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**STUDY OF ANTI-INFLAMMATORY ACTIVITY OF “ORTOF-S”  
TABLETS**

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The results of the study of pharmacological studies of the recommended tablets “Ortof-S” by the method “carrageenan paw edema in rats” are presented. The first stage of the study, the anti-inflammatory effect of the compared drugs “Ortof-S”, manufactured by LLC “SAMO”, Uzbekistan and “Ketaneym”, manufactured by “NEOUNIVERSE LLP”, London, UK, was studied by the method of “carrageenan paw edema in rats” anti-inflammatory activity bioavailability is to determine the solubility or release time of the drug from the medicinal forms. It was found that the solubility test characterizes the biological availability of the drug in the first approximation, since in practice there is a very frequent correlation between the rate of dissolution and absorption. The solubility, foreign impurities and the quantitative content of active substances were studied.

**Key words:** biopharmaceutical, in vivo, solubility, quantitative determination, foreign impurities, HPLC

**Relevance.** Pain, inflammation, and an increase in body temperature are the result of a number of chemical reactions in the body that occur under the influence of any factor (infections, injuries, disorders of the functions of internal organs, etc.). But if you exclude any link from this chain of reactions, it is interrupted - the mechanism of pain and inflammation formation is disrupted. This is the basis of the principle of action of NSAIDs: they block the synthesis of prostaglandins –

substances that play an important role in the development of inflammatory processes and pain. It is this combination – anti-inflammatory, analgesic and antipyretic effect - that has made NSAIDs one of the most popular medications today. After all, many diseases are accompanied by fever, pain and inflammation. These funds are usually distributed depending on the severity of anti-inflammatory activity and the chemical structure of the active substance, duration of action and selectivity. Currently, it is well known not only the undoubted benefits of nonsteroidal anti-inflammatory drugs (NSAIDs) in the treatment of pain and inflammation, but also the negative effects of these drugs primarily on the mucous membrane (CO) of the gastrointestinal tract (gastrointestinal tract) [4, 6, 12, 15, 16, 19].

The creation of NSAIDs selective to cyclooxygenase (COX)-2 did not completely solve the problem of gastroesafety, but raised questions about the cardiac safety of highly selective COX-2 inhibitors - coxibs [2, 3, 7, 8, 10, 13, 18].

At the moment, it has been established that gastrointestinal lesions when taking NSAIDs are mediated by two main mechanisms: a physico-chemical violation of the barrier function of the gastric mucosa (SO) and a systemic violation of the protection of SO due to inhibition of COX-1 activity in the gastrointestinal tract. According to the generally accepted concept, systemic side effects of NSAIDs are associated with the blockade of the COX-1 enzyme, which provides the synthesis of gastroprotective prostaglandins E<sub>2</sub> and I<sub>2</sub> from arachidonic acid, which leads to erosive and ulcerative lesions of CO, and sometimes such severe complications as bleeding and perforation. A decrease in the intensity of mucus and bicarbonate production, a violation of blood flow in the CO and an increase in acid secretion are the main consequences of NSAID-induced prostaglandin deficiency. It was noted that a significant number of prostaglandin receptors are concentrated in the stomach and intestines. Additional mechanisms of lesion development have also been demonstrated: disruption of the oxidative phosphorylation process (electron transfer chain break), decrease in the intensity of CO cell proliferation and DNA replication, activation of neutrophil

granulocytes. The development of adverse effects, especially against the background of long-term treatment with NSAIDs, can be observed in all parts of the gastrointestinal tract: taking this group of drugs (including low doses of acetylsalicylic acid) significantly (about 2 times) increases the likelihood of developing peptic esophagitis with the risk of ulceration, bleeding or stricture formation[1, 4, 9, 11, 17].

**The purpose of the research:** conducting pharmacological studies of the drug “Ortof-S” - tablets (p. 01 S.G. 3 years), produced by LLC “SAMO”, Uzbekistan in comparison with the drug “Ketaneym” - tablets coated with a film (p. AT163 S.G. 09/2022; no. and date register. DV/X 06216/05/19 06/05/19), produced by “NEOUNIVERSE LLP”, London, UK.

