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TECHNOLOGY OF OBTAINING OIL EXTRACT BASED ON LOCAL MEDICINAL PLANT RAW MATERIALS

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Abstract
This article presents information on the technology of obtaining oil extract from common calamus (Acorus calamus L), dalacoy (Herba hyperici), licorice root (Glycyrrhiza glabra L.), ittikanak (Herba Bidentis) and na'matak fruits (Fructus Rosae) taken in specific proportions.

Keywords: Acorus calamus L, Herba hyperici, Glycyrrhiza glabra L, Herba Bidentis, Fructus Rosae, vitamins E, A, K, C and D, glucose, pectin, protein, carbohydrates.

INTRODUCTION:

Today, in order to develop a technology for preparing new types of medicinal natural products based on local natural products, in the process of large-scale reforms being implemented under the leadership of our President Shavkat Mirziyoyev Miromonovich, it is necessary to consistently develop science and technology and select young scientists in the field of natural sciences (chemistry, biology, pharmacy) with their scientific leaders from scientific research institutes, since there are equipment, initial products, and the necessary conditions have been created, young scientists are directed to the production of scientific work and receive finished products. The resulting products will satisfy the domestic needs of our Republic and create the opportunity to export to foreign countries. Also, special attention is paid to the establishment of production and the creation of jobs, the number of unemployed people will decrease, and the price of products will decrease. One of the urgent issues is the development of technologies and production of oil extracts made from natural Acorus calamus L, Herba hyperici, Glycyrrhiza glabra L, Herba Bidentis, Fructus

Rosae, medicinal plants, which are highly valued for their medicinal properties, and the increase in employment, reducing the number of unemployed, and providing employment to our citizens. Currently, bioactive substances obtained from many medicinal plant raw materials are less toxic than synthetic drugs. Therefore, the demand for medicinal plant raw materials, along with medicinal substances, is increasing in the production of dermatological ointments. Essences, extracts, juices, tinctures are obtained from plants and used to prepare various ointments. Today, oil extracts, ointments, sprays based on them are widely used in dermatological practice. Experiments have shown that the therapeutic efficacy of bioactive substances in oil extracts depends on the extract base. Therefore, oil extracts obtained from local plant raw materials are of great importance. [1-2].

Theoretical Part:

The active ingredients of medicinal plants are alkaloids, various glycosides (anthroglycosides, cardiac glycosides, saponins, etc.), flavonoids, coumarins, astringents and other mucilages. They may contain essential oils, vitamins, resins and other compounds. Antibiotics and preparations rich in phytoncides that destroy microorganisms and viruses are prepared from many plants. Usually, similar chemical compounds characteristic of a group are found in plants belonging to the same family or genus, but some chemical compounds may also be found in plants belonging to different families that are not closely related to each other.

Acorus calamus L. is a perennial herbaceous plant with a rhizome length of 1.5 m, horizontal, creeping, branched and multi-rooted, dense, brown or greenish-yellow above. A set of leaves grows on the upper side of the rhizome. The leaves are lanceolate or lanceolate, 60-120 cm long, with a straight edge and parallel ends (typical of monocots). The umbel (flower) is green, erect, branchless, three-pointed, leafless, one side is serrated, the other is pointed. On the stem are bisexual, yellow flowers collected on the stem. The inflorescence resembles a cylindrical cone-cone, 4-12 cm long. The flower cluster is a 50 cm long (solid) leaf. The inflorescence is sessile, simple, with six leaves, 6-layered, 10-layered, three-chambered, located at the top. The fruits are red, with many seeds. The roots and leaves are fragrant, the small roots are odorless. It blooms from late May to July. Medicinal preparations of the plant Acorus calamus. Decoction. The rhizome is part of tinctures and teas used for stomach diseases and appetite suppressants. The essential oil of the rhizome of Acorus calamus is used to treat and prevent kidney and biliary tract stones. [1-2]

