



Fund “Nauka” Project № 25015 Resume – Competition-based Session 2025:

“Pharmacological preclinical studies of herbal extracts”

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Introduction: In recent years, interest in natural products as a source of biologically active substances for the prevention and treatment of various diseases has increased. Particular attention has been focused on herbal extracts with potential hepatoprotective and nephroprotective effects, given the high incidence of liver and kidney damage associated with drug therapy and exposure to harmful environmental factors. The need for preclinical studies stems from the limited available data regarding their efficacy, safety, and mechanisms of action.

Aim: To investigate the pharmacological activity and potential toxicity of selected herbal extracts with respect to their impact on the function of the digestive and excretory systems. In addition, the available multifunctional equipment enables the performance of a wide range of analyses using appropriate kits, which represents a prerequisite for expanding the long-term research capacity of the Department of Pharmacology, Toxicology and Pharmacotherapy.

Objectives: Isolation and subsequent qualitative and quantitative analysis of selected herbal extracts; *in vivo* study of the pharmacological and toxicological potential of the extracts; statistical processing and interpretation of the results obtained; presentation and publication of the findings.

Methods: Solid-liquid and liquid-liquid extraction; High-performance liquid chromatography (HPLC) for qualitative and quantitative analysis of plant extracts; Spectrophotometric and biochemical methods for determining biomarkers used to assess renal and hepatic function; statistical methods.

Expected results:

- Identification of potential therapeutic effects of selected herbal extracts/nutritional supplements in liver and/or kidney diseases;
- Evaluation of potential toxic effects of selected herbal extracts/ nutritional supplements on liver and kidney function.

It is assumed that the results will contribute to the scientifically justified safe and effective use of herbal extracts and will serve as a basis for subsequent clinical studies.