

COMPARISON OF CHEMICAL COMPOSITION AND ANTIBACTERIAL ACTIVITY OF LAVENDER VARIETIES FROM POLAND

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The aim of the study was comparing the chemical composition of the essential oils from five varieties of lavender (*Lavandula angustifolia* L.) and their antibacterial activity. The flower spikes of different varieties of lavender comprised the material for the tests (*Lavandula angustifolia*): "Munstead", "Munstead Strain", "Blue River", "Ellegance Purple" and "Lavender Lady". The dried material parts (20 g) were submitted to hydrodistillation for 3 hours using Deryng's type apparatus, according to the European Pharmacopoeia. The oil was stored at 4 °C until the GC-MS analysis. The oils were assayed against three bacterial, *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Escherichia coli*. Evaluation of antimicrobial activity *in vitro* of the essential oil was performed with the use of the disc — diffusion method. 18 Hour cultivation of a particular strain of bacteria in liquid medium was diluted with physiological NaCl solution to a density of 0.5 McFarland. Obtained in this way, a bacterial suspension was applied evenly over the entire plate surface to a solid Mueller-Hinton II (Oxoid), using a sterile swab sticks. Paper disks (diameter

6 mm) were soaked with 10 µl of a particular essential oil and were immediately applied symmetrically on the inoculated plate. Plates were incubated for 24 h at 37 °C and next zones of inhibition were measured. The primary components of the analyzed essential oils were: linalool (23,9–15,8 %), linalyl anthranilate (12,3–1,6 %), 1-terpinen-4-ol (9,7–5,5 %), *p*-menth-1-en-8-ol (7,9–4,0 %), linalool oxide (4,7–1,1 %). Moreover, we observed a difference in some compounds, existing in low concentrations that may influence the biological properties. From the essential oils that were tested, the "Blue River" variety have the greatest antibacterial activity. The highest increase of *Staphylococcus aureus* as well as *Pseudomonas aeruginosa* and *Escherichia coli* bacteria was inhibited by the activity of the essential oils from the "Blue River" variety. Medium zones of inhibition for "Blue River" are as follows: 19.5 mm on *Staphylococcus aureus* (reference strain), 18.2 mm on *Staphylococcus aureus* (strain isolated from skin MRSA/ORSA), 10.0 mm on *Pseudomonas aeruginosa* (strain isolated from skin) and 19.9 mm on *Escherichia coli* (reference strain).

CLINICAL TRIALS OF ORIGINAL PHYTOPREPARATIONS AND PROSPECTS OF THEIR APPLICATION

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The original antitumor preparation "Arglabin", antiatherosclerotic drug "Aterolid", hepatoprotector "Salsocollin", adaptogenic preparation "Ecdyphyt" and antiparasitic drug "Sausalin" were developed in holding "Phytochemistry" and introduced in clinic. They were developed on the basis of biologically active compounds of endemic species. Preparation "Arglabin" was tested on over 3000 oncological patients for the period 2000–2010 in the oncological centers of the far abroad and the Commonwealth of Independent States. Thus, the clinical efficiency of preparation was 76 %. Preparation "Arglabin" with mechanism action belongs to targeted preparations, i. e. there is not direct action on tumor cell, and on transfer path of tumor signal, namely, inhibits synthesis of farnesyltransferase. Results of I and II phases of the clinical tests of preparation "Aterolid" as hypolipidemic agent showed efficiency at treatment of 200 patients with dislocoproteinemia and atherosclerosis. "Aterolid"

reduces a level of cholesterol, triglycerides and general lipids and improves a level of lipoproteins with high density more effectively than comparison preparation "Pravastatin". The clinical efficiency of hepatoprotective drug "Salsocollin" on 410 patients with chronic virus, alcoholic, toxic hepatitis, liver cirrhosis of various etiology, biliary dyskinesia and chronic noncalculous cholecystitis was proved. The cost price of course treatment with "Salsocollin" is below than widely applied preparation "Essentiale-forte". The clinical efficiency of adaptogenic preparation "Ecdyphyt" was proved at complex treatment on 450 patients with pulmonary tuberculosis. "Ecdyphyt" is well tolerated by patients, not toxic in practice, have not the expressed by-effects peculiar to anabolic steroids of testosterone row and does not influence on functionalities of adrenal cortex. The full sanitation at treatment with preparation "Sausalin" was determined by results of two phases of the clinical tri-