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Essential Oil Plants

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Abstract: The history of the study of medicinal plants has long been used by humans as a medicinal tool. Information about medicinal plants has been passed down from generation to generation, tribe to tribe only orally. This article is about essential oils.

Key words: Medicinal plants, Lamiaceae, Asteraceae, Cupressaceae, Rutaceae.

The history of the study of medicinal plants From ancient times, people have used plants as a means of healing. Information about medicinal plants has been passed down from generation to generation, tribe to tribe only orally.

After the establishment of trade and other relations between the states, the range of medicinal plant products increased in these countries at the expense of medicinal plants imported from other countries. After the appearance of the record, information about medicinal plants began to spread in writing.

Excavations have revealed 22,000 ceramic cuneiform tables in the library of the Syrian king Assurbanipal (Sardanapal, 668 BC), 33 of which contain medicinal products. Even at that time, there were fields in Syria where medicinal plants were grown.

In Egypt, medicinal plants were planted even earlier. For example, cannabis was planted in Egypt in 2000 BC. [1-4]

Information about the medicinal plants that have survived to the present day is found mainly in the ancient Greek literature. In addition to the medicinal plants grown by the Greeks, they also used medicinal products imported from Egypt, Iran, and other Asian countries.

Of the 4,230 wild and cultivated plants belonging to 146 families listed in the Flora of Uzbekistan, 577 species are medicinal plants. These medicinal plants are representatives of different families. We will give a brief overview of this.

Essential oils are common in the plant world. According to the data collected, more than 2,500 species of plants in the flora of the globe contain essential oils. Of these, more than 1,050 plant species belonging to 77 families grow in Europe. In particular, Lamiaceae - lilacs (Labiatae), Apiaceae - celery (umbelliferae), Asteraceae - astrados (composites), Rhodes - Chenopodiaceae, mres - Rhesus, Rhesus - Rose Rhizomes and other plants are rich in essential oils. [5-8]

From the first day a plant begins to grow, the biosynthesis of vitamins in the tissue begins. Their amount is constantly changing during the growth of the plant. This change depends on many factors. In particular, the place of growth and climate of the plant, light, mineral and organic fertilizers, moisture, trace elements, the composition and concentration of mineral salts in the soil, as well as acidic conditions are factors influencing the biosynthesis of vitamins.

In essential oils, the accumulation of essential oils occurs at different times, depending on the type of plant. Usually the plants accumulate the maximum amount of essential oils during flowering, some during budding or earlier. The accumulation of more or less essential oil in the plant depends on air temperature and humidity, soil moisture and the amount of minerals in the soil. As the air temperature begins to rise, more essential oils are synthesized in the plant, and conversely, as the humidity increases, the amount of these compounds decreases. More or less moderate moisture in the soil leads to a decrease in essential oils in the plant. Drought also causes excessive accumulation of essential oils in some plants.

Essential oils are a complex combination of several substances that accumulate in all the organs of plants and are genetically interconnected organic substances. The components of essential oils include hydrocarbons, alcohols, aldehydes, ketones, phenols, lactones, ethers, quinones, acids, nitrogen compounds, and many other substances. In medicine, essential oils are used to make medicines used to treat various ailments. These drugs have the property of relieving pain, calming the nervous system, improving gastrointestinal function. Essential oils are the main source of raw materials for perfumes, pharmaceuticals and food industries.

Plants containing essential oils are mainly grown in Ukraine, Moldova, Georgia, Tajikistan, the Kyrgyz Republic, the North Caucasus, Crimea and Voronezh regions.

Almost all organs of plants contain essential oil. It accumulates in flowers and fruits, leaves and underground organs, as well as in the entire surface of the plant. [8-10]

The amount of essential oil in plants can be 0.001-20%. The amount and composition of this oil varies depending on the place of growth of the plant, the period of development, age and navigation.

The accumulation of large amounts of essential oil in different plants occurs at different times. Usually the plants accumulate the maximum amount of essential oils during flowering, some during budding or earlier. The accumulation of more or less essential oil in the plant depends on the air temperature and humidity, soil moisture and the amount of minerals in the soil.

Normally, as the air temperature rises, more essential oils are synthesized in the plant, and conversely, as the humidity increases, the amount of these compounds decreases. More or less moderate moisture in the soil leads to a decrease in essential oils in the plant. Drought also causes excessive accumulation of essential oils in some plants. Typically, the flora of the southern regions is richer in species that retain essential oils than those of the northern regions. Under these conditions, the smell of essential oils of plants growing is more fragrant, the composition is also more complex.

The role of essential oils in plant life has not yet been fully elucidated. Some scientists believe that essential oils and resins have the function of protecting plants from various diseases, pests, rot and poisoning. Some theories say that essential oils attract insects and help pollinate plant flowers. There are also opinions that essential oils serve as plant waste or as a backup nutrient.

Kiyikot, mint, lemon, common tojjambil, tograyhan, marmara tops, black cumin fruit and oil, eucalyptus leaves and oil, birch and pine buds, spruce (dome), valerian rhizome and The roots, chamomile and medicinal wormwood, a lot of essential oils accumulate in the upper part of the earthworm.

