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## **STUDY OF MEDICINAL PLANTS WITH SEDATIVE EFFECT**

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Stress, depression and constant nervous tension are among the main problems of modern society. As an additional aid to the nervous system recovery and returning it to normal condition, you can recommend phytotherapy. Medicinal plants will help to cope with difficult stressful situations, reduce nervous tension, overcome anxiety and insomnia. Despite the large range of plants that are recommended as sedatives, their study remains relevant.

The aim of the work was to study the chemical compounds of the raw material of peonies of medicinal species «Rosea plena» and «Alba plena» for expanding the raw material arsenal and their pharmacological properties. Qualitative reactions on different groups of biologically active substances were used to detect the active substances, and for quantitative analysis were used paper, thin-layer and gas chromatography.

One of the plants that is official, well-studied and has a sedative effect is the *Paeonia anomala*. Its rhizomes and roots contain salicin, methylsalicylate, organic acids and other substances. The aboveground part of the plant contains tannins, vitamin C, flavonoids, alkaloids, fatty acids and iridoids. However, this plant has a limited raw material base and is protected by law. Today, more than 300 species of woody and 10,000 species of herbaceous peonies are grown. Peony is used as a sedative, in addition, the underground organs in folk medicine are used as an analgesic, anti-inflammatory, antimicrobial agent. Therefore, it is advisable to conduct the phytochemical study of the most common ornamental species of peony, namely «Rosea plena» and «Alba plena».

In our paper the content of organic acids (including benzoic (5654.8 mg/kg), malic and citric), tannins, steroids, polyphenolic compounds (gallic acid), fatty acids, aminoacids, polysaccharides (starch) was studied and the presence of methyl salicylate (766.5 mg/kg), salicylaldehyde (1401.5 mg/kg) was revealed, flavonoids (rutin, quercetin, kaempferol) were identified and quantified in the leaf. In the ash of leaves and rhizomes with roots were also found 19 elements such as iron, silicon, phosphorus, aluminum, manganese, lead, nickel, molybdenum, calcium, copper, zinc, sodium, potassium, strontium.

Due to the expanded chemical study of additional compounds in rhizomes with roots, it is possible to predict a fairly pronounced antimicrobial activity of raw materials.

**Shchudrova T.S.**

## **PINEAL DYSFUNCTION AND KIDNEY RESISTANCE TO TOXIC DAMAGE**

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Pineal gland is the main regulator of circadian rhythms, neuroendocrine functions, and ageing, while its hormone melatonin has multiple biological and pharmacological effects. According to Ahmadian (2016), Reiter (2017) and Tavakoli (2014), melatonin, due to its free-radical scavenging activity and ability to potentiate the antioxidant system is a highly important antioxidant. Several researchers (Bonnefont-Rousselot, 2010; Espino, 2018; Esrefoglu, 2017; Ničković, 2018; Reiter, 2017) reported a therapeutic effect of melatonin in various pathologies related to oxidative stress. Besides, numerous studies (Majidinia, 2017; Pacini, 2016; Reiter, 2018; Tordjman, 2017) report beneficial immunostimulatory, anti-inflammatory, anti-apoptotic, cytoprotective, oncostatic, and anti-aging effects of melatonin.

The aim of this research was to study the renoprotective potential of melatonin in conditions of aminoglycoside-induced AKI against the background of pineal hypo- and hyperfunction.

Nonlinear mature white rats (n=40) were randomly divided into 5 groups. Animals from the I (Control), and II (AKI) group were kept under the natural light regimen. Pineal hypofunction was simulated in rats from the III group by maintenance under conditions of constant light at 500 lux (24.00 light : 0.00 darkness) for 7 days. Pineal hyperfunction was simulated in rats from the IV



group by maintenance under conditions of constant darkness (0.00 light : 24.00 darkness). Toxic AKI (II-IV groups) was induced by daily administration of gentamicin at a dose of 80 mg/kg for 6 days. Animals from the III-IV groups were daily injected with melatonin at a dose of 5 mg/kg. 24 h after the last injection biochemical and histological examination was performed. For the statistical analysis SPSS 17.0 software was used.

Nephrotoxicity of gentamicin caused significant ( $p < 0.05$ ) functional changes and structural alterations of rat kidneys. Treatment with melatonin in conditions of gentamicin-induced kidney injury significantly limited the degree of damage to renal tissue and prevented a critical reduction in kidney function, confirming a protective effect of melatonin. At the same time, significant ( $p < 0.05$ ) differences between the indices of the III and IV group allow us to state, that treatment with exogenous melatonin on the background of endogenous melatonin deficiency was less effective in comparison to the administration of melatonin in conditions of pineal hyperfunction.

Melatonin ameliorates gentamicin-induced kidney injury by the limitation of histopathological changes in kidney tissue and preservation of kidney function. Pre-existing deficiency of endogenous melatonin decreases the resistance of kidneys to damaging action of the toxin and lessens the protective effect of the exogenous melatonin. Alternatively, in rats with increased pineal gland activity and melatonin production, co-treatment with exogenous melatonin more effectively protects the kidney from gentamicin-induced structural and functional changes and prevents the development of renal failure.

**Tkachuk O.Yu.**

## **EXPERIMENTAL SUBSTANTIATION OF MEDICAL APPLICATION OF THE NEW COMBINED OIL PHYTOEXTRACT WITH HEPATOTROPIC ACTION**

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The range of oil-based medicines is relatively small but the potential of oil extracts is quite high, as vegetable oils are able to selectively extract biologically active substances from plant raw materials and are not toxic to the human body. Vegetable oils are known for their acceptable extractive properties, allow to obtain phytoextracts with a high content of active substances. In addition, the obtained oil extracts can be further used for introduction into other dosage forms without prior evaporation and drying. Therefore, the development of a new combined oil phytoextract with hepatotropic action from medicinal plant raw materials and the study of its toxicological properties and pharmacological activity is appropriate and relevant.

The aim of the research was to study the toxicological properties and pharmacological activity of a new combined oil phytoextract under the conditional name «Oleosyl» (oil extract of wild carrot seeds, chamomile flowers, corn columns with stigmas) on an experimental model of liver damage. For this purpose biological (determination of specific activity and safety) and mathematical (statistical processing of results and mathematical planning of the experiment) research methods were used.

Acute toxicity of «Oleosyl» was studied in accordance with the recommendations of the Ministry of Health of Ukraine. The experiments were performed on male rats weighing 300-320 g. Acute carbon tetrachloride hepatitis was induced by intragastric administration of 50% oil solution of carbon tetrachloride to rats at a dose of 0.7 ml / 100 g body weight.

The state of the extracellular liver function under the influence of oil phytoextract in the studied dose range was evaluated by the dynamics of biochemical indicators of bile (bile acids, cholesterol) and the estimated cholate-cholesterol coefficient (CCC) in comparison with animals of intact control group and reference samples. The level of choleric activity of the phytoextract samples at different doses was evaluated by the total amount of bile released over 4 h and reflected as a percentage relative to the animals of the control group.

According to the obtained data on the indicator of acute toxicity «Oleosyl» belongs to the VI class of toxicity according to the classification of K.K. Sidorov - relatively harmless substances,