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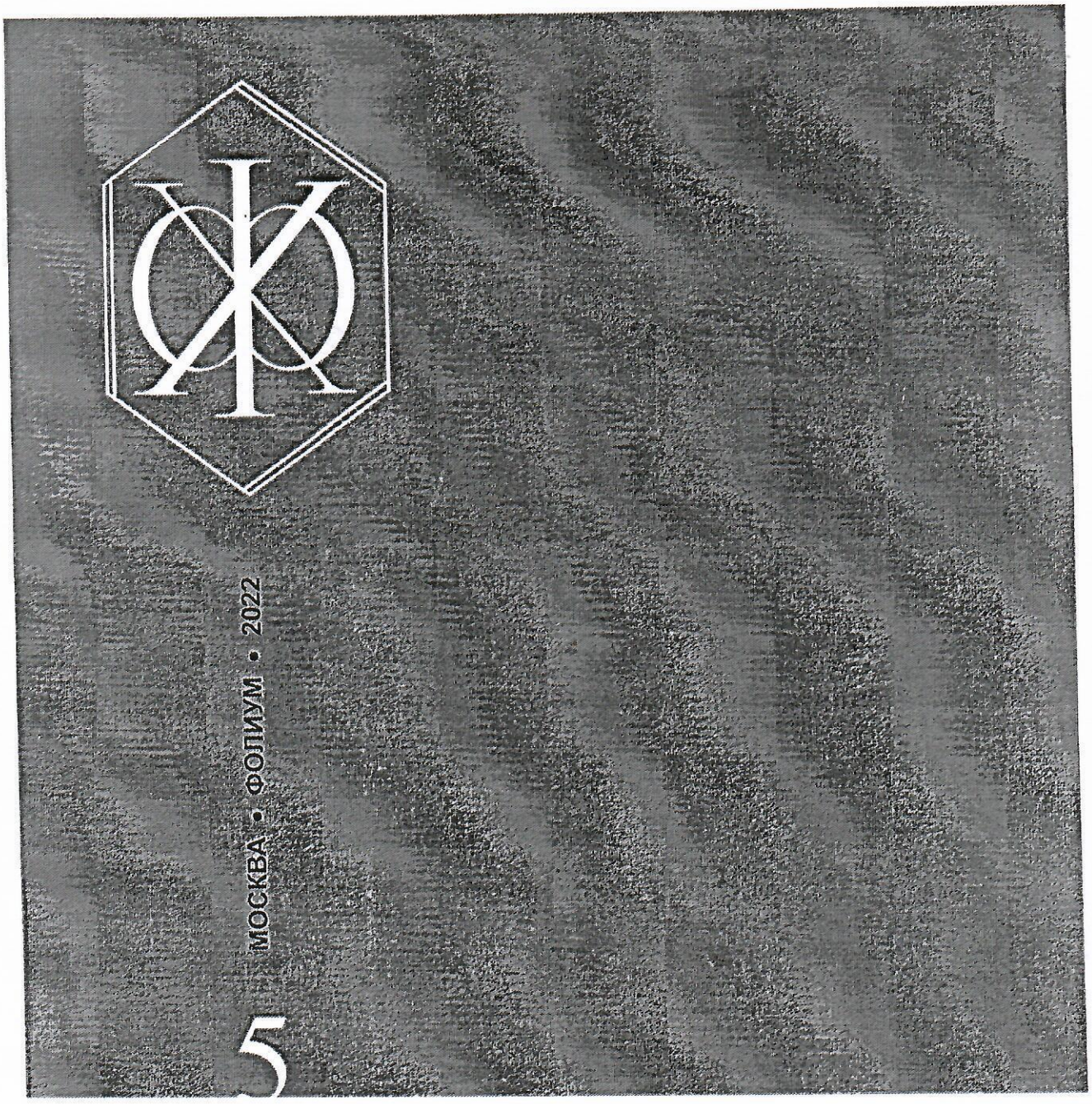

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EVALUATION OF THE PHARMACOTHERAPEUTIC EFFICACY OF CYCLOARTANE GLYCOSIDES IN COMPARISON TO LOVASTATIN IN RABBITS WITH EXPERIMENTAL ATHEROSCLEROSIS

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The cycloartane glycosides cyclocarposide and cyclosieversioside F prevent an increase in the blood serum contents of cholesterol, triglycerides, and total fraction of pre-β- and β-lipoproteins in rabbits with atherosclerosis. They increase the ratio of α-cholesterol to total cholesterol and reduce the calculated coefficient of atherogenicity and the ratio of the total fraction of pre-β- and β-lipoproteins to α-cholesterol. In addition, the cycloartane glycosides restore the activity of antioxidant and NO-ergic systems in the heart muscle that is reduced in rabbits with atherosclerosis. The investigated cycloartane glycosides (especially cyclocarposide) had antiatherosclerotic action inferior to that of lovastatin, a drug from the statin group, and had certain advantages over lovastatin with respect to their effects on the antioxidant and NO-ergic systems.

Keywords: cycloartane glycosides, lovastatin, experimental atherosclerosis, lipid metabolism, antioxidant and NO-ergic systems.

Many natural compounds isolated from plants that optimize the main metabolic processes in mammals exhibit distinct antiatherosclerotic activity. In this respect, terpenoid coumarins [1], phytoecdysteroids [2], polyphenolic compounds such as flavonoids and polymeric proanthocyanidins [3, 4], lactones [5], etc. [6] are well known. Recently, cycloartane glycosides have started to come under rather intense scrutiny as metabolically active agents, especially with myocardial cytoprotective activity. They were found to have clear positive effects on carbohydrate, energy, and other types of closely associated metabolism of substances with various pathological conditions [7, 8]. The present work studied the effects of two compounds of this class, i.e., cyclocarposide and cyclosieversioside F that were isolated from local species of the genus *Astragalus*, on lipid metabolism and the antioxidant and NO-ergic systems in rabbits with experimental atherosclerosis. The reference drug was lovastatin, a representative of the statin class with hypolipidemic and antiatherosclerotic activity, a positive effect on endothelium dysfunction, and antioxidant properties [9, 10].

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EXPERIMENTAL CHEMICAL PART

Air-dried ground roots of *A. sieversianus* Pall (1 kg) that were collected in October 2021 in Tashkent Region (Burchmullo village) were exhaustively extracted with EtOH (5 × 5). The obtained EtOH extract was condensed to a syrupy residue that was treated with twice the volume of H_2O. Traces of EtOH were distilled off. The resulting aqueous solution of total substances was extracted first with $CHCl_3$ and then *n*-BuOH. The solvents were vacuum distilled to afford a BuOH extract (30 g). The total extract was further separated into pure compounds by column chromatography over silica gel with elution first by $CHCl_3$–MeOH (9:1) and then (6:1).