



**МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ  
НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ  
КАФЕДРА КЛІНІЧНОЇ ЛАБОРАТОРНОЇ ДІАГНОСТИКИ,  
МІКРОБІОЛОГІЇ ТА БІОЛОГІЧНОЇ ХІМІЇ**



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180-220 g, which were kept under standard conditions of the NUPh vivarium, were used. Blood serum and liver cytosol were incubated for 30 minutes at 37°C in three variants: without any additives, with the addition of cadmium chloride solution (at the rate of 280 µg/ml serum or 2.8 mg/ml cytosol) and with the addition of cadmium chloride (the same dose) and DEBA and the combination of loratadine with DEBA (at the rate of 1 mg/ml serum or 10 mg/ml cytosol).

**Results and discussion.** As a result of the study, it was found that incubation of blood serum and liver cytosol in the presence of cadmium chloride causes the accumulation of lipid peroxidation products. The obtained results indicate that under conditions of oxidative stress, the preliminary administration of both the goldenseal extract and its combination with loratadine significantly improves the oxidative state of the studied objects. The level of lipid peroxidation products is significantly reduced; the content of isolated double bonds increases compared to the effect of cadmium chloride. It was found that *in vitro* DEBA and its combined use with the drug loratadine also protects lipoproteins of blood serum and liver cytosol from peroxidative damage.

**Conclusions.** The results of the conducted studies indicate a high level of antioxidant activity of DEBA and its combination with loratadine *in vitro*, which indicates the feasibility of further studying their combined use *in vivo*.

## **EFFECT OF THE PHYTOEXTRACT FROM *BUPLEURUM AUREUM* AND ITS COMBINED USE WITH LORATADINE ON THE PARAMETERS OF LIPID PEROXIDATION UNDER THE ACTION OF CADMIUM CHLORIDE *IN VIVO***

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**Introduction.** This work is a continuation of the cycle of works on the pharmacological study of dry extract of *Bupleurum aureum* (DEBA), which contains phenolic compounds, flavonoids, saikosaponins, tannins, phytosterols, amino acids, micro- and macroelements and has long been used in folk medicine for the treatment of liver diseases, exhibits choleric, anti-inflammatory, detoxifying, wound-healing effects. Among the substances that make up this extract, there is a significant number of various flavonoids, in particular, quercetin, the antioxidant effect of which is well known.

**The aim of the work.** This series of experiments investigated the effect of DEBA and its combined use with the drug loratadine on lipid peroxidation (LPO) indices *in vivo* under the influence of cadmium chloride.

**Materials and methods.** *In vivo* experiments were used outbred white mice of both sexes weighing 20-25 g. The object of the study was the liver cytosol and blood serum. Cadmium chloride was injected intraperitoneally to mice once at a dose of 1.96 mg per 100 g of body weight. 3 days before the injection of CdCb, some animals (some animals) were injected intragastrically with dry DEBA and its combination with the drug loratadine in effective doses, which were previously selected. The remaining animals were administered orally with DEBA and a combination of the drug loratadine with DEBA in effective doses 2 hours before the injection of cadmium chloride. The oxidative state of the liver cytosol and blood serum was studied.

**Results and discussion.** According to the results of the studies, it was found that the administration of sublethal doses of cadmium chloride to mice causes a picture typical of oxidative stress: 2 hours after injection, the level of isolated double bonds decreases by more than 4 times, the content of POL products increases by 2 times. At the same time, the administration of DEBA and its combination with the drug loratadine to animals did not affect the POL indicators. Prophylactic administration of DEBA and its combination with loratadine to animals under the influence of cadmium chloride significantly reduced the number of POL products, although not to the norm. It should be noted that the administration of sublethal doses of cadmium chloride is too strong a stress that animals (like humans) almost never encounter in natural conditions, except for acute poisoning. Even with such extreme exposure, DEBA and its combined use with loratadine proved to be a powerful antioxidant complex, which makes it a valuable object for further research.

**Conclusions.** The results of the conducted studies indicate a high level of antioxidant activity of DEBA and its combined use with the drug loratadine, which indicates the feasibility of further pharmacological study of this combination.

## РОЛЬ ФЕРМЕНТІВ У ФОРМУВАННІ ТА РУЙНУВАННІ БІОПЛІВОК

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**Вступ.** Утворення біоплівок є однією з найсерйозніших проблем сучасної медицини, оскільки вони відіграють ключову роль у розвитку хронічних та рецидивуючих інфекцій. Сучасні антибіотики та антисептики продемонстрували обмежену здатність повністю видаляти біоплівки. Здатність біоплівок до тривалого існування в організмі та високий рівень антибіотикорезистентності