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The production of modern medicines of natural origin is based mainly on the use of plant extracts, the quality of which depends on the type of plant used for extraction, its conditions and cultivation environment, as well as the conditions of the extraction process. Maintaining the highest standards and production standards translates into obtaining extracts with a high content of secondary plant metabolites, characterized by the expected direction of pharmacological action. Testing the qualitative and quantitative composition as well as the biological activity of the obtained extracts, and from them the final product, are therefore one of the key stages in the production of high-quality medicines of plant origin.

In this context, attention was paid to the presence of primary and secondary metabolites present in extracts obtained from the fruits of *Eleutherococcus senticosus* (Rupr. et Maxim.) Maxim., as well as their activity at the pharmacological level. An important aspect that should be emphasized is the problem of using the plant root as a traditional raw material, the use of which translates into a growing threat of extinction of this species. Therefore, the key aspect of considerations regarding medicinal plant raw materials is the search for those that do not negatively affect the population of the plant itself.

The main assumptions of the cycle of works, which was submitted for evaluation as part of the doctoral dissertation, was the assessment of the pharmacognostic features of *E. senticosus* fruits, their chemical composition and pharmacological activity in terms of suitability as a new adaptogenic raw material. The overriding goal of the research in the described works was to find an answer to the question whether the above-ground parts of the plant, such as *E. senticosus* fruits, can be used interchangeably for traditionally used roots, while maintaining the properties of the adaptogenic raw material?

This goal was achieved by dividing the research into several main stages, which included the pharmacognostic evaluation of fruits using optical microscopy, phytochemical analysis of *E. senticosus* fruits, as well as phytochemical analysis of the extract obtained from them. Techniques such as HPLC-PDA, HPLC-RID were used for this. The total content of flavonoids, polyphenols and phenolic acids was also determined using spectrophotometric and colorimetric methods. A further aspect of the research included the pharmacological evaluation of the fruit extract in terms of adaptogenic activity, during which

spectrophotometric methods were primarily used to assess the antioxidant and anti-enzymatic properties (assessment of the inhibition of hyaluronidase, tyrosinase and acetylcholinesterase enzymes). MTT colorimetric tests were also used to assess virucidal activity, as well as to assess the intract's ability to induce proliferation of peripheral blood leukocytes. The evaluation of the concentration of cytokines in peripheral blood leukocytes stimulated with the intract was carried out using the immunoenzymatic technique - ELISA test. Cytotoxicity studies were based primarily on the survival analyzes of 2 cell lines: FaDu and HepG2, using the MTT test.

Based on the research results, it can be concluded that the intract obtained from the fruit of *E. senticosus* is an alternative to the commonly obtained extracts from the root of this plant (pharmacopoeial indications). Its use can thus contribute to a more sustainable, ecological approach in obtaining pharmacopoeial raw material, as well as to preserving the presence of this valuable adaptogenic plant in the natural environment.

The obtained results also allowed to conclude that the climatic conditions prevailing in our country did not have a negative impact on the phytochemical and phytopharmacological profile of *Eleutherococcus senticosus*, which indicates a positive perspective for the cultivation of this plant in Poland. In addition, the use of fruit as a medicinal raw material will contribute to increasing the weight of the raw material obtained from one specimen (root approx. 1 kg, while fruit up to 10 kg), thus contributing to a more sustainable, ecological approach in obtaining plant extracts.

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