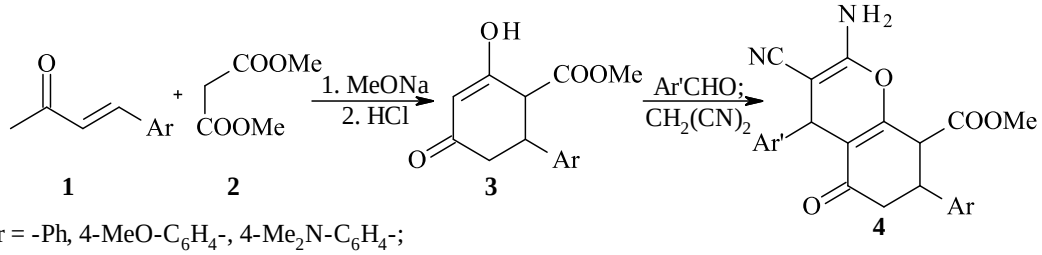
Results and discussion. Interaction between arylidene acetones (1) and dimethyl malonate (2) proceeds in the presence of sodium methylate with refluxing in ethanol for 3 hours as domino transformation by the «Michael addition / Claisen condensation» type. As a result, methyl esters of 2-hydroxy-4-oxo-6-arylcyclohexene-2-carboxylic acid (3) were obtained.



1 **2** **3** **4**

Ar = -Ph, 4-MeO-C_6H_4-, 4-Me_2N-C_6H_4-;

Ar' = -Ph, 4-MeO-C_6H_4-, 2-MeO-C_6H_4-; 4-NO_2-C_6H_4-, 2-NO_2-C_6H_4-, 4-Me_2N-C_6H_4-.

By further three-component interaction of esters (3) with aromatic aldehydes and malononitrile in the presence of catalytic quantity of triethylamine in ethanol medium 2-amino-4-aryl-3-cyano-8-methoxycarbonyl-5-oxo-5,6,7,8-tetrahydro-4*H*-chromenes (4) were synthesized with good yields.

The structure of synthesized compounds was confirmed by IR-, ^1H, ^{13}C NMR spectroscopy and chromatography-mass spectrometry.

Conclusions. New 2-amino-4-aryl-3-cyano-8-methoxycarbonyl-5-oxo-5,6,7,8-tetrahydro-4*H*-chromenes were obtained. These investigations will be a base for further pharmacological researches.

JUSTUS VON LIEBIG: SCIENTIFIC LEGACY AND PRESENT DAYS

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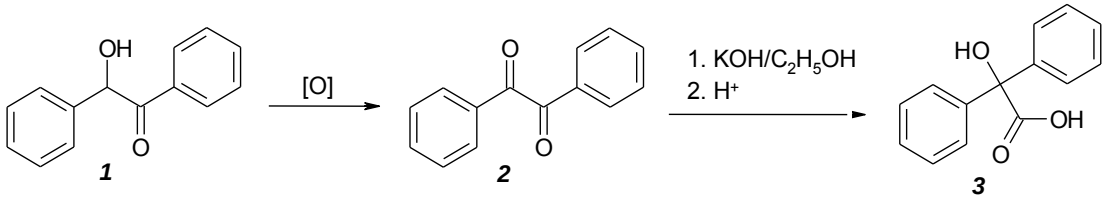
Introduction. Justus von Liebig was a famous German chemist. He have made a big contribution to chemistry, but one should pay attention exactly to benzoin condensation and benzilic acid rearrangement. These reactions were developed in the 1830s and retain their importance until now. In particular, benzylic acid is a starting compound in synthesis of variety of drugs, examples of which are *Clidinium*, *Dilantin*, and *Flutropium* acting as antagonists of the muscarinic acetylcholine receptors. Benzilic acid rearrangement is common for all 1,2-diketones and allows to modify the structure of steroids. During many years investigations in the field of transformations of benzylicd acid amides into lactam like heterocyclics have been the main scientific direction of organic chemistry department of Kharkiv Pharmaceutical Inatitute. These researches were being headed by prof. Petyunin P.O. Recently investigations of synthetic potential of benzylic acid have found their revival on organic chemistry department of National University of Pharmacy.

Aim. To analyse data regarding Justus von Liebig contribution to modern science. In particular our research was focused on the synthesis of benzylic acid, performed by Justus von Liebig in 1838. Carboxyl group modification within the molecule of benzylic acid leads to its functional derivatives which can be used for heterocyclization reactions.

