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ЗАПОРІЗЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ

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3. Meaningfulness.When a student does not understand why he needs to perform certain tasks, they will not be completed. Therefore, when creating tasks, we rely on the meaning of the work performed. For example, from the discipline "Technology of medical cosmetics" students make cosmetic soap at home, and they use it in the future;

4. Selectivity. The student understands that he has a choice, so he is responsible for the chosen task. We create a number of tasks with different levels of difficulty, the student chooses his level and completes it;

5. Submission of educational material. Modern students are not interested in dry information from textbooks, but in an interesting presentation of the material. Again, a cycle of interesting video materials, interactive letters increase the interest of students in studying certain disciplines;

6. Assistance. It is important for the student to understand that the teacher is not there for control, but for help in studying the material;

During the survey of 5th-year students of the Faculty of Pharmacy of the National Medical University named after O.O. Bogomolets regarding the organization of distance and mixed forms of education, most of them (92%) indicated a sufficient level of teaching of disciplines.

Conclusion. In this situation, for the correct organization of the educational process, it is especially important to adhere to all factors of increasing student motivation.

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SYNTHESIS AND STUDY OF THE PROPERTIES OF A NUMBER OF 4-(4-CHLOROPHENYL)-5-(PYRROL-2-YL)-1,2,4-TRIAZOLE-3-THIOL DERIVATIVES

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Derivatives of 1,2,4-triazole have a high chemical and pharmacological potential, which makes this class of compounds highly promising in the sense of creating an original medicinal product. Among the directions of the first stages of work with this cycle, a special place is occupied by the possibility of its combination with heterocyclic synthons of a different nature. This approach greatly facilitates the creation of the desired product of chemical transformation, which ultimately has a chance of forming a biologically active substance. Of particular interest in the implementation of this strategy is the combination of a triazole fragment with a pyrrole fragment. This interest was also supported by certain achievements of both foreign and Ukrainian scientists. In this context, in order to obtain new compounds, it was decided to change the position of the pyrrole cycle in relation to the triazole cycle.

The aim of the work was the synthesis of 4-(4-chlorophenyl)-5-(pyrrol-2-yl)-1,2,4-triazole-3-thiol derivatives as potential biologically active compounds.

The synthesis of an intermediate in the form of a thiol took place in several stages. First of all, the synthesis of 2,2,2-trichloro-(1-pyrrol-2-yl)ethanone was carried out. The course of the chemical reaction occurred easily with the active participation of pyrrole and trichloroacetyl chloride in the medium of diethyl ether. There was no need to use a catalyst. Further, potassium carbonate in an aqueous environment was involved in the chemical transformation process. The reaction product in the form of 2,2,2-trichloro-1-(pyrrol-2-yl)ethan-1-one is readily isolated in high yield. The next stage was the preparation of pyrrole-2-carbohydrazide. To implement this stage, the starting substance was

involved in the process of hydrazinolysis in an alcoholic medium. The obtained reaction product was used in the reaction with 4-chlorophenylisothiocyanate, which was previously synthesized. The isolated *N*-(4-chlorophenyl)-2-(pyrrole-2-carbonyl)hydrazine-1-carbothioamide was subjected to intramolecular heterocyclization in an alkaline medium at the next stage.

The synthesized 4-(4-chlorophenyl)-5-(pyrrol-2-yl)-1,2,4-triazol-3-thiol was used in alkylation reactions with haloalkanes in order to further establish the biological potential of the synthesized series of substances.

The structure of the synthesized substances was confirmed using modern physicochemical methods of analysis.

The next phase of research was related to computer chemistry methods. Thus, the PASS On-line web resource was involved in the research work, which made it possible to determine the nature of biotargets for molecular docking.

Thus, models of cyclooxygenase-2 and lanosterol-14α-demethylase, which were downloaded from the Protein Database, were used for docking studies. Research at this stage was carried out using a package of programs, including AutoDock 4.2.6. At the first stage, the preparation of ligand molecules was carried out, which included the use of Open Babel 3.1.1 and MGL Tools-1.5.6. Next, the preparation of the receptor molecule was performed, which was based on the use of BIOVIA and MGL Tools programs. Then maps were reproduced to implement docking. Here again MGL Tools and AUTOGRID were involved. Further work was related to the AutoDock program. The obtained results were evaluated using qualitative and quantitative parameters.

The conducted studies made it possible to preliminarily determine the possible directions of further research of pharmacological properties.

THE EFFECTS OF UMBILICAL CORD STEM CELLS CONDITIONED MEDIUM, HYALURONIC ACID AND UMBILICAL CORD EXTRACT ON FIBROBLASTS CULTURE AND SKIN OF OVARIECTOMIZED RATS

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Introduction. The desire to look younger at any age leads to the demand for technologies to restore the skin and prevent age-related changes [5]. Promising modern methods of skin restoration are the application of hyaluronic acid and cell therapy [1, 3]. Cryoextract of the umbilical cord, umbilical cord stem cells conditioned medium, which contains both components [4], may be effective in the treatment of age-related skin changes.

The aim of the work was to compare the effect of umbilical cord mesenchymal stem cells culture medium, hyaluronic acid and umbilical cord extract on fibroblasts cell culture and the skin of ovariectomized rats.

Materials and methods. The umbilical cord was obtained after a caesarean section after the informed consent of the women. The extract was obtained by freezing and centrifugation, the cells were isolated by the enzymatic method, the conditioned media was obtained after culturing for 24 hours [2]. Fibroblasts were isolated from mice embryos skin, 3 passage was used [2]. Investigated substances were added for 24 hours to the culture medium. Adhesion, proliferation, metabolic activity, monolayer morphology were assessed. The investigated substances were injected intradermally into ovariectomized rats. Histological examination of rat skin fragments was carried out after 2 and 4 weeks.