VYSOKÁ ŠKOLA CHEMICKO-TECHNOLOGICKÁ V PRAZE
Fakulta potravinářské a biochemické technologie
Ústav chemie přírodních látek

Review

of the foreign scientific consultant
Professor at the University of Chemical Technology, Prague (UCT, Prague, Czech Republic) **Pavel B. Drašar**, on the dissertation of
Temirgaziyev Bakhtiyar Serikovich on the topic "*Plant polyoxysteroids: Optimization of extraction, chemical modification and biological activity*" in the specialty "8D05301-Chemistry"

Thesis of Temirgaziyev B. S. is devoted to the optimization of the methods of isolation and complex extraction of polyoxysteroids and polyols from plant materials, to theoretical and experimental research on the directed synthesis of new supramolecular encapsulated hydrophilic derivatives based on them with high biological activity.

The thesis are on 153 pages (without attachments), including 31 figures and 29 tables. The text (is supported by 288 citations) is well and clearly written.

For the first time on the basis of 20-hydroxy ecdysone, 2-deoxy-20-hydroxyecdysone, 2-deoxy-ecdysone, 3-epi-2-deoxyecdysone and modified synthon - (22*R*)-6-oxo-14,20,25-trihydroxy-2β,3β,5β-cholest-7--ene-2,3,22-triyl triacetate, the plant polyol D-pinitol, and α-, β-, γ-cyclodextrins there were synthesized new supramolecular inclusion complexes and their fine structures are fully confirmed by the data of two-dimensional correlation of ^{1}H-^{1}H NMR spectra TOCSY, ^{1}H-^{1}H ROESY, ^{1}H-^{13}C HMQC, ^{1}H-^{13}C HMBC. The water-soluble supramolecular complex of 3-epi-2-deoxyecdysone with β-cyclodextrin has a pronounced anti-inflammatory activity and exceeds the activity of the comparison drug "Diclofenac sodium" 1.6 times. From my point of view, this part of the work is essential. Also, optimization of the preparation of 20-hydroxy ecdysone - the substances of many preparations from the plant *Serratula coronata* L. by varying the methods of extracting the raw materials and growth phases of the species can be used in Karaganda Pharmaceutical Plant LLP (ТОО «Карагандинский фармацевтический завод»).

I think and I am sure that the dissertation of B.S. Temirgaziyev on the topic "*Plant polyols and polyoxy steroids: Optimization of extraction, chemical modification and biological activity*" has certain theoretical and practical value and significance. It is a completed scientific study and fully complies with the requirements for writing a doctoral thesis "PhD" in the specialty "8D05301-Chemistry " and can be recommended for public defence.

Sincerely

Given in Prague, 16/5 2022.

Prof. RNDr. Pavel DRAŠAR, DSc., FRSC, CChem, CSci, EurChem, FCPSE, FIS
Department of Chemistry of Natural Compounds
Faculty of Food and Biochemical Technology.
University of Chemical Technology
Prague, Czech Republic