region. The raw material was dried in a shade under tents; laid out in a thin layer (2-3 cm) on paper and periodically flipped. The herb was dried using a conventional method and stored in paper bags in a dry, protected from direct sunlight place.

Preparation of extract. About 500 g of dried raw material was powdered. It was taken in theextractor and extracted using 50 % ethanol as a solvent. The extract was concentrated under vacuum and dried by rotator evaporator under reduced pressure.

The 45 white nonlinear male rats weighing 200-250 g were used as the experimental animals. The animals were kept in a room under the temperature of 22 ± 2 º C, and relative humidity of 44-55 % under 12/12 hour light and dark cycle with a standard laboratory diet and water were given ad libitum.

The study of hepatoprotective activity of the common cat's foot herb dry extract was performed on the model of acute toxic hepatitis caused by alcohol – CCl4 in comparison with the known hepatoprotective agent, which is widely used in the clinic, Silibor (produced by "Zdorovia" Ltd., pharmaceutical company, Kharkiv, Ukraine).

The experiments were conducted on 45 white nonlinear male rats weighing 200-250 g. Animals were divided into 5 groups of 9 animals in each: group 1 – intact control; group 2 – control pathology, animals that were injected intragastrically with a 50 % oil solution of alcohol – CCl4 at a dose of 0.7 ml/100 g mass; groups 3, 4 and 5 are animals that received the common cat's foot herb dry extract 1, 2 hours prior to the administration of alcohol – CCl4, respectively, in doses of 25 mg/kg and 50 mg/kg, and Silibor comparator drug 100 mg/kg. Tested remedies were administered in animals prophylactically for 7 days. Control pathology animals were treated with an equivalent volume of drinking water (1 ml/100 g mass). Hepatotoxin was administered daily for 2 days (day 8 and day 9 of the experiment). 24 hours after the last injection of alcohol – CCl4, the animals were removed from the experiment, the liver was excluded, which was weighed and its weight factor was calculated, and blood was collected for biochemical study.

The conducted researches allow us to state, that the common cat's foot herb dry extract at a dose of 50 mg/kg has a hepatoprotective effect, which is realized due to the membrane-stabilizing and antioxidant properties of the extract's biologically active substances. The obtained results can be used in a further preclinical study of the studied raw material's dry extract to create new hepatoprotective agents on its basis.

Batranovska S.O.

USE OF SULFUR ION DONORS AS A NOVEL STRATEGY FOR ORGAN PROTECTIVE THERAPY

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The rapid growth of pollution of air, soil and water bodies with salts of heavy metals and other toxins is facilitated by the uncontrolled use of pesticides in agriculture, the increasing frequency of industrial accidents and toxic emissions, oil refining and exhaust gases from cars, the widespread use of toxic paints and chemicals in production and in everyday life. Subsequently, all this accumulates in plants and ends up in finished products.

The aim of our research was the increasing use of products with a long shelf life, as well as polypragmasia and self-medication due to the availability of most drugs without a prescription and the abundance of advertising in the media, in turn, also accelerate the growth of toxic and allergic reactions among the population. Taking into account the increase in allergization and various poisoning in the world and in Ukraine, in particular, and, accordingly, taking into account the socio-economic factors and the far disappointing forecasts of a further increase in the incidence, the question arises about the availability of effective and affordable treatment. Sodium thiosulfate (STS) [antichlorine, sodium hyposulfite, sodium sulfate $Na_2S_2O_3$] is an inorganic salt widely used in various industries, since the end of the 16th century it has been used for poisoning. The drug has a low cost, is produced by domestic pharmaceutical companies in the form of a 30% solution for injection, has an antitoxic, desensitizing, antioxidant, anti-inflammatory and neuroprotective effect.

This complexing agent, a donor of sulfur ions, easily reacting with various chemical compounds and oxidizing, acts as a strong reducing agent, forms low-toxic and non-toxic compounds with cyanides, heavy metal salts, and halogens.

The drug has antidote properties in relation to hydrocyanic acid and cyanides, phenols, benzene, aniline, compounds of mercury, lead, arsenic, copper, chlorine, iodine, bromine, which makes it possible to use it in the complex treatment of poisoning, allergic diseases, as well as burns, arthritis, neuralgia, diabetic neuropathy. STS has also been shown to be effective in the treatment of calciphylaxis, a formidable complication in patients with severe renal failure on hemodialysis, resulting from calcium deposition in the intima of arterioles and characterized by nodular subcutaneous calcification and painful tissue necrosis, often leading to skin ulceration, secondary infection and high one-year mortality from sepsis (45%-80%). STS displaces calcium ions from sediments to form calcium thiosulfate, which is excreted by the kidneys or is dialyzed. Diabetes mellitus, obesity, the use of calcium-containing agents and dietary supplements, active vitamin D, warfarin, corticosteroids, iron preparations, and trauma associated with subcutaneous administration of heparin or insulin increase the risk of developing calciphylaxis. STS, a reversible oxidation product of hydrogen sulfide, has vasodilation and anti-oxidative properties, making it an attractive agent to alleviate damaging effects of hypertension. Combining thiosulfate of sodium with angiotensin converting enzyme inhibitors further lowered renal vascular resistance and prevented glomerulosclerosis.

Thus, these data suggest that thiosulfate has therapeutic potential in hypertensive renal disease and might be of value when added to standard antihypertensive therapies. In addition, STS attenuates glial-mediated neuroinflammation in degenerative neurological diseases by increasing the expression of sulfhydryl groups and glutathione in cultures of microglia and astrocytes. Since neuroinflammation has been found to occur in degenerative neurological diseases such as Alzheimer's and Parkinson's, STS is a potential therapeutic agent for these and other neurodegenerative diseases and deserves attention for further study.

Drachuk V.M.

ANTIOXIDANT POTENTIAL OF GLUTATHIONE IN THE CONDITIONS OF DEVELOPMENT OF ACETAMINOPHEN-INDUCED ACUTE RENAL INJURY

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Despite significant advances in drug therapy and improvements in renal replacement therapy, mortality rate of acute kidney injury (AKI) continuously increases and is about 25-70%. On the other hand, Acetaminophen is frequently used for analgesia and is considered safer than nonsteroidal anti-inflammatory drugs (NSAIDs) for the kidneys. However, there is little epidemiological evidence of the association between Acetaminophen and development of AKI. Renal insufficiency occurs in approximately 7-15% of patients with acetaminophen overdose. For this reason, potent cytoprotector and antioxidant – glutathione has drawn our attention as remedies for the pathogenetic correction of Acetaminophen-induce AKI.

Aim of research – to study antioxidant potential of glutathione in conditions of Acetaminophen-induce AKI in rats. Research was conducted on 21 mature non-linear white rats weighting 130-180 g, randomly divided into 3 groups (n = 7): I group – intact control, II group – Acetaminophen-induce AKI (Acetaminophen-induced AKI was caused by a single intraperitoneal administration of acetaminophen (paracetamol, Health, Ukraine) at a dose of 750 mg/kg), rats of III group were daily administered with glutathione (TAD 600, Biomedica Foscama, Italy) at a dose of 30 mg/kg, 1 h after paracetamol injection. Animals were withdrawn from the experiment 24 h after the last injection, while blood, urine were sampled for biochemical assessments. Peroxidation processes in kidneys were evaluated by the malone dialdehyde and oxidative modification of proteins levels, antioxidant defense – by catalase and glutathione peroxidase activity, and SH-groups content.