



BENEFICIAL PROPERTIES OF CERTAIN TYPES OF MEDICINAL PLANTS AND THEIR PLACE IN AGRICULTURE

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Abstract: This article contains information on the distribution of medicinal plants, their role in human activity, as well as the level of prospectivity of the content of individual biologically active substances in plant species, the importance of developing "green pharmaceuticals" in some regions and the importance of their role in agriculture. In addition, information is also provided on some biologically active substances in medicinal plants distributed in the foothill pastures of the Kashkadarya basin, including: mint (*Mentha longifolia*), lemon balm (*Melissa officinalis*), camphor (*Trichodesma incanum*), isiriq (*Peganum harmala*), mountain basil (*Origanum vulgare*), kiyiko'ti (*Ziziphora pamiroalaica*), yantoq (*Alhagi pseudalhagi*), sorrel (*Rumex chale-pensis*), caraway (*Carum carvi*) found in the Kashkadarya basin of the Zarafshan range. It was also suggested that efficiency could be achieved by teaching the lesson using pedagogical technologies.

Keywords: green pharmaceuticals, mint (*Mentha longifolia*), lemon balm (*Melissa officinalis*), elderberry (*Trichodesma incanum*), yarrow (*Peganum harmala*),



mountain basil (*Origanum vulgare*), yarrow (*Ziziphora pamiroalaica*), yarrow (*Alhagi pseudalhagi*), sorrel (*Rumex chalepensis*), caraway (*Carum carvi*), FSMU method.

INTRODUCTION. Due to the high demand for food plants in Uzbekistan, it is necessary to obtain high yields from all crops. Food plants are consumed raw and in various dishes. Currently, out of 4,137 plant species found in the flora of our republic, only 300 are used as food and spice plants. Of these, walnuts, apples, cherries, and pistachios, which occur in the wild, are also important and bring some benefit to the development of the economy of Uzbekistan. In particular, the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 1034 dated December 19, 2018 “On measures to organize the preparation, publication and maintenance of the Red Book of the Republic of Uzbekistan” provides information on measures to prevent the reduction of the range of medicinal plants and regulate their use. Plants are rich in various carbohydrates, proteins, vitamins, and other substances with a pleasant aroma and taste. Plant products are a source of minerals (sodium, potassium, calcium, magnesium, phosphorus, iron, etc.) and microelements (iodine, cobalt, etc.), which play an important role in the course of biological and physiological processes underlying the vital activity of the organism. Minerals and microelements are a permanent component of cell protoplasm, ensure its physiological state, maintain osmotic pressure and acid-base balance in the body. Plant products also contain phytoncides, oxidizing enzymes, and essential oils. Along with plant products, various aromatic substances enter the human body. Although they do not have great nutritional value, they are used to give food a specific taste and smell. These substances not only stimulate appetite, but also enhance the secretion of digestive glands. The essential oils contained in the plant product reduce inflammatory processes in the gastrointestinal tract, normalize metabolism, and the activity of the digestive and salivary glands in the stomach and intestines. As an effective way to ecologize the pharmaceutical industry, it is important to develop a “green” manufacturing industry, taking into account the



natural conditions and resource capabilities of the regions. In this regard, the level of prospectivity of the content of certain biologically active substances in the composition of especially widespread plant species is the main guarantee of the development of “green pharmaceuticals” in individual regions. In this regard, in order to determine the prospects for the rational use of medicinal plants distributed in the foothill pastures of the Kashkadarya basin, the content of certain biologically active substances in the composition of widespread species - mint (*Mentha longifolia*), lemon balm (*Melissa officinalis*), camphor (*Trichodesma incanum*), isiriq (*Peganum harmala*), mountain basil (*Origanum vulgare*), kiyiko‘ti (*Ziziphora pamiroalaica*), yantoq (*Alhagi pseudalhagi*), sorrel (*Rumex chalepensis*), caraway (*Carum carvi*) in the Zarafshan Range of the Kashkadarya Basin was determined. The results are presented below.



Limon o‘ti



Yalpiz

Mint is a fragrant, highly variable, perennial herb with a creeping rhizome, like most mints, and erect creeping stems 40–120 cm tall. The leaves are oblong-elliptic-lanceolate-lanceolate, 5–10 cm long, 1.5–3 cm wide, finely to densely tomentose, green to gray-green above, and white below. The flowers are 3–5 mm long, lilac, purple, or white, arranged in dense clusters (verticillasters) on tall, branched, narrow spikes; they bloom in mid- to late summer. *Mentha longifolia* is used in folk medicine for inflammation of the gastrointestinal tract, nausea, vomiting, and diarrhea, which are accompanied by pain and excessive intestinal gas formation. In chronic stomach diseases, it is recommended to drink mint tincture in



