EFFECTS OF GLYCOSYLATED POLYPEPTIDE COMPLEX ON IL-1B, TNFα, IL-6 AND IL-8 PRODUCTION IN THE MODEL OF ACUTE BRONCHITIS INDUCED BY A CIGARETTE SMOKE IN RATS

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Smoking is one of provoking factors which increase the risk of respiratory disease. An inflammation appears in bronchi immediately after first contact with a cigarette smoke. It is resulted in increase of IL-1β, TNFα, IL-6 and IL-8 production in the phlegm of smokers [1]. The aim of this study was to evaluate the effect of glycosylated polypeptide complex (GPC) isolated from sea urchins *Strongylocentrotus droebachiensis* on pro-inflammatory cytokines / chemokines (IL-1β, TNFα, IL-6 and IL-8) in the model of acute bronchitis induced by a cigarette smoke in rats. The experiment was performed in male Wistar rats. Animals were divided into five groups: four experimental and one control. Animals of experimental groups were inhaled by GPC solution at 25 mkg/kg, 50 mkg/kg and 100 mkg/kg, and the reference drug Ambroxol at 3.6 mg/kg, once daily, from the 14th day after induction of acute bronchitis and over the next 14 days. The levels of IL-1β, TNFα, IL-6 and IL-8 in the bronchoalveolar lavage were measured the 28th day of the study ELISA method. Statistical data analysis was performed by Statistica 6.0 (Russia). According to the study results, GPC at all test doses decreased the levels of pro-inflammatory cytokines / chemokines in the bronchoalveolar lavage fluid of the animals (Table 1).

GPC actively decreases the levels of pro-inflammatory cytokines / chemokines, that makes further studying of its anti-inflammatory properties highly perspective.

Reference:

1. Yoshida T., Tuder R. M. Pathobiology of cigarette smoke-induced chronic obstructive pulmonary disease // Physiological reviews. — 2007. — T. 87. — №. 3. — C. 1047-1082.

Table 1. IL-1β, TNFα, IL-6 and IL-8 levels in the bronchoalveolar lavage fluid, M±m, n=6

Parameters	Control	GPC, 25 mkg/kg	GPC, 50 mkg/kg	GPC, 100 mkg/kg	Ambroxol, 3.6 mg/kg
TNFα, pg/ml	326±13.7	239±7.5*	208±8.3*	189±3.1*	217±8.0*
IL-1β, pg/ml	1247±63.4	902±24.6*	853±17.6*	808±14.1*	837±15.6*
IL-6, pg/ml	766±27.4	602±16.1*	544±13.7*	511±8.0*	553±12.1*
IL-8, pg/ml	369±20.6	254±5.8*	245±7.2*	228±8.7*	251±6.1*

Notes 1 — * — statistically significant *versus* control animals ($p<0.05$, ANOVA); 2 — M±m – mean ± standard error of mean

PHARMACOKINETICS OF ALANTOLACTONE, ISOLATED FROM *INULA HELENIUM*, IN RATS: HIGH BODY CLEARANCE AND LOW ORAL BIOAVAILABILITY

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Alantolactone (ALA) is a major bioactive sesquiterpene lactone present in the roots of *Inula helenium* L. (Asteraceae) which has been widely used in traditional medicine against various diseases such as asthma, cancer, and tuberculosis [1]. Pharmacologic activities of ALA have been well characterized [2], yet information on the physicochemical and pharmacokinetic properties of ALA and their mechanistic elucidation are still limited. Thus, this study aims to investigate the oral absorption and disposition of ALA and their relevant mechanisms.

Physicochemical properties of ALA were characterized in terms of lipophilicity, stability, protein binding, and blood distribution. Then, tissue-dependent differences in ALA metabolism were evaluated, and the hepatic metabolism of ALA in rat liver microsomes (RLM) was further investigated to elucidate the kinetics of the