Synthesis and physicochemical properties ofpyrazole containing xanthine derivatives

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Introduction. Heterocycle containing compounds (xanthines, pyrazoles, thiazoles etc) represent very important structural units in drug discovery. A survey of literature reveals the biological properties of these substances including hypoglycemic, anticancer, antioxidant, anti–inflammatory, bronchodilator andxanthine oxidase inhibitory effects [1–3]. In our opinion, combination of several heterocyclic systems in one molecule could improve pharmacological properties. Aim of our work was a development of method of thiazole and triazole containing xanthine derivativesynthesis.

Materials and methods. Melting point sweredetermine dusing capillary methodon DMP (M). IR–spectrawererecordedby Bruker Alpha device (company «Bruker» – Germany) at 4000–400 $sm^{-1}$with ATR usage.^{1}H NMR–spectrawererecordedbyVarianMercuryVX–200 device (company «Varian» – USA) solvent – (DMSO–*d6*), internalstandard – TMS. Elementalanalysisof obtained compounds was produced on device ElementarVarioLcube.

Results. As initial substances we used hydrazides of 3–aryl(aralkyl)–8–alkylxanthinyl–7–acetic acids **I**, which had been synthesized earlier on the department of Biological chemistry of Zaporozhye State Medical University [4–6]. At the first stage we synthesized 7–(3,5–dimethylpirazolyl–1)–oxoethylxanthines **II** by the interaction of hydrazides **I** with acetylacetone in the absolute ethanol in the presence of potassium hydroxide. Reflux of hydrazides I with ethylacetoacetate in absolute ethanol led to obtaining of 7–(3–methyl–1H–pyrazole–5–onyl–1)–oxoethylxanthines **III**. Using of unsaturated aldehydes as reagents (propen–2–al, 3–phenylpropen–2–al) in the same medium caused the formation of 7–(5–R–pirazolyl–1)–oxoethylxanthines **IV**.

The structures of all obtained compounds were proved by the elemental analysis, IR– and ^{1}H NMR–spectroscopy.