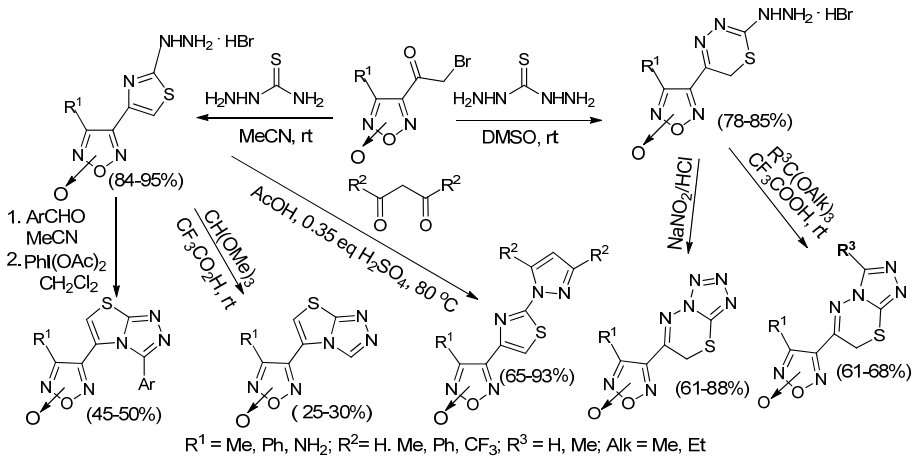
The design of potential drugs with improved pharmacokinetic profile has been focused in recent years on the molecular hybridization of diverse compounds with known pharmacological activity [1]. Special efforts were directed to the synthesis of pharmacologically oriented structures comprising a framework capable of nitric oxide (NO) release, including 1,2,5-oxadiazole 2-oxides (furoxans) [2]. In this work simple, effective and regioselective methods for the synthesis of pharmacologically oriented polyheterocyclic ensembles containing furoxan motif as NO-donor fragment linked to various pharmacophoric nitrogen-containing heterocycles and their annulated derivatives (thiazoles [3], 1,3,4-thiadiazines [4], thiazolo[2,3-*c*][1,2,4]triazoles [3], 1,2,4-triazolo[3,4-*b*][1,3,4]thiadiazines [5], tetrazolo[5,1-*b*][1,3,4]thiadiazines [4], pyrazolylthiazoles [6]) have been presented.



[1] K. C. Nicolaou, C. R. H. Hale, C. Nilewski, H. A. Ioannidou, *Chem. Soc. Rev.* **2012**, *41*, 5185.

[2] (a) L. L. Fershtat, N. N. Makhova, *ChemMedChem*, **2017**, *12*, 622; (b) N. N. Makhova, L. L. Fershtat, *Tetrahedron Lett.*, **2018**, *59*, 2317.

[3] A. S. Kulikov, M. A. Epishina, A. I. Churakov, L. L. Fershtat, N. N. Makhova, *Mendeleev. Commun.*, **2018**, *28*, 623.

[4] A. S Kulikov, M. A. Epishina, L. L. Fershtat, N. N. Makhova, *Tetrahedron Lett.*, **2017**, *58*, 3998.

[5] A. S. Kulikov, M.A. Epishina, L.L. Fershtat, N. N. Makhova, *Chem. Heterocycl. Compd.*, **2018**, *54*, 669.

[6] A. S Kulikov, M. A. Epishina, L. L. Fershtat, N. N. Makhova, *Mendeleev. Commun.*, **2019**, *29*, DOI: 10.1016/j.mencom.2019.05.015.