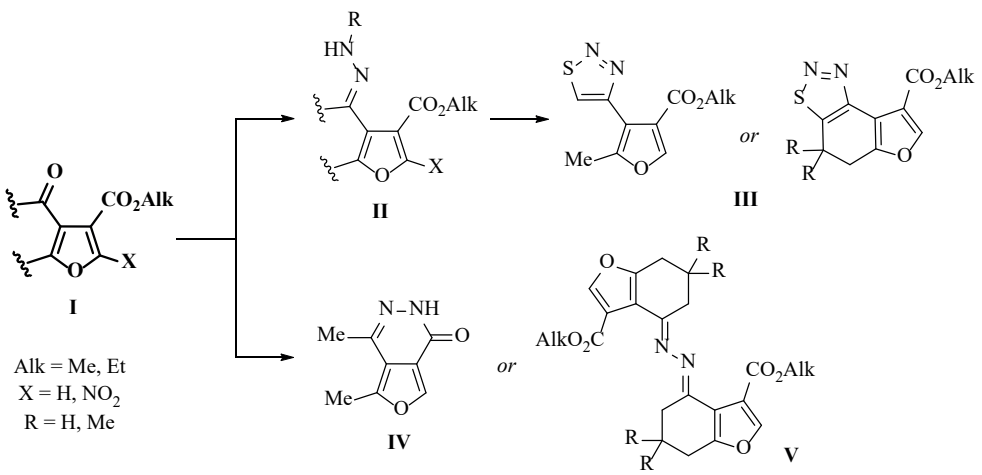
CARBONYL-CONTAINING FURAN-3-CARBOXYLATES IN THE SYNTHESIS OF ORIGINAL MONO- AND BIHETEROCYCLIC STRUCTURES

Gomonov K.A., Pelipko V.V., Baichurin R.I., Makarenko S.V.

The Herzen State Pedagogical University of Russia
191186, Russia, Saint Petersburg, 48 Moyka River Embankment
e-mail: kohrgpu@yandex.ru

Furan-3-carboxylate representatives are known as substances with a number of practically significant properties, including inhibition of insulin secretion [1] and antiparasitic activity [2].

Carbonyl-containing furan-3-carboxylates **I** that were synthesized in the interaction of alkyl-3-bromo-3-nitroacrylates with aliphatic [3] or carbocyclic [4] CH-acids are promising substrates for further functionalization in the reaction with nitrogenous nucleophiles and new heterocycles construction based on the resulting products [5].



It was shown, that the reaction of furan-3-carboxylates **I** with phenyl(4-nitrophenyl, 2,4-dinitrophenyl) hydrazine, hydrazinecarboxamide and *N*-phenylhydrazinecarboxamide leads to the corresponding hydrazones **II** formation in the *E*-configuration.

Some of the hydrazones **II** – furan-3-carboxylates semicarbazones are converted under Hard-Mori reaction conditions into the thiadiazole furancarboxylates **III**.

However, reactions of hydrazine with monocyclic furan-3-carboxylates **I** lead to the formation of 4,5-dimethylfuro[3,4-*d*]pyridazin-1(2*H*)-one **IV**, and with benzofurancarboxylates **I** – to *bis*-hydrazones **V**. All products structures were characterized by complex of physicochemical methods, including X-ray diffraction analysis.

The research was supported by an internal grant of the Herzen State Pedagogical University of Russia (project № 3VG).

References:

1. E. Nagy et al. *J. Med. Chem. 60* (**2017**), 1860-1875.
2. A. A. Zuma et al. *Exp. Parasitol. 224* (**2021**), 108100.
3. K. A. Gomonov et al. *Mendeleev Communications 33* (**2023**), 11-13.
4. V. V. Pelipko et al. *Russ. J. Gen. Chem. 91* (**2021**), 167-172.
5. V. V. Pelipko, K. A. Gomonov. *Chemistry of Heterocyclic Compounds 57* (**2021**), 624-626.