

## TECHNOLOGY AND STANDARDIZATION OF A LAMIUM ALBUM-BASED PHYTO-GEL

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Development of the technology and standardization of a phyto-gel on the basis of dense extracts containing a lipophilic combination of biologically active substances extracted from the epigeal portion of *Lamium album*. Dried apex shoots at the budding and flowering stages picked up in the Leningrad Region in July-September, 2009 have been used as materials. Methods used: thin-layer chromatography, spectroscopy etc. Gels have been produced by means of a pilot equipment with a bladed mixer. Rotating speed was adjusted within a range of 30–100 rpm. The phyto-chemical analysis of the lipophilic complex of *Lamium album* has characterized its components which are of the most interest in terms of adding them in ready-made cosmetic products. Dense extracts have been obtained by the exhaustive extraction method with boiling dichloromethane. Circulating extraction method with the use of the Soxlet equipment and boiling EtOH (95%) in a round-bottomed flask with reverse refrigerator. After extraction, part of solvents has

been stripped until concentrated extracts are produced. The extracts have then been boiled down in water bath to obtain dense extracts. The most efficient extraction conditions have been determined: the raw material/extract ratio is 1:32, number of extracting cycles in the Soxlet apparatus is 14; raw material preliminary infusing time is 60 min. Based on the conducted researches, gelling agent Carbopol 974 PNI with a concentration of 0.7% has been selected. Homogenized castor oil Cremophor RH-40 was used as a plasticizing agent. Based on the findings of the conducted researches, a gel with the following composition has been produced: gelling agent — 0.7%, dense extract — 1%, Homogenized castor oil — 4%, preserving agent — 0.5%, purified water — up to 100%. The produced gel has been standardized according to the following parameters: appearance, color, odour, pH value, thermal stability, colloid stability, viscosity, microbiological purity. For all the parameters, the gel was complying with relevant regulatory documents.

## RADIOPROTECTIVE ACTIVITY OF MULTIPHYTOADAPTOGEN PREPARATION IN MICE UNDER VARIOUS CONDITIONS OF GAMMA RADIATION

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The purpose of this study was to evaluate the radioprotective activity of multiphytoadaptogen Phytomix-40 (phm-40) in mice under various conditions of gamma radiation and phm-40 application. Phm-40 consists of components from forty medical herbs extracts and has wide spectrum of activities including antimutagenic, antioxidant, antitumour and immunomodifying effects. Males of CBA x C57 BL/6 F1 mice were given 15% phm-40 solution with drinking water 2 weeks before the radiating (preventive application), 2 weeks before and 2 weeks after the radiating (preventive and therapeutic application) as well as 2 weeks only after the radiating (therapeutic application). Animals of 2 control groups were received only radiation. Animals of other control groups were given 5% ethanol solution in drinking water under the same application schemes. Mice received 7,5 Gy acute radiation or 11,0 Gy prolonged radiation. Somatic state of animals (motorical activity, appetite), amount of the drinking fluid, weight changes, survival rate, average lifespan of animals were estimated during experience. Parameters were monitored during 2 weeks before and 4 weeks after radiation. The lower levels of

survival rate and average lifespan were observed in only radiated mice — 25,8% and 12,7 days correspondingly with 7,5 Gy acute radiation also as 38,5% and 12,1 days correspondingly with 11,0 Gy prolonged radiation. At the same time phm-40 was found to significant increase the mice survival and average lifespan under preventive (66,6% and 16,0 days correspondingly with 7,5 Gy acute radiation and 75,0% and 16,3 days correspondingly with 11,0 Gy prolonged radiation) as well as preventive and therapeutic applications (66,6% and 15,2 days correspondingly with 7,5 Gy acute radiation and 76,9% and 15,7 days correspondingly with 11,0 Gy prolonged radiation). Phm-40 administration increased the somatic state of animals, mice weight, quality of life compared to only irradiated mice. The data suggest the radioprotective activity of multiphytoadaptogen as well as indirect demonstration of antimutagenic effect of preparation. That is why the preparation can promote the increase of radial therapeutic efficacy and frequency down regulation of the diseases produced by mutations. Multiphytoadaptogen Phytomix-40 has no side effects, improves somatic state and also increases lifespan of animals.