



МІНІСТЕРСТВО
ОХОРОНИ
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ОСВІТИ І НАУКИ
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НАУКА, ПРАКТИКА ТА ОСВІТА

PLANTA+

МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
НАЦІОНАЛЬНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ ІМЕНІ О.О. БОГОМОЛЬЦЯ
НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ
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«PLANTA+. НАУКА, ПРАКТИКА ТА ОСВІТА»

Матеріали

**IV Науково-практичної конференції з міжнародною участю,
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MEDICINAL PLANTS AND MEDICINES ARE SOURCES OF FLAVONOIDS

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Introduction. Flavonoids are natural phenolic compounds that exist in all plant organs in the form of glycosides and exhibit various phytotherapeutic effects. Flavonoids are divided into catechins, anthocyanins, chalcones, flavanones, flavones, flavonols. Flavonoids are natural phenolic compounds that exist in all plant organs in the form of glycosides and exhibit various phytotherapeutic effects. Flavonoids have a wide spectrum of biological activity [1,2] participate in redox processes, performing an antioxidant function; absorb UV light. The pharmaceutical action of flavonoids consists in regulating the state of capillaries - they increase permeability in atherosclerosis and contribute to the reduction and normalization of blood pressure. They have diuretic, antispasmodic, and choleric effects, dilate coronary vessels, tone heart muscles, and reduce blood clotting. They exhibit P-vitamin activity, choleric, antispasmodic, diuretic, hypoglycemic, sedative, estrogenic effects [2]. Flavonoids are water-soluble compounds. Flavonols in combination with ascorbic acid have anti-inflammatory and anti-allergic effects. Flavon compounds are used in the treatment of allergies (bronchial asthma, anaphylactic shock), myocardial infarction, and diabetes. Individual flavones have P-vitamin activity, reduce the effect of toxic substances, have an antimicrobial and antihistaminic effect (fruits of hawthorn, berries of buckthorn, common heather grass, hop cones, tea leaves, flowers and leaves of common sycamore, fruits of cinnamon rose hips, grapes, currants, mountain ash, etc.).

Characteristics of the biological properties of individual flavonoids:

Rutin increases the effect of vitamin C, reduces the fragility of capillaries, which is useful for the prevention and treatment of scurvy, and prevents the oxidation of the insulin hormone. Contained in products - green tea, cocoa, quince, apples, apricots, peaches, strawberries, currants, raspberries.

Hesperidin is a flavonoid found in citrus fruits. Strengthens vessel walls, reduces capillary permeability, improves microcirculation and lymph drainage, contributing to the reduction of stagnant phenomena. Has an antioxidant, anti-inflammatory effect.

Quercetin is a flavonoid that has anti-edematous, antispasmodic, antihistamine, and anti-inflammatory effects; antioxidant, diuretic [3]. It belongs to the group of

vitamin P. They have radioprotective and antitumor effects. Quercetin is used in the treatment of bronchial asthma, diseases of the cardiovascular system, burns, frostbite, and inflammation of the lungs. Flavonoids are found in rowan berries, hawthorn flowers and fruits, St. John's wort, black currants, and red currants. Sources of flavonoids include arnica flowers, birch and alder leaves, heather, black elder flowers, chamomile flowers, linden flowers, parsley root, horse chestnut fruits, horsetail, and licorice root.

Materials and methods. An analysis of literature data on the structure, properties and deepening of the role of flavonoids in biochemical and metabolic processes in physiological and pathological conditions was carried out. Despite the large number of studies, the biological effect of individual flavonoids remains unclear, which can be important tools in the study of flavonoids in pathological conditions. Examples of Stylene and Detralex, which have antioxidant properties, are given.

Stylene active substance: 60 mg of *Artemisiae Argyi* wormwood leaf extract. Stylene has a healing effect on the gastric mucosa in gastritis by strengthening the regenerative processes in the affected cells of the mucous membrane. The reparative properties of the drug are provided by flavonoids, which stimulate protein synthesis and improve local blood supply. The anti-inflammatory activity of Stylene is realized through pronounced antioxidant properties that prevent lipid peroxidation and block the formation of bioreactive oxygen species, suppressing the release of leukotriene D4 caused by *Helicobacter pylori* and reducing the activation of the NF- κ B transcription factor associated with inflammation. The gastric mucosa is protected from damage by inhibiting the activity of xanthine oxidase and oxidative stress. Prevention of damage to the gastric mucosa when using NSAIDs is ensured due to the increased release of endogenous prostaglandin E2 and a decrease in the production of prostaglandin F1 α .

Detralex has a venotonic and angioprotective effect, reduces vein distension and venostasis, improves microcirculation, reduces capillary permeability and increases their resistance, and also improves lymphatic drainage by increasing lymphatic outflow. Detralex increases venous tone: In patients with symptoms of capillary fragility, the treatment increased their resistance. An experimental study showed that the use of a micronized purified fraction has a more pronounced effectiveness in reducing the permeability of the flavonoid vascular wall compared to simple diosmin.

Results and their discussion. Analysis of literature data shows that the role of flavonoids in biochemical and metabolic processes depends on the chemical structure [1,2]. Despite the large number of studies, the biological effect and mechanism of action of individual flavonoids remains unclear. It is possible that the biological effect of flavonoids is due to the complex action of the flavonoid-antioxidant and the biological action of the flavonoid. As determined, flavonoids with antioxidant properties in pathological conditions showed a pronounced antioxidant effect. Suppression of intracellular free radical generation by antioxidants provides a therapeutic strategy to prevent oxidative stress. Determining the role of oxidative stress and antioxidants in pathogenetic mechanisms was expedient for offering modern treatment methods with the aim of targeted correction.

Conclusions. According to the literature, flavonoids have a wide range of biological activity:

1. Take part in redox processes, performing an antioxidant function; absorb UV light.
2. The pharmaceutical action of flavonoids consists in regulating the state of capillaries - they increase permeability in atherosclerosis and contribute to the reduction and normalization of blood pressure.
3. They have diuretic, antispasmodic and choleric effects, they expand capillaries, tone heart muscles, expand coronary vessels, reduce blood coagulation. They show P-vitamin activity, choleric, antispasmodic, diuretic, hypoglycemic, sedative, estrogenic effects.

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