examination by light microscopy was conducted to confirm the research results. Data were compared by Mann-Whitney test using SPSS Statistics 17.0.

Administration of gentamicin during 6 days resulted in the toxic kidney injury, manifested in the decrease of diuresis by 54% ($p<0.01$), increase of plasma creatinine concentration by 3.3 times on the background decrease of GFR by 73% ($p<0.01$) and significant proteinuria with an increase of protein excretion by 57% ($p<0.01$) comparing to control. Proximal tubular injury caused an increase of fractional sodium excretion up to 4.55% ($p<0.01$). Biochemical data correlate with histopathological findings: vacuolar degeneration affected 30%, epithelial necrosis – 70% of proximal tubular cells, the lumen of the tubules were filled with hyaline casts, glomerular congestion and their partial atrophy were also observed.

Co-treatment with AEDG decreased the severity of renal injury realized in preclusion of oliguria (increase of diuresis by 81% ($p<0.01$) comparing to untreated animals), prevention of retention azotemia (decrease of plasma creatinine concentration by 2.8 times, $p<0.01$), reduction of proteinuria by 40% ($p<0.05$) and normalization of sodium fractional excretion (to 0.73%, $p<0.01$). Protective effect of peptide is confirmed by the absence of epithelial necrosis, glomerular atrophy, luminal hyaline casts and potentially reversible hydropic swelling of 91% of the proximal tubular cells.

Obtained results suggest the therapeutic potential of tetrapeptide AEDG under the conditions of gentamicin-induced kidney injury confirmed by the amelioration of excretory kidney function and histopathological changes.

Smetanyuk O.I.

RARE MEDICINAL PLANTS OF CHERNIVTSI REGION

Department of Pharmaceutical Botany and Pharmacognosy
Higher Educational Establishment of Ukraine
"Bukovinian State Medical University"

In Bukovina region 573 species of wild plants with medicinal properties grow. There are 49 rare and endangered species among them. The Red Book of Ukraine includes 38 species of medicinal plants, 11 species are protected at the regional level. Nature reserve fund of Chernivtsi region occupies almost 8% of the territory, the majority of the rare medicinal plants grow on29118 ha (only landscape, forest and botanical zone are considered).

Chernivtsi region includes three natural zones - Prut-Dniester interfluve, Bukovinian Precarpathians and Bukovinian Carpathians.

In the area between the Prut-Dniester interfluve 32 species of rare medicinal plants grow. Among them there are the types of populations occurring "often". These are: *Pulsatilla latifolia Rupr., Lilium martagon L., Neottia nidus-avis (L.).* In the area between the Prut-Dniester interfluve 40 protected areas with the territory of 5227.9 hectares are marked. In Bukovinian Carpathians 33 species of rare medicinal plants grow, most of them occur in 45 protected areas on the territory of 8577.9 hectares. In the foothill landscapes populations of rare medicinal plants are often found: *Atropa belladonna L., Colchicum autumnale L., Cephalanthera longifolia (L.), Dactylorhiza majalis (Reichend.), Neottia nidus-avis (L.) Rich., Orchis morio L., Platanthera bifolia (L.).* Among them there are officinal types – *Atropa belladonna L.* This plant grows lonely in all natural areas of Bukovina. In Bukovinian Carpathians 35 species of medicinal plants are found. There are plants which populations are often found and belong to a small taxon risk: *Lycopodium annotinum L., Astrantia major L. Colchicum autumnale L., Dactylorhiza majalis (Reichend.), Neottia nidus-avis (L.), Platanthera bifolia (L.), Traunsteinera globosa (L.)*. A popular medicinal plant that grows in mountain meadows is *Arnica montana L.* In Bukovina it belongs to the taxon of a small risk. Totally in Bukovinian Carpathians there are 17 natural protected areas, occupying the territory of 15312.2 hectares.

Medicinal plants that require protection, by distribution of population in the territory of Bukovina region are divided as follows: 6 rare species, 17 vulnerable species and 26 taxons of a small risk. Considering cenotop most of the rare plants are sylvants (28 species), or pratants (11 species). By the anthropogenic factor – all plants are urbanophobs. One of the measures of protection is the compulsory monitoring of populations' condition.

Tkachuk O.Yu.

THE RELEVANCE OF ESTABLISHMENT A NEW COMBINED OIL PHYTOEXTRACT WITH HEPATOTROPIC ACTION

Department of Pharmacy
Higher State Educational Establishment of Ukraine
"Bukovinian State Medical University"

Liver disease is any condition that may cause liver inflammation or tissue damage and affects liver function. It afflicts over 10% of the world population. This includes chronic hepatitis, alcoholic steatosis, fibrosis, cirrhosis and hepatocellular carcinoma, which are the most healththreatening conditions attracting considerable attention from medical professionals and scientists.

