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# PORTULACA OLERACEA O‘SIMLIGINING KIMYOVIY XOSSALARI

# ХИМИЧЕСКИЕ СВОЙСТВА ПОРТАЛУК ОГОРОДНЫЙ

# CHEMICAL PROPERTIES OF PORTULACA OLERACEA

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***Annotatsiya***

*Maqolada dorivor semiz o‘t o‘simligining biologik tuzilishi, kelib chiqishi, qadimdan shifobaxsh o‘simlik sifatida qadrlanishi, tarqalgan hududlari haqida va uning tarkibida uchraydigan flavanoidlar, alkaloidlar, terpenoidlar, organik kislotalar, vitaminlar, minerallar, omega-3 yog‘ kislotalari va ularning kimyoviy strukturalari bilan ko‘rsatilgan. Shifobaxsh semiz o‘t tarkibidagi moddalarning inson organizmidagi o‘rni va qaysi turdagi kasalliklarni davolashda yordam berishi haqida va turli xildagi xastaliklarni davolashda zamonaviy tibbiyot va xalq tabobatidagi ahamiyati, istiqbolli dorivor o‘simlik ekanligi, antioksidant, yallig‘lanishga qarshi, mikroblarga qarshi, gipolipidemik, diabetga qarshi va boshqalarni o‘z ichiga olgan bir qator farmakologik faollikni namoyish etishi va bu o‘simlikdan oziq-ovqat qo‘shilmasi tayyorlanishi jamiyatimiz a’zolari tomonidan ishlatilayotgan sintetik dori vositalarini inson organizmiga salbiy ta’sirlarini oldini olish va kasalliklarni davolashda sintetik dori vositalarga nisbatan foydali ekanligi haqida keng ma’lumotlar bilan yoritilgan. Oziq-ovqat qo‘shilmasi ishlab chiqarish har tomonlama qulay ekanligi: xomashyo mahsulotlarini arzon tushishi, ekologik toza ekanligi, ishlab chiqarish jarayonlari murakkab emasligi va yurtimizning deyarli barcha hududlarida o‘sishi bu esa xomashyoni izlash muammoga olib kelmasligi bo‘yicha ma’lumotlar keltirilgan.*

***Аннотация***

*В статье описывается биологическая структура лекарственного растения портулак огородный, его происхождение, многолетнее значение как лекарственного растения, ареалы его распространения, состав флавоноидов, алкалоидов, терпеноидов, органических кислот, витаминов, минералов, омега-3. жирные кислоты и их химические свойства. показано со структурами. О роли веществ, содержащихся в лекарственном портулаке огородном, в организме человека и при каких заболеваниях они помогают в лечении различных заболеваний, а также о значении современной медицины и народной медицины в лечении различных заболеваний, что является перспективным лекарственное растение, антиоксидантное, противовоспалительное, противомикробное, гиполипидемическое, диабетическое, проявляющее ряд фармакологических активностей, в том числе против и других, и приготовление пищевой добавки из этого растения по сравнению с синтетическими лекарствами, используемыми членами нашего общества в предотвращение негативного воздействия на организм человека и при лечении заболеваний, покрытых обширной информацией о его полезности. Дана информация о том, что производство пищевых добавок удобно во всех отношениях: сырье дешевое, экологически чистое, процессы производства несложные, произрастают практически во всех регионах нашей страны, а значит, поиск сырья не вызывает проблем.*

***Abstract***

*The article describes the biological structure of the medicinal plant portulaca oleracea, its origin, its long-standing value as a medicinal plant, its distribution areas, and its composition of flavonoids, alkaloids, terpenoids, organic acids, vitamins, minerals, omega-3 fatty acids and their chemical properties. shown with structures. About the role of the substances contained in medicinal portulaca oleracea in the human body and what types of diseases they help in the treatment of various diseases, and the importance of modern medicine and folk medicine in the treatment of various diseases, that it is a promising medicinal plant, antioxidant, anti-inflammatory, antimicrobial, hypolipidemic, diabetes showing a number of pharmacological activities, including against and others, and the preparation of a food supplement from this plant compared to the synthetic drugs used by the members of our society in the prevention of negative effects on the human body and in the treatment of diseases covered with extensive information on its usefulness. Information is given on the fact that the production of food additives is convenient in every way: the raw materials are cheap, they are environmentally friendly, the production processes are not complicated, and they grow in almost all regions of our country, which means that the search for raw materials does not cause problems.*