the morning. Mint is especially effective when the acidity of gastric juice is increased. Mint is used as a sedative for liver and gallbladder diseases, and for various nervous system disorders. Lemon balm (*Melissa officinalis*) - A perennial, hairy, herbaceous plant 30–60 cm high. The stem is single or multiple, branched oppositely. The leaves are ovate, slightly acute-pointed, hairy (on the upper side), serrate-edged, located opposite on the stem and branches with a short margin. White, hairy, two-lipped flowers are arranged in axils of leaves, forming a raceme. The fruit is a nut of 4. The above-ground part contains 0.01–0.33% essential oil, vitamin C, carotene, phenylcarboxylic acids (caffeic, chlorogenic, rosemary, ferulic, protocotex, etc.), triterpenes, flavonoids (luteolin-7-glycoside, etc.), 5–10% tannins and other substances, the seeds contain 20–27% oil.

Medicinal preparations of lemongrass According to Ibn Sina, it strengthens and helps the heart, as well as treats trachoma, hiccups, bad breath and other diseases. In folk medicine, lemongrass is used to treat neurosis, bronchial asthma, toxicosis in women, menopause, heart rhythm disorders and other diseases. Medicinal lemongrass can be stored in one field for up to 5 years and harvested.

Trichodesma incanum Bunge - A perennial weed belonging to the family of Asteraceae, with a branched, creeping, sometimes erect stem, 30–100 cm tall. All parts of the plant are covered with silvery white hairs. All parts of the leaves are densely covered with silvery white hairs, serrate, ovate, without a margin. The flowers are blue, collected in a branched raceme. The fruit is an ovoid nut. It blooms and bears fruit in April–October. The root is a taproot, the taproot penetrates to a depth of 5–6 m, and above-ground branches grow from the buds in the root neck. It reproduces vegetatively and by seeds, the overwintered seeds germinate at a temperature of 7–10°C. The grasses bloom in March–early April. One bush produces up to 1000 seeds. Its seeds are scattered on the soil. The plant and its seeds are poisonous. Control measures: weeding, loosening the soil to a depth of 10–12 cm after harvesting, autumn plowing with a chipper plow to a depth of 30–35 cm.



Old shepherdess

Harmless (*Peganum harmala*) - A perennial wild herb belonging to the family of the harmalidaceae, containing alkaloids, used in folk medicine in various ways (including as an incense) as a healing agent. It is 60–70 cm tall, has several stems, gray or green leaves. The flowers are yellowish-white, at the end of the branch, the fruit is a round capsule. 6 species are known. *Peganum harmala* grows in Uzbekistan. It is found in deserts and semi-deserts, in populated areas, among crops and on mountain slopes. It contains alkaloids (harmine, harmaline, peganine). Dye for wool, fabrics and silk is obtained from its seeds. Harmless is also used to eliminate bad odors and repel various disasters.



Peganum



Origanum



Oregano (*Origanum tyttanthum* Gontsch.) - A perennial herb belonging to the Labdalaceae family, reaching a height of 40 cm. Its stem is erect, single or multiple. The upper part of the stem is branched. The leaves are ovate or oblong, three sides are sharp or blunt, and the base is broadly wedge-shaped, serrated. The flowers are almost sessile on three parts of the stem or branches, forming a panicle-shaped inflorescence. We have one species and several forms of the plant. They grow on fine gravelly, humus-rich brown and black soils in all mountainous regions of our republic. It also grows on river banks, around springs, under trees and in open areas, on hills and southern and northern mountain slopes, and is widespread at altitudes up to 2400 m above sea level. Basil blooms in July-August, and its seeds ripen fully in August-September. This plant has a very pleasant aroma. Therefore, it can be used as a spice plant, in the preparation of various canned goods, in pickling and salting cucumbers, cabbage, tomatoes, grapes, apples and watermelons. Many people know that basil has been a medicinal plant since ancient times. Its aerial part is used to improve the functioning of the digestive organs during the flowering period. In medicine, juices made from it are used as an anti-insomnia and diuretic agent, and to treat blemishes on the body. The essential oil obtained from it is also used as a medicine to treat toothache. Essential oil can be obtained from the aerial part of basil and used to make various perfumes, toothpastes, and scented soaps. Basil contains 2.2% essential oil, 6–8% tannins, organic acids, mineral salts, and a large amount of vitamin C and provitamin A.

Ziziphora pedicellata Pazijet ved. - A perennial plant of the Labiatae family, up to 40 cm tall. The leaves are short-stalked, entire-edged, wedge-shaped at the base, hairy or sparsely hairy. The flowers form spherical-round inflorescences on three parts of the branches. The calyx is 7-8 mm long, light purple. It blooms in June-July, and the seeds ripen in July-August. Ziziphora grows on gravelly and stony, brown soil on the northern, southern, southwestern slopes of the mountain regions, at altitudes up to 2400 m above sea level. Ziziphora is a favorite spice of local peoples,



and it is used in the preparation of various dishes and salads. Ziziphora can also be used for pickling fruits and vegetables. This plant is superior to black pepper and bay leaves in terms of its healing properties and pleasant taste. In folk medicine, kiyikot is boiled and drunk to treat heart attacks.