Organs that produce and store essential oils are mainly divided into two groups:

I. External - exogenous organs are located on the surface of plants and are located on the epidermal tissue. Exogenous organs that produce essential oils include glandular spots, glandular hairs, and special glands.

Typically, glandular spots are located on the petals of the flower, and the oils they produce accumulate under the cuticle layer above the epidermal tissue. The result is spots where a small amount of essential oil accumulates and can only be seen under a microscope.

Sometimes the plants have glandular heads of feathers that are found on the leaves, stems and flower buds. These heads can produce essential oil. This is why such hairs are called glandular hairs that produce essential oil.

Essential oil-producing glands are the most complex of exogenous organs. Typically, they are located using their feet on the epidermal tissue of the stem, leaves and flower buds. The legs are made up of one or more short cells, and the heads are made up of 4 to 12 or more cells that produce essential oils. As essential oils accumulate under the cuticle layer, the glands are often in the form of suckers. Glands that produce essential oils are especially abundant in plants that belong to the family of lilies and lilies of the valley. Such glands can be seen under a microscope in mint, marmalade leaves, chamomile flowers.

2. Internal - endogenous organs are located under the epidermal tissue. Endogenous organs that secrete essential oils include areas where oil accumulates, tubules, oil pathways, and cells located in one or two rows under the epidermis or cork tissue of the root and rhizome. Such cells produce essential oil and store it.

Areas where essential oils accumulate are spherical or elongated, and are found on the leaves and petals of plants, bark, wood, and fruit peels.

Areas where essential oils accumulate are formed in plant organs in a variety of ways. As a result of the compression of plant tissue cells, a cavity is formed, and then at its edges appear cells that produce essential oil, and they form a place where oil accumulates. This method is called the schizogen type. Sometimes a drop of essential oil previously produced in the tissues dissolves the surrounding cells, creating a void. As a result, cells that secrete essential oils appear around this cavity, creating a place where oil accumulates. This method is called lysogen type. In plants, the generalization of these two methods in tissues is more common in areas where essential oil accumulates in the schizolisogen type. In this case, the essential oil that forms in the compressed cavity of the cells also dissolves the remaining cells around it, creating a place where the oil accumulates.

Medicinal lemon (*Melissa Officinalis*) belongs to the family Lamiaceae (Labiatae). A perennial herbaceous plant, 30-60 cm tall.

Stems single or multiple, oppositely branched. The leaves are ovoid, slightly pointed, hairy (from the top), with a serrated edge, with a short stalk opposite the stems and branches. White,



Figure 1. *Melissa officinalis* is a medicinal lemon

the hairy, two-lipped flowers are arranged in a leaf axil with a bunch of flowers, forming a ball flower. Fruit - 4 nuts.

It flowers in June-August and ripens in July-August.

Geographical distribution. It grows in the shade of trees in Central Asia, the Crimea, the Caucasus, the southern European part of Russia and other countries, in the shade of rocks in mountainous areas and in other shady places. Occurs in Tashkent and Surkhandarya regions of Uzbekistan.

Chemical composition. The surface contains 0.01-0.33% of essential oil, vitamin C, carotene, phenylcarboxylic acids (coffee, chlorogen, rosemary, ferul, protokatex, etc.), triterpenes, flavonoids (luteolin-7-glycoside, etc.) 5—10% additives and other substances, seeds contain 20-27% fat.

The essential oil of lemon contains geraniol, linalool, nerol, farnesol and their combination with acetic acid, limonene, pulegol, geranial, neral and other terpenes.

Medicinal products. Dripping.

Common black cumin (*Carum carvi*) belongs to the family Umbelliferae.

A biennial herbaceous plant, 30-80 cm tall. In the first year the rhizome grows from the root, and in the second year the rhizome and stem grow. Stems erect, cylindrical, polygonal, branched at the top. The rhizome leaves are long-banded, and the stems are short-stemmed. The leaves are divided into 2 or 3 linear leaf segments. The flowers are small, clustered in a complex umbrella. The petals are indistinct, the petals are white or pink, the paternal 5, the maternal node 2-lobed, located below. The fruit is an elongated double pistachio.

It blooms in June-July, the fruits ripen in July-August.

Geographical distribution. It grows wild in forests, forest edges and meadows. It is found mainly in the forests and forest-desert zones of Ukraine, Belarus, the European part of Russia, in the south of Siberia, in the mountainous regions of the Caucasus and Central Asia. It is grown in Russia, Ukraine and Belarus.



Figure 2. *Carum carvi* is a simple black cumin

Chemical composition. The fruit contains 3-7% of essential oil, 14-22% of fat, 20-23% of protein, flavonoids (quercetin and cemferol) and additives. According to XI DF, the content of essential oil in the fruit should not be less than 2%.

The essential oil is extracted from the crushed fruit using water vapor.

The essential oil of black cumin is a yellow liquid with a density of 0.905-0.915; refraction number 1,4840—1,4890. The oil contains 50-60% of caravan, 40-50% limonene, 40-70% carvacrol, dihydrocarbon and dihydrocarveol compounds.

Black cumin is also important in food, perfumery and others.

Medicinal products. Black cumin, essential oil (1-3 drops in sugar) and fruit juice. The fruit is part of the gastric juice.

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