***Kalit so‘zlar.*** *Semiz o‘t, alkaloidlar, flavanoidlar,antioksidant, yallig‘lanish, organik kislotalar, vitaminlar, minerallar, omega-3*

***Ключевые слова.*** *Портулак, алкалоиды, флавоноиды, антиоксидант, воспаление, органические кислоты, витамины, минералы, омега-3*

***Key words.*** *Purslane, alkaloids, flavanoids, antioxidant, inflammation, organic acids, vitamins, minerals, omega-3*

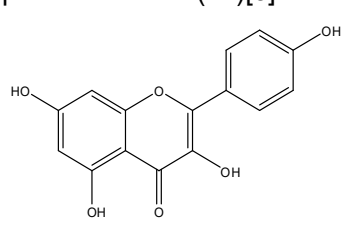
## INTRODUCTION

Purslane is an annual weed belonging to the family of succulents, an annual plant with thin roots, herbaceous, with a straight stem 15-20 cm high. One bush gives 50-75 thousand seeds. It sometimes grows erect, with the stem lying flat. The leaves are small, fleshy, cylindrical, forming a ball. The flowers are yellow, simple, or the petals are densely arranged. It blooms and bears fruit from May to November. [1] The fruit is an elongated nut. In Central Asia, it is common in irrigated farming zones. It grows abundantly in fields rich in humus when soil fertility is high. It is usually harvested wild.

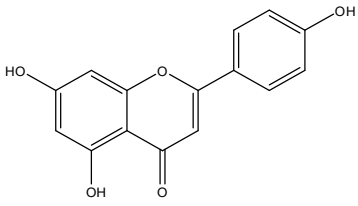
Fenugreek has been known since ancient times and there is evidence that it has been consumed for at least 2000 years. By sampling historical herbariums and field collections and studying ancient correspondences with archaeological seeds, 7 ancient species of tall grass were identified. This plant was cultivated in ancient Egypt and cultivated by ancient Romans and Greeks. Fat grass was known to the Arabs in the Middle Ages. The chemical composition of the plant was first identified in 1672 in the United States.

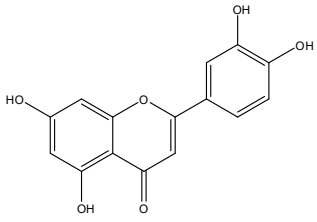
## MAIN PART

The chemical composition of fat grass is fundamentally different from the chemical composition of other plants. Flavanoids: Kaempferol (1), apigenin (2), luteolin (3), myrcetin (4), quercetin (5), genistein (6), genistin (7), portulacanone A (8), portulacanone V (9), portulacanone S(10), portulacanon D (11)[3]

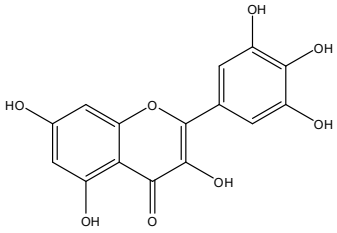


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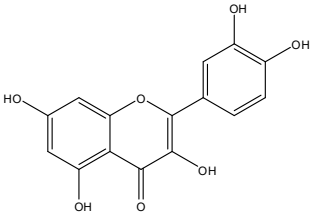