**Research objectives:**

1. Study of the anti-inflammatory activity of the drug “Ortof-S” - tablets (p. 01 S.G. 3 years), produced by LLC “SAMO”, Uzbekistan for carrageenan inflammation in comparison with the drug in comparison with the drug “Ketaneym” - film-coated tablets (p. AT163 S.G. 09/2022; No. and date register. DV/X 06216/05/19 06/05/19), produced by “NEOUNIVERSE LLP”, London, UK in an experiment on white rats;

2. Statistical processing of the results obtained with the calculation of  $M \pm m$  [3].

**Material and methods:** The anti-inflammatory effect of the compared drugs “Ortof-S”, manufactured by LLC “SAMO”, Uzbekistan and “Ketaneym”, manufactured by “NEOUNIVERSE LLP”, London, UK, was studied by the method “carrageenan paw edema in rats” [5, 6, 14].

The experiment was carried out on 18 white rats weighing 180-200 g of both sexes. In rats, the volume of the foot was previously measured three times in normal. The average value of three dimensions was considered for the initial volume. Acute inflammatory reaction (edema) was reproduced by subplantar (between 1 and 2 fingers of the left hind foot) administration of 0.1 ml of 1% carrageenan solution (sulfated polysaccharide from Irish sea moss). The severity of

the inflammatory reaction was assessed 3 hours after the induction of inflammation by changing the volume of the paw using a plethysmometer – a water chamber with a diameter of 24 mm with a curved discharge tube. The anti-inflammatory effect (PVE) was calculated by the formula:

According to  $PVE = 1 - (Po / Pc) \times 100$ , where

Po – an increase in the volume of the foot in the experimental group,

Pc – an increase in the volume of the foot in the control group.

The drugs were administered once intragastrically using a probe 1 hour before carrageenan administration. For the experiment, the rats were divided into 3 groups of 6 heads each. The compared drugs were administered as follows:

For the experiment, the rats were divided into 4 groups of 6 heads each. The drugs were administered as follows:

1. Group – control – 1 ml of purified water;
2. Group – experimental – 0.7% aqueous solution of the drug “Ortof-S” - tablets at a dose of 70 mg / kg;
3. Group – experimental – 0.5% aqueous solution of the drug “Ketaneym” at a dose of 50 mg / kg.

The obtained data were statistically processed using the STATISTICA program according to the Student's paired criterion [6].

***The results obtained:*** the results obtained in the study of the anti-inflammatory effect of the compared drugs showed that the effect of the drug “Ortof-S” - tablets produced by LLC “SAMO”, Uzbekistan had a significant anti-inflammatory effect (Table 1). After 3 hours, the drug “Ortof-S” - tablets, manufactured by LLC “SAMO”, Uzbekistan at a dose of 70 mg / kg significantly reduced the swelling of the inflamed foot by 68% compared to the control.

The results obtained were presented in Table 1.

Table 1

**Anti-inflammatory effect of the drugs “Ortof-S” - tablets,  
LLC “SAMO”, Uzbekistan and “Ketaneym”, produced by  
“NEOUNIVERSE LLP”, London, UK**

Weight, g	Dose	Healthy paw volume, ml	The volume of the foot after the introduction of formalin, ml	Paw growth, ml
	mg/kg		3 hours	3 hours
<b>Control group (NaCl)</b>				
191,7 ± 5,6	-	1,18 ± 0,07	1,8 ± 0,12	0,62 ± 0,07
<b>“Ortof-S” - tablets, manufactured by LLC “SAMO”, Uzbekistan</b>				
190 ± 7,6	70	1,13 ± 0,12	1,38 ± 0,14 P<0,05	0,2 ± 0,08 P<0,05
<b>“Ketaneym”, produced by “NEOUNIVERSE LLP”, London, UK</b>				
190,3 ± 6,1	50	1,16 ± 0,1	1,36 ± 0,17 P<0,05	0,23 ± 0,05 P<0,05

Under similar conditions, the drug “Ketaneym”, manufactured by “NEOUNIVERSE LLP”, London, UK, at a dose of 50 mg / kg had an anti-inflammatory effect, the PVE of the drug was 63% after 3 hours.

The data obtained indicate that the studied drug “Ortof-S” - tablets, LLC “SAMO”, Uzbekistan has a pronounced anti-inflammatory effect and in its action is not inferior to the well-known reference drug “Ketaneym”, produced by «NEOUNIVERSE LLP”, London, UK.

**Conclusion:**

The studied drug “Ortof-S” - tablets (p. 01 S.G. 3 years), produced by LLC “SAMO”, Uzbekistan, had a significant anti-inflammatory effect in comparison with the reference comparison drug “Ketaneym” - film-coated tablets (p. AT163

S.G. 09/2022; No. and date register. DV/X 06216/05/19 06/05/19), produced by «NEOUNIVERSE LLP», London, UK.

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