

sample, which makes statistical analysis difficult. Pathohistological analysis showed local forms of inflammation (calor, rubor, dolor, tumor and function laesa), but we believe that longer period after induction is necessary for more severe microscopic changes in the joints. During analysis, only sagittal section was used without a transverse one.

**Conclusions.** The obtained results will provide additional knowledge of the impact of immunological parameters on the pathophysiology of the disease and will provide additional instructions for the creation of collagen-induced arthritis animal model.

## ANTI-INFLAMMATORY ACTIVITY OF THE INFUSION OF CLARY SAGE (*Salvia sclarea* L.), GROWING IN TAJIKISTAN

Musoev R.S.<sup>1</sup>, Mishchenko O.Ya.<sup>2</sup>, Musozoda S.M.<sup>1</sup>,  
Shpychak O.S.<sup>2</sup>, Rakhimov I.F.<sup>3</sup>.

<sup>1</sup>Tajik National University, Dushanbe, Tajikistan

<sup>2</sup>Institute for Advanced Training of Pharmacy Specialists of the National University  
of Pharmacy, Kharkiv, Ukraine

<sup>3</sup>Institute of Chemistry named after V.I. Nikitin NAST, Dushanbe, Tajikistan  
oksanamishch2021@gmail.com

**Introduction.** The study of the medicinal flora of Tajikistan in order to develop and implement effective, safe and affordable medicines is an urgent task of pharmaceutical technology arising from the State drug policy of the country, as well as national and sectoral programs aimed at developing domestic pharmaceutical production.

Currently, the use of wild medicinal plants in traditional and folk medicine is experiencing a new peak of recognition. Due to favorable climatic conditions, the species composition of wild medicinal plants in Tajikistan is very diverse and rich.

Over the past 10 years, the Department of Pharmaceutical Technology and Pharmacology of the Tajik National University has been conducting research on the development of dosage forms based on plants of the flora of Tajikistan, one of the representatives of which is clary sage, containing flavonoids as biologically active substances.

**The aim of the study:** experimental substantiation of the anti-inflammatory activity of the infusion of clary sage (*Salvia sclarea* L.), growing in Tajikistan.

**Materials and methods.** At the first stage of the research, the anti-inflammatory (anti-exudative) activity of sage leaf infusion at doses of 2, 5 and 10 ml/kg was studied on a model of carrageenan foot edema in rats. In the experimental groups, 24 male rats were randomized. The method of minimizing the difference in body weight was used (differences did not exceed 10% in all groups). The age of the animals was 2.5-3.0 months, weight – 160-180 g. All animals were divided into 4 groups: 1 – a group of positive control animals (PC), which received a solvent (distilled water) in a volume of 1 ml / 100 g animal weight; 2, 3, 4 – groups of animals that received sage infusion at a dose of 2; 5 and 10 ml/kg, respectively.

Inflammation was induced by subplantar injection of a 1% carrageenan solution into the hind right limb. The studied infusion of sage was administered intragastrically in a therapeutic and prophylactic regimen for 14 days and once a day of the experiment 1 hour before the administration of carrageenan. The development of edema was observed for 5 hours in dynamics – the initial state at 1, 2, 3, 4 and 5 hours. The effectiveness of the use of the studied samples was evaluated by the inhibition of the development of limb edema in dynamics) in comparison with the animals of the PC group and between groups that received the infusion at different doses.

The results were presented as the difference between the volume of the foot at the time of measurement and its initial value in ml. Foot volume was determined using a plethysmometer (PanLab LE7500, Spain). For an integral assessment of the effectiveness of the use of the studied objects in this pathology, the indicator of their anti-exudative activity (AEA, %) was calculated according to the formula:  $AEA = ((\Delta V_k - \Delta V_d) / \Delta V_k) \times 100\%$ , where AEA is anti-exudative activity, the indicator of suppression of edema development in experimental animals compared with animals of the PC group, %;  $\Delta V_d$  and  $\Delta V_k$  are the difference (ml) between the volume of the edematous and non-edematous foot in the experiment and in the PC, respectively.