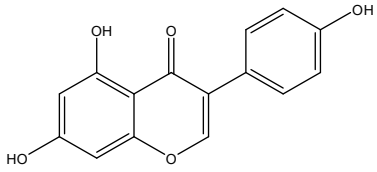
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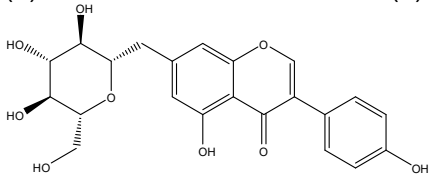
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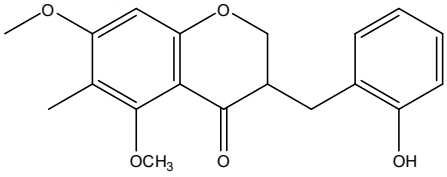
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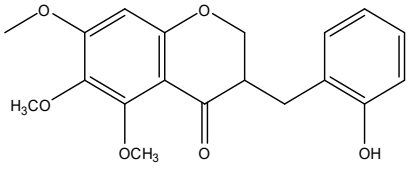
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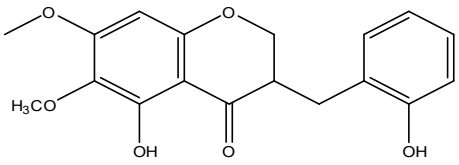
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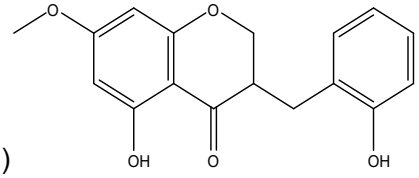
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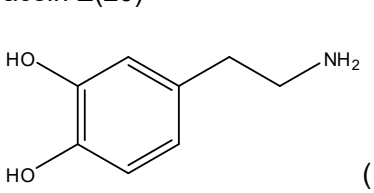


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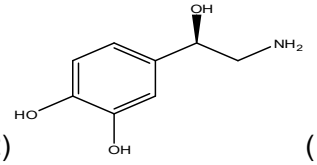
(11).

Flavanoids are one of the main active substances of this plant. Its role in the manifestation of healing properties is incomparable. The flavonoids are biologically active and have a wide range of pharmacological properties, including antibacterial, antiviral, anti-inflammatory, and antioxidant.[4] Flavanoids vary according to each part of this plant: the highest level is in the root; then it is in the stem and leaf.

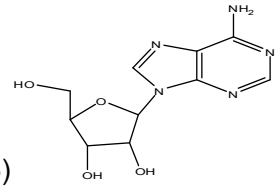
In addition to flavonoids, other important chemicals found in this plant are alkaloids, including dopa, dopamine, and noradrenaline. The content of dopamine and noradrenaline is higher in the leaves than in the stems and seeds. [5]. Alkaloids: dopamine (12), noradrenaline (13), adenosine (14), scopoletin (15), oleracein A (16), oleracein V (17), oleracein S (18), oleracein D (19), oleracein E(20)



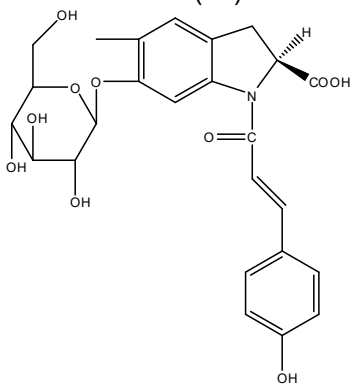

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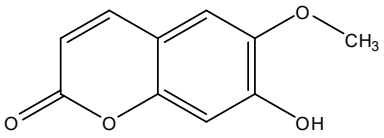



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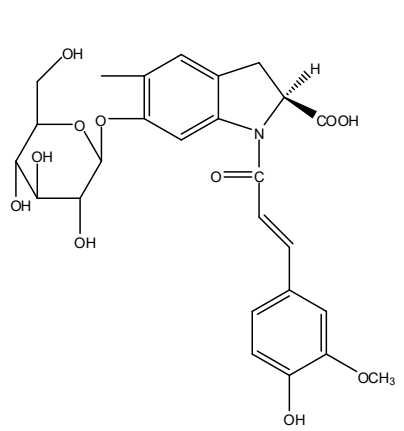

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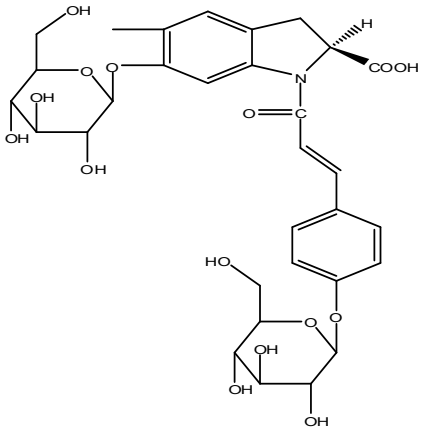



