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TEZİSLƏR TOPLUSU

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STUDY OF ACUTE AND SUBACUTE TOXICITY OF HERB OF THE BIDENS FRONDOSA L. IN UZBEKISTAN.

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Introduction: In preclinical toxicological studies of medicinal products of plant origin, it is necessary to take an individual approach to studying the safety of each object, planning experiments taking into account the available information about the plant and experience of its medical use, the quality of raw materials, chemical structure, active components and dosage form, in order to minimise the risk of adverse effects in clinical trials and its subsequent widespread use in medical practice.

Strict quality standards are now applied to all stages of pharmaceutical development, from research and development to production and implementation. Particular attention is paid to ensuring the reliability of preclinical testing and the safety of new drugs. Most side effects of medicines can be prevented based on data obtained from various experiments, including laboratory studies. In addition, animal experiments play an important role in guaranteeing the safety of clinical trials and the subsequent use of new drugs. Due to the lack of data on acute and subacute toxicity of the above-ground part of the Bidens frondosa L. growing in Uzbekistan, the study of this object remains relevant.

The main goal of the work was to conducting pharmacological studies of acute and subacute toxicity properties of Bidens frondosa L., harvested in Uzbekistan.

Materials and methods: In this study, dried herb (above-ground part) of Bidens frondosa L., collected in the flowering phase (August 2023-24), in the territory of Tashkent region of the Republic of Uzbekistan, was used. Drying was carried out in natural conditions, in ventilated rooms without access to direct sunlight. Acute toxicity of the investigated remedy was studied by the generally accepted method described in the literature, single administration of drugs with determination of LD_{50} and toxicity class.

Experiments to study the subacute (subchronic) toxicity of the investigated « Herb of Bidens frondosa L.» were carried out on 80 rats (40 males and 40 females) of the same age and body weight 170 - 200 g. The experiment was conducted according to the recommendations for preclinical studies of drugs. Animals were kept in vivarium conditions under standard diet, temperature and light regimes, with free access to water and food. All manipulations with animals were carried out at the same time of day in the morning, taking into account the chronobiological dependence of most physiological processes in the organism.

Discussion: Thus, the results obtained show that the studied medicinal raw material of the "Bidens frondosa L.", as well as the comparison drug «Herba Bidentis», produced by «ZAMONA RANO» LLC, was low-toxic. Also, the data obtained on the study of subchronic toxicity showed that the studied of herbs of the "Bidens frondosa L.", developed at the Tashkent Pharmaceutical Institute with repeated intragastric administration for 28 days at a therapeutic dose, at a maximum daily dose and 10 times higher than the therapeutic dose does not cause violations of the functional state of the main organs and body systems.

Conclusions: It does not have a general toxic effect at the studied doses and routes of administration, and also does not have cumulative properties. The results of the study allow us to recommend the drug for clinical study.

Keywords: *Bidens frondosa L., the aboveground part, infusion, pharmacology, acute and subacute toxicity, cumulative properties, white mice, rats.*

THE IMPORTANCE AND FUTURE PERSPECTIVES OF GOOD MANUFACTURING PRACTICE (GMP) LEARNING IN HIGHER EDUCATION

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Introduction: Good Manufacturing Practices (GMP) play a crucial role in ensuring quality, safety, and efficacy of medical products. The integration of GMP learning into higher education is essential for preparing students to meet these regulatory requirements and to ensure they are well-equipped for roles in industry and research. As industries evolve with advanced technologies and stricter regulations, the demand for GMP-trained professionals becomes increasingly significant. This thesis explores the importance of GMP learning in higher education institutions, evaluates current gaps, and examines future perspectives to enhance its effectiveness.

This study highlights the significance of GMP learning in higher education institutions and its impact on industry and regulatory preparedness. It assesses the current state of GMP education in universities, identifying areas for improvement while exploring the challenges associated with implementing GMP courses and training programs within academic settings. Furthermore, it proposes future perspectives for enhancing GMP education through updated curricula, technological advancements, and strengthened collaboration between academia, industry, and regulatory bodies.

Materials and Methods: This study employs a mixed-method approach, incorporating qualitative and quantitative research methodologies such as literature review, survey and interviews, case studies, comparative analysis and technological integration.

Results and discussion: Preliminary findings suggest that while GMP learning is gaining recognition in higher education, several challenges hinder its full integration. Key findings include:

- Limited Awareness: Many students and educators lack sufficient awareness of GMP principles and their significance in professional careers, leading to inadequate preparedness for regulatory compliance roles.
- Gaps in Curriculum: Many academic programs do not offer dedicated GMP courses or only provide superficial coverage of GMP topics, making it difficult for graduates to transition smoothly into GMP-regulated industries.