The data obtained were presented as the mean value and its error ( $M \pm m$ ). Comparison between the experimental groups was performed using the nonparametric Kruskal-Wallis method and the Mann-Whitney test. Differences between the experimental groups were considered statistically significant at  $p < 0.05$ . For statistical data processing, the basic software package "Statistica 6" and Excel 2007 were used.

**Results and discussion.** The model of acute exudative inflammation of the foot in rats caused by carrageenan is a classic and commonly used experimental model for studying the anti-inflammatory properties of drugs. Various inflammatory mediators are involved in the mechanism of foot edema development: histamine, serotonin, kinins and prostaglandins.

The dynamics of edema development in the PC group is typical for this experimental model. Already one hour after the introduction of phlogogen, the development of edema was observed, which gradually increased. 4 hours after the administration of carrageenan, the maximum value of inflammation was observed, which practically does not decrease after 5 hours.

In rats, which were administered sage infusion at a dose of 2 ml/kg in a therapeutic regimen, the dynamics of inhibition of the inflammatory process was insignificant (AEA=3%) and did not differ from untreated animals.

In the group of animals that received sage infusion at a dose of 5 ml/kg, the amount of paw edema throughout the experiment was statistically significantly lower by 30-38% compared to untreated animals, while in the group that received sage infusion at a dose of 10 ml /kg, a similar effect was observed only for 2-4 hours of the experiment. The average anti-exudative activity of sage infusion at a dose of 5 ml/kg and 10 ml/kg was 32 and 16%, respectively.

**Conclusions.** Thus, the results of the experiment indicate that the infusion of clary sage (*Salvia sclarea* L.), growing in Tajikistan, at a dose of 5 and 10 ml/kg

exhibits an anti-exudative effect. In terms of the speed of onset and duration of this effect, sage infusion at a dose of 5 ml/kg is superior to a dose of 10 ml/kg, which makes it possible to predict similar benefits in further studies.

## **STUDY OF ANTI-EXUDATIVE PROPERTIES OF THE BURDOCK LEAVES THICK EXTRACT**

**Shchokina K.G., Dipt Charaf Eddine, Belik H.V.**

*National University of Pharmacy*

*Pharmacology and pharmacotherapy department*

*Kharkiv, Ukraine*

*acya@ukr.net*

**Introduction.** The problem of pharmacological correction of inflammation, as before, remains an urgent problem of modern medicine. Nonsteroidal anti-inflammatory drugs (NSAIDs) are drugs of first choice for the treatment of inflammatory diseases of the musculoskeletal system. However, it should be determined that despite the undoubted clinical effectiveness, the use of NSAIDs is accompanied by serious side effects related to the mechanism of their action. In connection with the above, despite the diverse assortment of anti-inflammatory agents, there is a need for drugs to correct inflammation. The search for new drugs with an unconventional mechanism of action and minimal side effects is relevant and ongoing. Phytotherapy is one of the promising areas of creating safe and effective anti-inflammatory drugs. Unlike synthetic drugs, they have a mild physiological effect and have a high level of safety. It is also worth noting that medicinal plants contain many pharmacologically active substances, which determines their wide pharmacodynamic capabilities.

Burdock is One of the plants traditionally used in folk medicine to treat inflammation. It is known that burdock leaves contain ascorbic acid, carotene, rutin, hyperoside, essential oil, mucilage, tannins. Analysis of the phytochemical composition of burdock leaves allows us to predict the presence of anti-inflammatory properties in this medicinal raw material.

**Aim of the study:** experimental study of the antiexudative properties of a thick extract of large burdock leaves.

**Materials and methods.** We studied the antiexudative properties of a thick extract of burdock leaves on a model of acute aseptic inflammation in rats - zymosan edema.

It is known that the metabolism of arachidonic acid can occur not only by the oxygen (cyclooxygenase), but also by the oxygen-free (5-lipoxygenase) pathway, which leads to the formation of leukotrienes. To determine the effect of burdock leaf extract on the course of the inflammatory process, the leading role in the development of which belongs to leukotrienes, it was advisable to investigate its effect on the model of zymosan edema in rats. Quercetin was chosen as a comparator, along with diclofenac sodium, because it has the ability to inhibit the 5-lipoxygenase pathway of arachidonic acid conversion and inhibit the formation of leukotrienes.