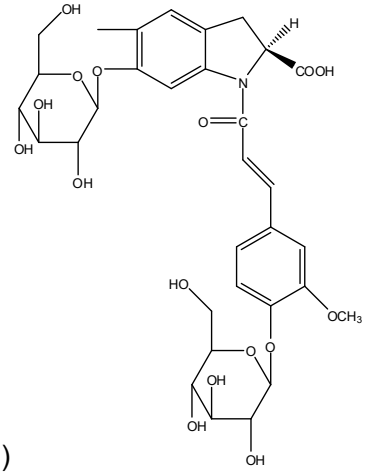

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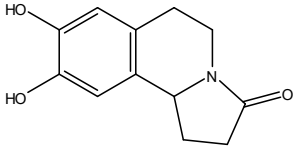


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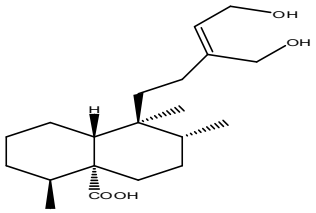
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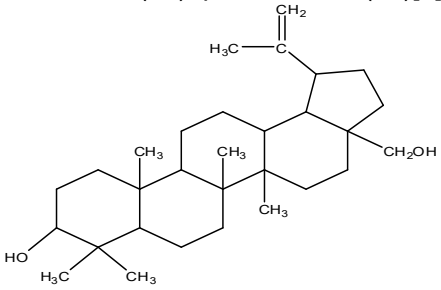
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Alkaloids are one of the most important groups of natural organic compounds used for many pharmaceutical and medicinal purposes. The alkaloids in oleander have moderate to high cytotoxic activity against various human cancer cells. Three phenolic alkaloids, namely, oleracein A, oleracein V, and oleracein E, have been shown to exhibit antioxidant activity [ 6 ]. Oleracein E from the oleander shows hypoglycemic and antidiabetic activity. [7]

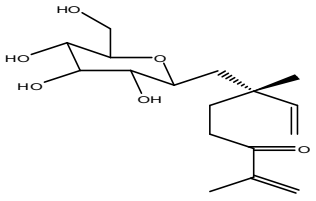
From terpenoids: portulen(21), lupeol(22), portulazide A(23), portulazide V(24)[4],[7],[8]



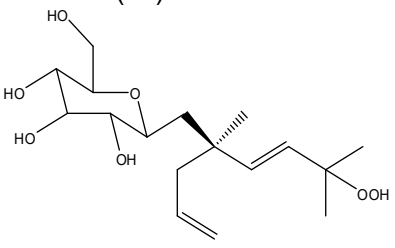
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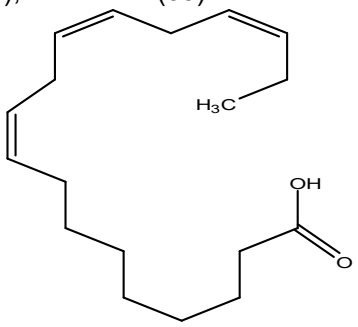
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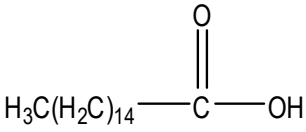
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Lupeol has a wide range of pharmacological properties, including antiviral, anti-inflammatory and anti-tumor activity. Other terpenoids are found only in the fat grass and are considered to be of great importance

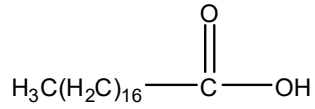
From organic acids: α - linoleic acid (25), palmitin (26), stearin (27), olein (28), 3-quanoline carboxycyclic (29), indole 3-carboxycyclic (30), p-coumarin (31), ferul (32), catechol(33), caffeic acid(34), oxalic acid(35)



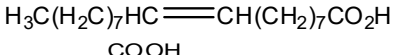

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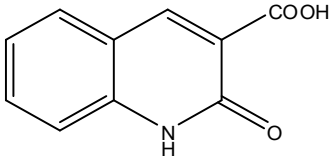

