

Conclusions. The simple synthetic procedure allowed to obtain complex heterocyclic compounds comprising 2,1-benzothiazine 2,2-dioxide and 2-amino-4*H*-pyran moieties. 2-Amino-4-(4-chloro-1-ethyl-2,2-dioxido-1*H*-benzo[*c*][1,2]thiazin-3-yl)-4*H*-pyran-3-carbonitrile framework has certain prospects in further search of antimicrobial substances of heterocyclic structure.

THE OPTIMIZATION OF 3-DICHLOROMETHYL-1,2,2-TRIMETHYLCYCLOPENTANECARBOXYLIC ACID SYNTHESIS

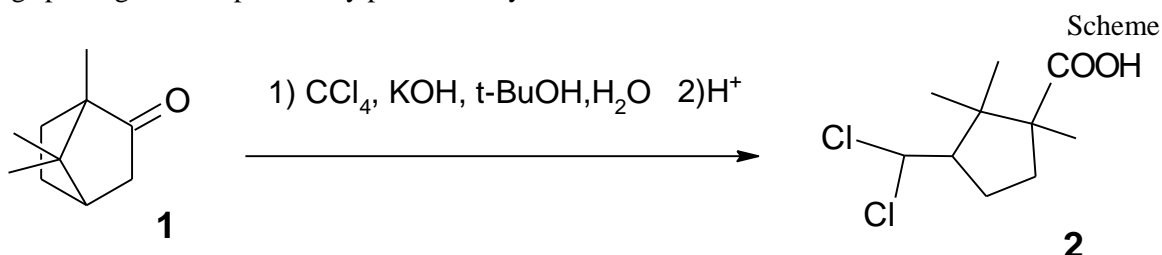
Leus A. O., Titko T. O.

Scientific supervisor: assoc. prof. Tsapko Ye. O.

National University of Pharmacy, Kharkiv, Ukraine

evgentsapko@ukr.net

Introduction. Previously we have used 3-dichloromethyl-1,2,2-trimethylcyclopentanecarboxylic acid (**2**) (scheme) for synthesis of biologically active compounds. For the first time the acid **2** was synthesized by Meyers in 1970. It was obtained via chlorination of camphor **1** by tetrachloromethane and following splitting of semi-product by potassium hydroxide.



Aim. The aim of this work was to optimize method of synthesis of 3-dichloromethyl-1,2,2-trimethylcyclopentanecarboxylic acid (**2**).

Results and discussion. We used the technique suggested by Meyers for racemic camphor **1**. We eliminated the stage of distillation of solvent excess in vacuum, as well as the stage of extraction of impurities and product by ether. Thus, we simplified the procedure and avoided using of precursors.

The optimization of the synthesis of acid **2** was carried out by using the method of mathematical planning of the experiment. The most significant parameters that affect the yield of the target product have been determined. They are the amounts of potassium hydroxide, tert-butanol, tetrachloromethane, water and the temperature of the reaction mixture.

The maximum and minimum values of the parameters were established experimentally. The optimal amounts of reagents and their combination was determined using the steepest ascent method according to the regression equation. Mathematical calculations were performed using the STATISTICA 10 StatSoft Inc. system and Excel spreadsheet processor of MS Office 2019.

It has been possible to increase the acid yield from 67 to 74% using the calculated amounts of reagents.

Conclusion. The methods of synthesis of 3-dichloromethyl-1,2,2-trimethylcyclopentanecarboxylic acid have been optimized. The effectiveness of the selected method of mathematical planning has been shown.