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## **ETHNOBOTANICAL STUDIES OF PLANTS**

### **IN THE NORTH KAZAKHSTAN**

***Abstract:*** information is given about the widespread plants of North Kazakhstan, which are used in folk medicine for the prevention and treatment of various diseases. New data on methods of preparation of herbal medicinal forms for external and internal use are presented.

***Keywords:*** traditional medicine, ethnobotanical method, flora of North Kazakhstan, medicinal plant forms.

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## **ЭТНОБОТАНИЧЕСКИЕ ИССЛЕДОВАНИЯ РАСТЕНИЙ В СЕВЕРНОМ КАЗАХСТАНЕ**

*Аннотация:* в работе даны основные сведения о многочисленных растениях Северного Казахстана, которые используются в народной медицине для профилактики и лечения различных заболеваний. Предложена новая информация о методах приготовления растительных лекарственных препаратов для внешнего и внутреннего использования.

*Ключевые слова:* традиционная медицина, этноботанический метод, флора Северного Казахстана, растительные лекарственные препараты.

A significant share of medicinal plant raw material is the wild plants. It is known that they have a milder, more complex effect on the human body. The popularity of medicinal plants continues to grow, especially in the treatment of chronic diseases of the cardiovascular system, respiratory organs, digestion, etc.

A large number of promising plants require a comprehensive study and implementation in medical practice. An ethnobotanical method is used to discover new medicinal properties of plants.

The purpose of our research is to study the folk experience of the practical use of useful plants by the local population of the North Kazakhstan in order to identify their new medicinal properties that are promising for medicine.

The objects of research were plants of the flora of Akmola region and North Kazakhstan regions in 2015–2019. We used a questionnaire method to clarify issues related to the methods of preparation and use of medicinal plant forms, the timing of the collection of plants, the conditions for their drying.

New facts on the external and internal use of medicinal plants were established.

Below the information for the most common useful plants in the region in comparison with the literature data is given.

Yarrow (*Achillea millefolium* L.) is distributed throughout Kazakhstan. It can be found in dry forest meadows, on steppe slopes, as a weed along the edges of fields and roads, at the borders. This weed plant is a good honey plant [1].

Yarrow is an indispensable tool in folk medicine in the treatment of gastritis, skin diseases (acne, eczema). Infusion of common yarrow is used as an appetite enhancer [2]. An infusion of herbs or a liquid extract is prescribed mainly for hemorrhoidal and uterine bleeding due to inflammatory processes, externally – to stop bleeding from wounds. The liquid extract is often prescribed along with nettle leaf extract [3]. In veterinary medicine, yarrow is used as an antihelminthic and for gastrointestinal diseases in calves. The admixture of the plant to hay contributes to its digestibility [4]. The chemical composition is complex. Essential oils contain chamazulene, bicyclic terpenes – thujone, borneol, camphor, bicyclic sesquiterpenes, monocyclic terpenes (cineol), formic, acetic, isovaleric acids, flavonoids, aquinil sesquiterpene, which causes the bitter taste of the herb, alkaloids, vitamin C, carotene, resinous substances [5].

The local population uses an infusion of herbs for toothache, as well as to stimulate lactation in nursing mothers. The decoction is also used in the fight against pests of agricultural plants.

Dandelion (*Taraxacum officinale* W.) easily adapts to environmental conditions and survives safely, enduring both trampling and eating by animals; other plants cannot drown it out. The milky juice of the plant contains taraxcin and taraxacerin, 2–3% rubber substances, dandelion inflorescences and leaves – taraxanthin, flavoxanthin, vitamins C, A, B<sub>2</sub>, E, PP, choline, saponins, resins, salts of manganese, iron, calcium, phosphorus, up to 5% protein, making them nutritious foods. Dandelion roots contain triterpene compounds, carbohydrates (up to 40% inulin), fatty oil, which includes glycerides of palmitic, lemon balm, linoleic, oleic, cerotinic acids; rubber, proteins, mucus, resins, etc. Taraxanthin, flavoxanthin, lutein, triterpene alcohols were found in flower baskets and leaves [6].

Dandelion preparations are used as bitterness to stimulate appetite, constipation and as a choleric agent, and its root is part of the gastric and diuretic teas, the juice is useful for diseases of the liver and stomach. It is used as a mild laxative. When drinking juice and infusion of the root in lactating women, the formation of milk increases. Root infusion is used for skin diseases [3; 7; 8].

In folk medicine, all parts of the plant are used, as well as the milky juice of the dandelion. Due to its rich and varied chemical composition, dandelion has an incredibly wide range of physiological effects. The plant has a choleric, antipyretic, laxative, expectorant, diaphoretic, sedative, anti-tuberculosis, anti-diabetic, anti-carcinogenic, tonic, antispasmodic and mild hypnotic effect. An aqueous infusion of roots and leaves improves digestion, increases appetite, and enhances milk secretion in lactating women [9; 10].

Dandelion, according to our research, is used by the population of the studied region to treat diseases of the liver and gallbladder, urolithiasis, flatulence, skin diseases, furunculosis, eczema, and jam from the flowers of this plant is used as a remedy for colds.