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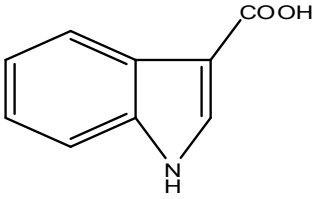

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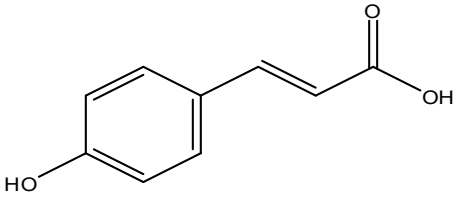

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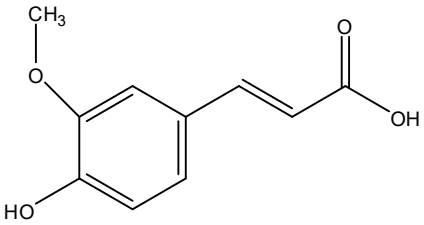

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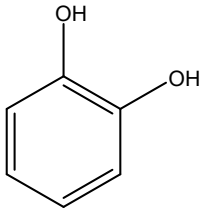

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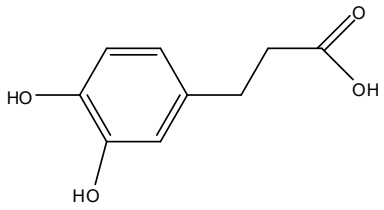

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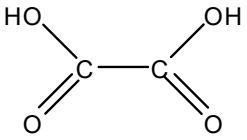

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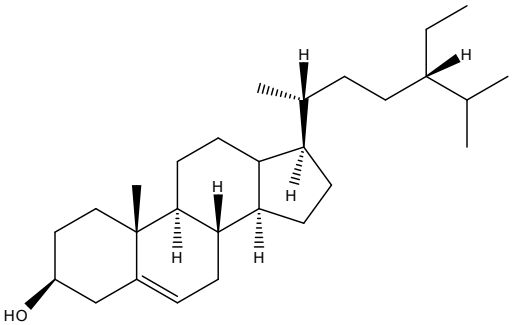

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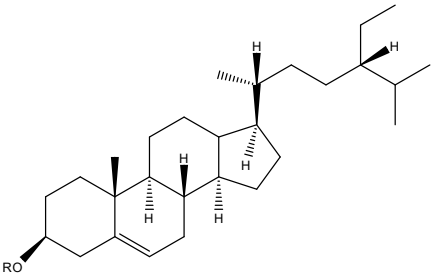
Fatty grass is also an excellent source of omega-3 fatty acids, which are usually found in fish oil and are not normally found in plants. [9]Omega-3 fatty acids play an important role in boosting immunity [8] and are considered effective in the prevention and treatment of hypertension, coronary artery disease, cancer, and other inflammatory and autoimmune diseases.[10] It significantly improves vision, prevents cardiovascular problems, and certainly protects the body from inflammation, slows down mental decline in Alzheimer's disease, and benefits people with metabolic syndrome.

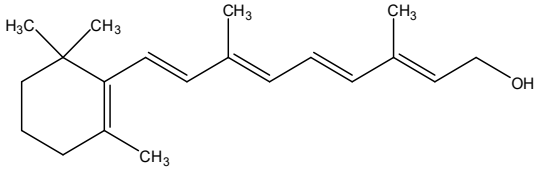
Vitamins: A, B1, C, PP, E, hesperidin are present, these vitamins maintain the health of the eyes, mucous membranes, and contain the highest amount of vitamin A, a natural antioxidant that protects against lung and oral cancer among green leafy vegetables. This plant contains ascorbic acid, tocopherol and B-complex vitamins such as niacin, pyridoxine and riboflavin [11]. It is also rich in minerals such as phosphorus, manganese, calcium, selenium [3] and the amino acids isoleucine, proline, leucine, lysine, phenylalanine, methionine, cystine, valine, threonine and tyrosine [2].