**Ziziphora****Alhagi pseudalhagi**

The (Alhagi pseudalhagi (M.B.) Desv.) is a perennial plant belonging to the legume family, reaching a height of 130 cm. Its stem and branches are smooth, hairless. The branches are thin, and grow upwards forming an acute angle. The body is hard, the leaves are ovate-oblong, with hairs on the upper side. The flowers are red or pink, and are located 3-8 on the stem and branches. The pods have 4-7 seeds. The seeds are kidney-shaped, small and smooth. The yantok blooms in May-September, and the seeds ripen in August-October. This plant is often found as a weed in the desert, hilly and mountainous regions of our republic. Livestock eat yantok well, mainly in autumn and winter. This plant is very rich in various organic substances, mineral salts, and vitamin C. The above-ground parts of the plant contain 500 mg% of vitamin C, and the leaves contain up to 1000 mg%, which remains intact for a long time even when the plant is dried.

Sorrel (Rumex) is a genus of annual and perennial plants belonging to the family of Sorrel. There are 16 species in Uzbekistan. Of these, the following are found: sorrel, savul, curly sorrel (*R. crispus* L.), red sorrel (*R. conglomeratus* Murr.), Syrian sorrel (*R. syriacus* Meisn.), Drobov's sorrel (*R. drobovii* Korov.). The root is



taproot, thick, the stem is multi-faceted, jointed, the upper part is sparsely branched. The basal leaves are long-stalked, the base of the leaf plate is lanceolate, triangular-ovate or broadly lanceolate, the ones on the stem are oblong-lanceolate, arranged in a row at the joints of the stem. The flowers are unisexual, small, in racemes. It blooms and breeds from May to September. The fruit consists of a 3-sided nut. It grows in moist places, meadows, and mountain slopes. In medicine, medicinal sorrel, small-leaved sorrel or sorrel, and common sorrel are used. Sorrel is rich in vitamins C, B, and other vitamins, so it is used in food. Sorrel and sycamore are large plants with a leaf surface. Caraway (*Carum carvi* L.) - A biennial herb of the Solanaceae family, 40-80 cm tall. The stem is branched from the base in the form of a claw, hollow, with a groove on the surface. The leaves are hairless, of various shapes, consisting of 6-8 pairs of joints, two-three-lobed or entire. The flowers have 1-2 whorls, 5-11 rays, the inner rays are shorter than the outer ones, the umbels are 5 cm long, without whorls, 20-flowered. The bracts are 1.6-2 mm in size, white or pink. The seeds are ovoid, sharp-edged, 3 mm long. Caraway blooms in June, the seeds ripen in July. It grows on the banks of rivers, near ditches and streams in many mountainous regions of Uzbekistan. In the USA, Denmark, Norway, and Hungary, the leaves and stems are added to various salads and dishes, and are eaten with baked apples and boiled beets. In folk medicine, black cumin seeds are drunk as tea to treat gastrointestinal diseases. In the preparation of medicines, its seeds are used to give a pleasant aroma to various medicines. In medicine, it is used as a laxative to treat stomach diseases. Black cumin is one of the best essential oil plants, therefore it is widely planted in the USA, England, the Netherlands, Denmark, Norway, Poland, and Hungary. Black cumin seeds, depending on the growing conditions and variety, contain 2-7% essential oil, 12-18% fat, 10-12% protein, 3% sugar, sweeteners, mineral salts, and 20-23% protein

CONCLUSION. In conclusion, it can be said that the formation of the above information about medicinal plants on the basis of new pedagogical



technologies and increasing students' interest in the subject, forming their creative approach are the only ways to achieve efficiency in the education system. The FSMU method allows students to draw clear conclusions from general ideas, assimilate information through comparison, and develop independent creative thinking skills, thereby achieving the acquisition of theoretical knowledge and practical skills and qualifications in science. When applying this method of teaching to the educational process, the motivation for teaching and learning increases, and the use of the method significantly increases the quality and efficiency of the educational process.

When collecting medicinal plants, it is important to know where the beneficial elements are concentrated and at what period of plant development their concentration is maximum. Teaching these medicinal plants during training based on new pedagogical technologies not only improves the quality of education, but also serves to increase the creative approach of students and is introduced into production. When collecting medicinal plants, it is important to know where the beneficial elements are concentrated and at what period of plant development their concentration is maximum. Teaching these medicinal plants during training based on new pedagogical technologies not only improves the quality of education, but also serves to increase the creative approach of students.

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