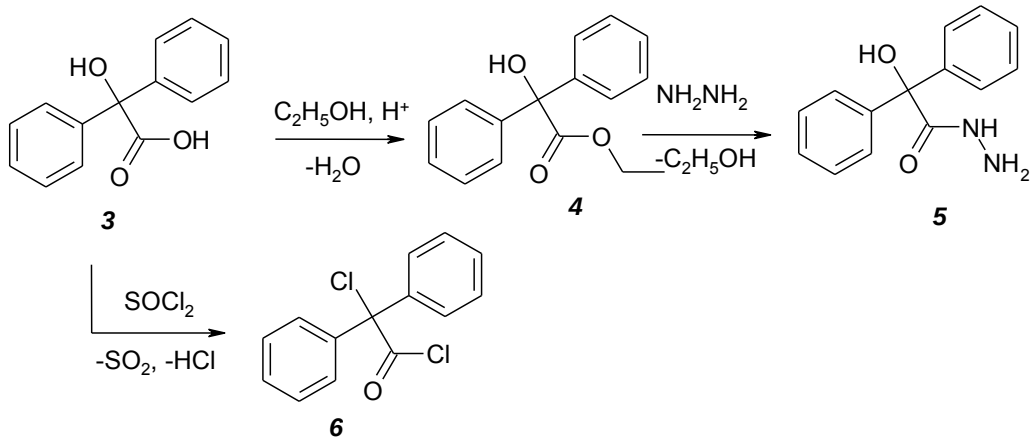
Materials and methods. Starting compound and reagents: benzoin, nitric acid, benzil, ethanol, potassium hydroxide, benzilic acid, a standard methods of organic synthesis.

Results and discussion. Benzyl 2 was obtained from commercially available benzoin 1 by oxidation. We prepared benzylic acid 3 by heating the mixture of benzyl 2, ethanol and potassium hydroxide (rearrangement reaction).



1 ***2*** ***3***

Obtained in such a manner benzylic acid was further transformed into hydrazide **5** and acyl chloride **6** aiming to carry out subsequent 3heterocyclization reactions:



Conclusion. Thus, using benzyl as starting compound we synthesized benzylic acid, which was transformed further into its functional derivatives. Obtained compounds will be used in interactions aiming to synthesize novel heterocyclic systems.

SYNTHESIS OF MIXED LIGAND COORDINATION COMPOUNDS OF Co(II), Ni (II) WITH ASPARAGINE AND GLUTARIC ACIDS

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Introduction. Development and implementation of highly effective drugs based on coordination compounds of 3d-metals is an urgent task. Of particular interest among such complexes are mixed ligand metal compounds with vitamins and amino acids, which represent a new class of biologically active compounds. Unlike conventional complex compounds, such compounds contain in their composition, in addition to the trace element, various vitamins or vitamin and amino acid. In the formation of compounds of vitamins and amino acids with inorganic substances, their chemical and biological properties change, and the vitamins, being part of such compounds, exhibit biological activity not inherent to vitamins in the free state, and metal ions in combination with vitamins and amino acids become less toxic and can to catalyze various biochemical processes. Therefore, based on compounds of vitamins and amino acids with metals and their salts, it is possible to create new coenzyme preparations and biocatalysts, new medicines and biologically active additives.

Aim. Synthesis of mixed ligand coordination compounds of Co (II), Ni (II) with asparagine and glutaric acids**.**

Materials and methods. The starting materials for the synthesis of complex compounds used nitrate salt of cobalt and nickel, and sodium hydroxide mark «pure for analysis». Ligands glutaric (GLA) and aspartic acids (ASA) of the mark «Pharmacopoeia». The analysis of the isolated compounds on the metal content was performed by complexometrics. Nitrogen was determined by Dumas micromethod. The melting point of the complex compound was determined in closed capillaries. To establish the purity and individuality of the complexes obtained, radiographs were taken on a DRON-2.0 unit with a copper anti-cathode. Thermal analysis was performed on a Paulik – Paulik – Erdei system derivatograph. The IR absorption spectra of the compounds were recorded on a Cary 630 FTIR spectrometer in the region of 400–4000 cm^{-1}.

Results and discussion. Synthesis of [Co(GLK-H)(ASK-H)] $9H_2O$ and [Ni(GLA-H)(ASK-H)]·$10H_2O$ was carried out as follows (the «-H» symbol indicates the deprotonated ligand). 0.008 mol of glutaric acid was added to a solution of 0.008 mol of NaOH in 8 ml of water**.** A solution of 0.008 mol of aspartic acid and the same amount of NaOH in 10 ml of water were added to the resulting solution. When