Among the minerals: P, Fe, Mn, Ca, Cu, Zn, Se, Mg are available, and they are considered to be of great importance in the process of metabolism in the human body.[12]

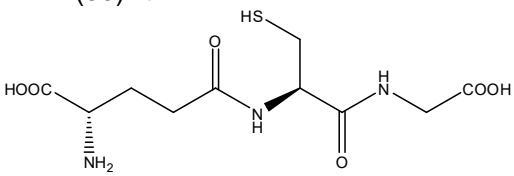
Other components: β-sitosterol(36), daucosterol(37), β-carotene(38), glutathione(39), proline(40), melatonin(41), isopimpinellin(42), robustin(43), bergapten(44), pantothene(45),

khlorofil, tannin. 

(36) 

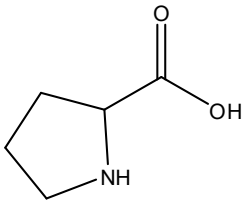


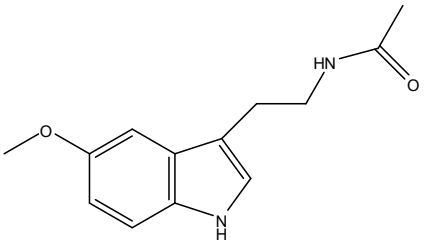
(37)

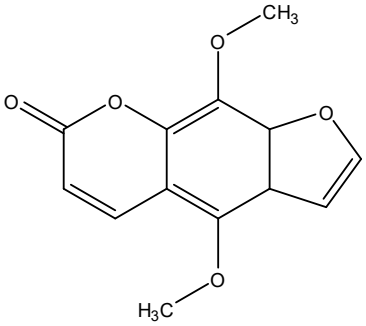


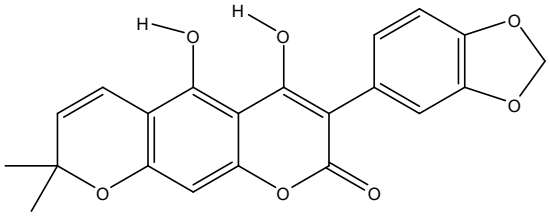
(38)

(39)

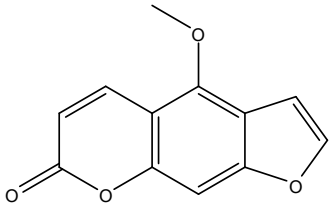


(40) 

(41) 

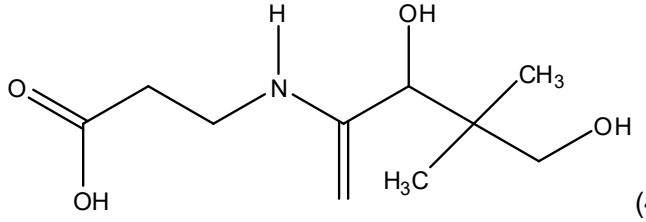


(42)



(43)

(44)



(45)

From the point of view of structure, these substances are compared with synthetic drugs used in the treatment of hemorrhoids, and it has been studied that they are very similar to each other.

## RESULTS AND DISCUSSIONS

In folk medicine, which has an ancient history, it has been widely used in the treatment of a number of diseases. Including nervousness, piles, inflammation of the kidneys, inflammation of the joints, diseases of the nose, bedsores, snake bites, boils, swelling of the eyes and eyelids, redness, blurred vision, stomach disease, gastritis with excess stomach acid, impotence, skin rash, urine constipation, genitourinary inflammation, gonorrhea, gout, dental diseases, insomnia pain, paralysis: it is effective in the treatment of diseases such as tremors, wounds, packing, chicken pox, scabies.[1],[2],[14]

The literature data on the study of the pharmacological activity of the herb and its use in medical practice showed that the studied medicinal plant is widely used in folk medicine for various diseases. pulmonary, skin diseases, gynecology, etc.[13] Scientific studies have confirmed that this plant exhibits a number of pharmacological activities, including antioxidant, anti-inflammatory,

antimicrobial, hypolipidemic, anti-diabetic, and others.[14] That is, the studied medicinal herb is a promising medicinal plant product.

## CONCLUSION

To prevent various diseases, the creation of nutritional supplements made from the fat plant also serves to strengthen the health of people and prolong their life.

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