New data on the treatment of hemorrhoids were received from a local resident. For this, tablespoons of crushed dandelion root are poured with 1 cup of boiling water and insisted for an hour in a dark place. It is necessary to drink such an infusion 1 tablespoon 1 hour before meals 6 times a day. To prepare the infusion, it is necessary to take only fresh leaves, and store the infusion in the refrigerator for no more than a day. It is recommended to take the medicine for one month.

To treat cirrhosis of the liver and colds, local people use «dandelion honey». To prepare it, 200 dandelion baskets, one finely chopped lemon are poured into 1 liter of water, insisted for 6–8 hours. Then the raw material is squeezed out, 1 kg of sugar is added to the broth and simmered for 2 hours, this remedy can be used as jam.

Coltsfoot (*Tussilago farfara* L.). The coltsfoot is common throughout the North Kazakhstan and is known for its medicinal properties [11]. It grows along cliffs, ravines, clay slopes, hills and ditches.

The leaves of the coltsfoot contain heteropolysaccharides (up to 10%), flavonoids (up to 0.2%), tannins (up to 7%), organic acids, ascorbic acid, resinous substances [6]. Crushed dry leaves are smoked for shortness of breath, shortness of breath and to reduce toothache [2; 3; 12]. The leaf is used as an expectorant in decoctions; it is part of breast and diaphoretic teas [13]. Coltsfoot is an early honey plant that provides nectar and pollen [14].

We found that residents consume the juice of fresh leaves of the plant in early spring. The washed leaves are scalded with boiling water, passed through a meat grinder, the juice is diluted with water (1: 1) and boiled for 2–3 minutes.

With varicose veins, a mush is prepared from fresh mashed coltsfoot leaves and cream, which is applied to diseased areas, freshly squeezed leaf juice is instilled into the ears for acute ear pain.

Local people use coltsfoot for inflammation of the gastrointestinal tract, to increase appetite and as an emollient for the skin, as well as for diseases of the kidneys, lungs, respiratory tract, inflammation of the bladder, and headaches.

With inflammation of the lungs and other diseases of the respiratory tract, local people use a decoction of the leaves and flowers. Externally, juice squeezed from a fresh leaf is used to treat long-term non-healing wounds, ulcers and abscesses.

Shepherd's purse (*Capsella bursa-pastoris* L. Medik.) is a weed plant. Shepherd's purse grass contains organic acids, flavonoids, vitamin K, acetylcholine, tannins, etc [3; 11; 15].

This plant is of great importance in medicine. The herb is used in the form of an infusion and extract in gynecological practice as a hemostatic agent after childbirth and to enhance contraction of the muscles of the uterus during childbirth. There is evidence of the effective use of shepherd's purse infusion in the treatment of patients with pulmonary tuberculosis with frequent bleeding [13; 15].

We can note that shepherd's purse is one of the most common medicinal plants used in folk medicine for diarrhea.

Nettle (*Urtica dioica* L.) grows in shady moist forests, clearings, along ravines and coastal shrubs as a weed [2; 3]. The greatest density of nettle thickets occurs

where the soil is rich in humus and sufficiently moist. It grows quite quickly, by the beginning of June flowering is already beginning [2; 17]. Leaves contain vitamin C, carotene and other carotenoids, vitamins B and K and organic acids [2; 7; 8,], up to 5% chlorophyll, more than 2% tannins, gum, glycoside urticin, iron, phytoncides were found in the leaves, quercetin, acetylcholine, etc [2; 3; 7; 17].

In medicine, nettle preparations are used internally as a hemostatic agent, and as a means of increasing the contractile activity of the uterus and increasing blood clotting [1]. Nettle leaves are part of the multivitamin tea, which helps to increase metabolism, improve the activity of the cardiovascular system [3; 12; 17]. Nettle grass, ground into powder, is used to treat festering wounds and ulcers [2; 7].

This plant is also used as a component of vitamin tea, along with the fruits of mountain ash, wild rose, lingonberries, and currants. It has been shown that nettle extracts are also used in the treatment of liver, skin diseases, kidney and bladder diseases [1]. Nettle infusion is recommended to rinse hair [17].

Nettle is used in a similar way by the local population.

Large plantain (*Plantago major L.*) is distributed as a weed. In medical practice, an infusion as an expectorant is used, and juice for colitis [18]. From the aqueous extract of the leaves, the drug «Plantagucid» is produced, which is used for gastric and duodenal ulcers. Seeds are used as a laxative and antidiarrheal agent [3].

Local residents of the studied area collect plantain leaves 1–2 times per season, cutting them with a sickle or scissors at a height of 3–5 cm from the soil level. The first cleaning is carried out at the beginning of flowering, the second a little later. There is experience in the use of large plantain for the treatment of diffuse goiter. To do this, the leaves are ground together with salt and a compress in water is applied to the throat in the goiter area. The procedure is repeated several times.

Thus, we have established new data on the use of useful plants in folk medicine by residents of the North Kazakhstan region. The information obtained can be used in the creation of new herbal medicinal forms and preparations.

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