Hepatites with the impaired biliary excretion, as well as inflammatory diseases of the liver and gallbladder are the widespread human diseases, first of all among people of the middle and senior age. The timely treatment of the pathologies mentioned prevents development of chronic diseases and improves the quality of the patients' life.

Approximately 25% of the drugs prescribed worldwide at present come from plants and 60% of anti-infectious drugs already on the market or under clinical investigations are of natural origin. According to the WHO, the

international market of herbal products is estimated to be US $ 62 billion which is poised to grow to US $ 5 trillion by the year 2050. In the US and Europe, about 65% of patients with liver diseases take herbal preparations.

Nearly half of the agents used in liver therapy today are either natural products or derivatives of natural products. A variety of natural products, mostly from plant sources, contain several active components and have been used for thousands of years by a significant part of the population, and are still used in healthcare in many countries or regions of the world. Natural products have generated a rich source of structurally diverse substances with a wide range of biological activities, which could be useful for the development of alternative or adjunctive therapies. Many natural products have been clinically available as potent hepatoprotective agents against commonly occurring liver diseases.

Nowadays, search of new high effective and safe hepatotropics remains of a topical interest, which promotes expanding the range of products nomenclature on the basis of herbal raw material.

The analysis of literature has shown that in many respects the value of medicinal raw material is determined by the presence of flavonoids of various nature in its content. Due to a wide range of pharmacological activity, flavonoids are applied in medicine as choleretic, hepatoprotective, anti-ulcer, capillary strengthening means. Successful combination of low toxicity and high pharmacological activity makes them extremely promising for the preventive medicine and for the treatment of serious diseases.

The data of the systematized literary material have shown the prospects of creating a herbal medicine with hepatotropic action on the basis of the phytocomposition (wild carrot fruits, flowers of chamomile and corn silks).

Zamorskii I. I.

FEATURES OF PHOTOPERIODIC CHANGES IN THE STRUCTURE OF MALE RATS' GONADS AFTER PELVIC NEURECTOMY

Pharmacology department
Higher State Educational Establishment of Ukraine
«Bukovinian State Medical University»

Both in male sex glands and in female ones there are seasonal changes due to the illumination rate (photoperiod): with increasing photoperiod in spring and summer time, gametogenesis and hormonogenic function of the gonads get activated, which is accompanied by an increased morphofunctional activity of the accessory sex glands. As photoperiod becomes shorter during autumn-winter season there are reverse changes associated with changes in the activity of the pineal gland and hormone melatonin production. At the same time, there is no information in the literature on possible participation of vegetative innervations in photoperiodic changes in the gonads. Therefore the purpose of our study was to find the role of the parasympathetic innervation of photoperiodic changes in the gonads of laboratory rats.

The study was conducted in spring and summer on 55 nonpubertal male white rats aged 4–5 weeks weighing 40–60 grams. We studied the features of photoperiodic changes in the animals' weight and structure of the testes and their epididymides as well as accessory sex glands (seminal vesicles, prostate gland), morphometric parameters of these glands after bilateral pelvic neurectomy. Photoperiodic changes in animal bodies were simulated for 7 days using continuous illumination, constant darkness and natural lighting during spring and summer season. We measured diameters of convoluted seminiferous tubules and that of the epididymis, height of the epithelium in the epididymis tubule, seminal vesicles and prostate on the sections of histologic specimens.

It was found that in intact and pseudo-operated animals the constant light causes acceleration while the constant darkness slows the development of the gonads. After pelvic neurectomy there is a disorder in the sex glands development, which is more pronounced under natural and constant light. Thus, the pelvic neurectomy deranges adequacy of photoperiodic changes in the gonads in the puberty period.

Zeleniuk V.G., Rovinskii O.O.

PLEIOTROPIC EFFECTS OF STATINS UNDER PREVENTIVE ADMINISTRATION IN RHABDOMYOLYTIC ACUTE RENAL FAILURE

Department of Pharmacy
Higher State Educational Establishment of Ukraine
«Bukovinian State Medical University»

It is known that increased free-radical oxidation reactions cause damage to the kidney tissues resulting in the development of acute renal failure (ARF). For the treatment of ARF renoprotective drugs with antioxidant activity should be used. Statins reveal renoprotective effects stipulated by their antioxidant activity.

Our research study was targeted at the examination of the effect of some statins (atorvastatin, lovastatin, simvastatin) on pro- and antioxidant systems under the conditions of rhabdomyolytic ARF in case of their preventive administration.

In vivo studies were carried out using 40 white laboratory rats randomly divided into five groups of 8 animals each. Rhabdomyolytic ARF was modeled after 50% glycerol solution injected intramuscularly with the dose of 10 ml/kg. Preventive administration of statins was conducted intragastrically daily 3 days before the simulation of ARF in doses of 10 mg/kg.

As has been found in our experiments, 24 hours after administration of glycerol solution and development of ARF concentration of malonic aldehyde (MA) increased in the kidney tissues of untreated animals in 1.57 times