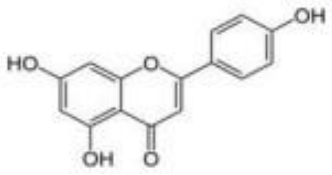
Hypericum L. is a genus of herbs or shrubs belonging to the family of Hypericaceae. There are about 200 species, most of which grow in the Mediterranean region. There

are 3 species in Uzbekistan. They are called cheychop, dalachoy, choyot, and kizilpoycha. The leaves of the plants are simple, entire, most of them are opposite. The flower is a raceme, yellow, bisexual. The sepals are often fused up to half. The stamens are numerous, connate. The seed is single, 3-5-celled. The fruit is a capsule. In the hilly and mountainous regions of Uzbekistan, the species of H. called N. perforatum L. is most common. It blooms and breeds in June-September. It contains astringents, essential oils, and vitamin C. It is used in folk medicine (for gastrointestinal diseases and bloody diarrhea). [3]

Glycyrrhiza glabra L. (Licorice, sweet licorice, licorice) is a perennial plant. The stem is erect, 50-200 cm tall, branched or unbranched, covered with hairs. The leaves are odd, pinnate, and complex. The root system of the plant is developed, reaching a depth of 5-6 m. The flowers are bisexual, yellow, small, growing from the leaf axils, forming a semi-umbrella inflorescence. The fruit is a pod with 3-7 seeds, which does not open when ripe. The seeds are hard, small, smooth, and reddish. In addition to the triterpene compound known as glycyrrhizin, licorice contains 27 different flavonoids (liquiritin, liquiritoside, liquiritinen, and others), glucose, sugar, starch, cysteamine, dioxystigmasterin, some essential oils, ascorbic acid, asparagine, and other substances. It should be noted that glycyrrhizin has a pleasant taste, it is 40 times sweeter than sugar. In folk medicine, juice and powders made from licorice root are used as a diaphoretic, mild laxative, and for diseases associated with respiratory tract colds, as an expectorant, and as an aid in shortness of breath. A decoction made from its root has diuretic, stomach, and duodenal ulcers healing properties. A decoction of the root is drunk for mushroom poisoning. According to doctors, licorice has rejuvenating properties. It has a positive effect on the treatment of bronchial asthma and stomach ulcers. The juice of the root has a calming and analgesic effect. [4]

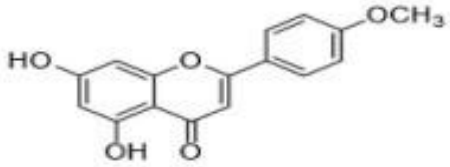
Herba Bidentis is a genus of annual herbs belonging to the family of the Asteraceae. It is 15-60 cm tall, with wing-like leaves with short stripes. They are arranged oppositely. The flowers are yellow, collected in a basket. The fruit is a pistachio. In Uzbekistan, 1 species grows in meadows, along ditches, and among crops. It contains carotene, vitamin C, essential oil, astringent, mucus, and other substances. In folk medicine, it is used to treat diathesis in children. In medicine, it is used as a digestive, diuretic, and diaphoretic, and in the treatment of some skin diseases (eczema). [5]

Rosa is a genus of shrubs belonging to the family of the Asteraceae. It grows up to 3 m tall. The leaves are pinnate, pinnately compound, arranged alternately on the stem. The flowers are fragrant, of various colors, solitary or in pairs.



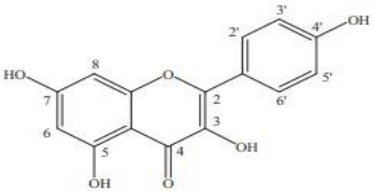
Structure of Apigenin

Acarcerin - Acacetin (5,7-dihydroxy - 4' - methoxyflavone), As a natural flavonoid compound, it has been shown to have good pharmacological effects on anti-inflammatory, anti-cancer and anti-obesity. Among them, its important role in cardiovascular diseases (CVD) has received great attention from scientists in recent years.



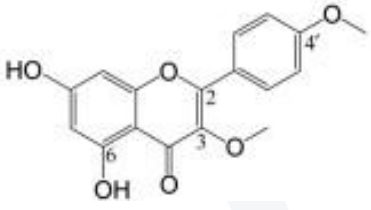
Acarcerin

Kaempferol is a bioflavonoid widely distributed in various types of plants. It has a wide range of medicinal properties, Many reports have demonstrated the bone-protecting properties of kaempferol plants using in vitro and in vivo experimental models. Kaempferol has bone-protecting effects in newborn rats, glucocorticoid and ovariectomy-induced osteoporotic models, as well as bone fracture models. Kaempferol acts through the regulation of estrogen receptors. [10-11]



Kaempferol

Ermanine. It is a member of the flavonoid family and is extracted from bee glue, which is widely used in Chinese medicine to treat vitiligo. Vitiligo is a depigmented disease characterized by its simplicity of diagnosis and difficulty in treatment[12]. Its occurrence and development are associated with various factors, including oxidative stress, heredity and immunity, etc. As a strategy for the treatment of vitiligo, it is necessary to induce pigment accumulation[13].



