Results and discussion. The calyx is actinomorphic, tetracyclic gamosepalous-leafsected. Segments are rounded in shape, the tip is sharpened, the edge of segments is whole. From the external side of the calyx is clearly pronounced innervation in the form of thin convex veins, the external epidermis of the calyx segment is formed by rather small cells of parenchymic form, mainly 4.5-cornered. The shell is thickened and porous. The etui is rare with a freely oriented orifice, of the amocytic type. The inner epidermis of the sepalsis segment consists of cells that practically do not differ from the outer epidermis cells, neither in size nor shape. The thickness of the shells is less and the porosity is less pronounced. On the cross section of the sepalsis can be seen dorsiventral structure.

Conclusions. For the first time the morphological and anatomical structure of kaki thunb calyx of Oriental "Sharon" as a possible and affordable type of medicinal plant raw materials was studied.

STUDY OF AMINO ACIDS COMPOSITION OF *PRUNUS DOMESTICA* FRUITS

Shahm Mohammed, Upyr T.
Scientific supervisor: prof. Lenchyk L. V.
National University of Pharmacy, Kharkiv, Ukraine
larysa.lenchyk@nuph.edu.ua

Introduction. In Nature number of amino acids are found in the free state, as well as are components of proteins, peptides, enzyme systems, hormones, etc. They can form complexes with other compounds and thus affect their bioavailability and pharmacological effect. In practical medicine, amino acids, their derivatives and products of exchange are widely used. For example, the use of the arginine improves the condition of patients after stroke and reduces blood pressure; γ-amino butyric acid reduces the excitement and has a calming effect, it is used in the complex treatment of epilepsy and hypertension; asparagine is necessary for proper function of nervous system.

Plum *Prunus domestica* L. (*Rosaceae* family) is widely cultivated in Kharkiv region, Ukraine as horticultural crop. Plums are juicy and can be eaten fresh or used for jam or vine as well as brendy production. Plums have a mild laxative effect and are recommended for constipation and bowel atony, especially in children and the elderly, for cleansing the bowel in its inflammatory conditions; have a positive effect on the liver in non-infectious hepatitis, improve the status of patients with atherosclerosis and hypertension, promote the excretion of cholesterol from the body, have diuretic effect.

At the department of Chemistry of natural compounds and Nutritiology a few extracts from plum fruits were obtained. For complex study of plum fruits and their standardization investigation of amino acid composition was necessary.

Aim. The aim of present work was study composition of free and bound amino acid of dried plum fruits.

Materials and methods. 0.5 kg of fresh plum fruits ‘Ugorka’ variety were harvested in Kharkiv region in September 2018. Fruits were dried, stones were removed.

Determination of the composition and content of free and bound amino acids in the plum fruits was performed using a high-performance liquid chromatograph company Agilent Technologies (model 1100) with flow vacuum degasser G1379A, 4-channel pump low-pressure gradient G13111A, automatic injector G1313A, column thermostat G13116A, diode detector G1316A. Chromatographic column "ZORBAX-XDB-C18 was 4.6 × 50 mm, filled with octadecylsilyl sorbent, with a grain size of 1.8 μm.

For investigation of free amino acids 0.3 g of finely ground dried plum fruits were weighed on an analytical balance and put into a 10 ml vial. Then, 3 ml of a 0.1 N hydrochloric acid solution with 0.2% β-mercaptoethanol was added into the vial. The vial was hermetically closed and placed for 2 hours in an ultrasonic bath at a temperature of 50 ° C.

For study total amino acid content (bound and free) 0.20 g of finely ground dried plum fruit were weighed on an analytical balance and put into a vial. Then, 3 ml of a 6 N aqueous hydrochloric acid

solution containing 0.4% β-mercaptoethanol was poured there. The vial was hermetically closed and held for 24 hours at a temperature of 110 ° C. The samples were placed in a vacuum desiccator at a temperature of 40-45ºC and a pressure of 1.5 mm Hg until complete removal of hydrochloric acid. Then, 200 µl of 0.8 M borate buffer, pH 9.0, 200 µl of 20 mM solution of 9-fluorenylmethoxycarbonyl chloride in acetonitrile were successively added to the vial for analysis by an automatic dispenser, after 10 min exposure, 20 µl of a 150 mM solution of amantadine hydrochloride in 50% acetonitrile were added to the reaction vial.

Amino acids were identified by retention times of standards

Results and discussion. 15 free and 16 bound amino acids were determined in dried plum fruits. eight among them are essential amino acids: L-Threonine, L-Valine, L-Isoleucine, L-Leucine, L-Phenylalanine, L-Histidine, L-Lysine and L-Arginine. L-Methionine was found only as bound amino acid. The total amount of free and bound amino acids were (µg/mg) 3.33 and 18.42 respectively. The highest content among free amino acids was found for L-Alanine (0.81 µg/mg) and L-Serine (0.31 µg/mg). The highest content among bound amino acids was determined for L-Aspartic (8.05 µg/mg), L-Glutamic (2.57 µg/mg), L-Leucine (1.00), L-Valine (0.96 µg/mg), L-Serine (0.74 µg/mg) and L-Alanine (0.69 µg/mg).

Conclusions. Study of chemical composition and content of free and bound amino acids was performed with HPLC in dried plum fruits.

DETERMINING THE AMOUNT OF FLAVONOIDS IN VEGETATIVE ORGANS OF *GUEM URBANUM* L., *GEUM ALEPPICUM* JACQ., *GUEM RIVALE* L.

Taranenko L., Kozyra S.
Scientific supervisor: as. prof. Romanova S.
National University of Pharmacy, Kharkiv, Ukraine
botanika@nuph.edu.ua

Introduction. About 50% of medicinal drugs in Ukraine are made from a plant row material aggregated in natural conditions. Phenol compounds are interesting for researchers as biologically active substances which determine the pharmacological action of many medicinal forms based on a plant row material.

Plants of *Geum* genus (gravilat) are related to *Rosoideae* subfamily of *Rosaceae* family. There are three species such as *G. aleppicum* Jacq., *G. rivale* L. and *G. urbanum* L. that grow throughout the territory of Ukraine and are used in the folk medicine as anti-inflammatory, cholagogue, styptic and wound healing agents.

According to the preliminary chemical researches it is established the presence of a considerable number of tanning agents and flavonoids, so the determination of the amount of flavonoids in a row material of studied species has a certain interest.

Aim. The purpose of this work is to determine the quantitative content of flavonoids in grass, rhizomes with roots G. urbanum L., G. aleppicum Jacq. and G. rivale L.

Materials and methods. The herb (*Herba Gei*) and the rhizome with roots (*Rhizomata cum radicibus Gei*) which were prepared in Kharkov region in 2018-2019 were taken as the investigation subjects.

It was made the spectrophotometric determination of the amount of flavonoids in herb and in rhizomes with roots of the three stuidied species of *Geum* L. genus with the recomputation to a rutin. It is applied the differential spectrophotometry method which is the most widely spread. The operating range of wavelength for flavonoids is the long-wave maximum 330-370 nm. It is appearing the shift of the first band absorption of flavonoids in the range 385-460 nm.