Ermanin

Pure flavonoids (glycosides and aglycones) isolated from plants are colorless or yellowish and yellow crystalline substances. Glycosides of flavonoids are soluble in alcohol and poorly soluble in cold water. They are insoluble in ether, chloroform and other organic solvents, while aglycones are soluble in alcohol, ether and acetone. Flavonoids dissolve well in boiling water and precipitate again after the water cools. The color of anthocyanins and their aglycones, anthocyanidins, depends on the pH of the solution (or cell sap). Typically, this group of compounds is red, pink, or yellow under acidic conditions, and purple, blue, or cyan under alkaline conditions.

Discussion of Results

Since we obtained oil extracts based on medicinal Acorus calamus L, Herba hyperici, Glycyrrhiza glabra L, Herba Bidentis, Fructus Rosae, and sunflower oil - Oleum Heuanth1, we have presented the chemical composition of sunflower seeds and sunflower oil. Sunflower seeds contain up to 38 % oil, chlorogenic, citric, tartaric acids, carotenoids, phytin, 13.5-19.1 % protein, 26.55 % carbohydrates, tannins and other substances. The oil used in medicine is obtained from seeds by cold pressing. Sunflower oil is a light yellow or clear and thick liquid with a characteristic odor and pleasant taste. Sunflower oil is a semi-solid oil. The chemical composition of sunflower oil includes glycerides of palmitic, stearic, arachidic, lignoceric, oleic and linoleic acids. The density of sunflower oil is 0.921-0.931., the refractive index is 1.4736-1.4762, the saponification index is 185-198 and the iodine index is 104-144., and the acid index should not exceed 2.25.

To obtain an oil extract based on sunflower oil, we took 5.0 g of dried common igir, dalacoy, shirinmia root, ittikanak and na'matak fruits (ground to a powder state) and used the hot maceration method to obtain an oil extract from them. Several oils were selected as extractants: olive oil, sunflower oil, cottonseed oil. Based on its technical characteristics and cost, we selected sunflower oil as the most suitable extractant. The ratio of raw material to solvent was studied at different values and the optimal ratio was 1:10. 70 % ethyl alcohol was poured onto the obtained raw material until a glassy layer formed and the flask was tightly closed and left in a dark place for 24 hours. After 24 hours, sunflower oil was poured until the total volume of the mixture was 50 g. The mixture was heated in a water bath for 2-2.5 hours. The temperature was maintained at different values: 60 ^{o}C, 75 ^{o}C, 90 ^{o}C. The most optimal temperature was found to be 75 ^{o}C. Then, after the process was completed, the mixture was filtered through a cloth filter. 8-10 layers of gauze were used for filtration. After 2-3 hours, the cotton was passed through the filter again. After 24 hours, it was determined that no precipitate had formed. The volume of the resulting extract was 41-42 ml. Acorus

calamus L, Herba hyperici, Radices Glicyrrhizae, Herba Bidentis, Fructus Rosae, an oily extract of medicinal plants - a light red oily liquid with a characteristic odor, miscible in ethanol, glycerin, and some organic solvents, forms a white turbid color in water but is immiscible. [14]

Conclusion:

1. An oil extract was obtained from the medicinal plants Acorus calamus L, Herba hyperici, Glycyrrhiza glabra L, Herba Bidentis, Fructus Rosae, based on sunflower oil - Oleum Heuanth1. This oil is a light red oily liquid with a specific odor, miscible in ethanol, glycerin, and some organic solvents, and forms a white cloudy color in water.
2. To obtain an oil extract based on local medicinal plant raw materials: Acorus calamus L, Herba hyperici, Glycyrrhiza glabra L, Herba Bidentis, Fructus Rosae, the optimal ratios of the components of the oil extract to each other and the solvent with the raw material, and the temperature were determined. The developed technology allows preserving the active components of the plants and ensuring the stability of the extract during storage.

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