



Ethnobotany of Dagestan

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Research

Abstract

Background: Dagestan is one of the most ethnically diverse regions of Russia, home to more than 17 indigenous ethnic groups. Geomorphologically, Dagestan is divided into four main physiographic provinces: Plain, Outer Mountain, Middle Mountain and High Mountain. The highlands are characterized by considerable depths of relief dissection and large height differences. The diversity of natural landscape, climate, flora, isolation of ethnic groups by inaccessible mountains, caused different specificity of cultural development of peoples, which was reflected in the peculiarities of the use of plants in folk life. This paper presents for the first time the results of a comprehensive ethnobotanical study, which was conducted to document wild plants used by indigenous ethnic groups of the Republic of Dagestan.

Methods: Ethnobotanical information of the region was collected in 2022–2023 by questionnaire survey of the data received from the population. More than 300 people were interviewed among different ethnic groups throughout the territory of the Dagestan Republic.

Results: 48 commonly utilized wild plants belonging to 25 families were recorded, of which 20 species were used for both food and medicinal purposes, 20 species were only for food, and 8 species were only for medicinal purposes. The most frequently used plants were from the family Rosaceae (8 species), 6 species were from the family Apiaceae, 4 species were from the family Lamiaceae, 3 species each were from the families Asteraceae and Alliaceae, 2 species each were from the families Boraginaceae, Fabaceae, Polygonaceae, Viburnaceae.

Conclusions: Studies have shown that the population of Dagestan currently continues to use the plants extensively for food, but medicinal use has decreased after the appearance of pharmacies in the region with preparations from the world pharmaceutical industry. To our opinion, phytochemical and pharmacological studies of plants used by Dagestan ethnic groups will allow to create promising medicines on their basis.

Keywords: Ethnobotany, Dagestan, North Caucasus, medicinal plants.

Background

The area of Dagestan is 50300 km². Its territory covers the eastern part of the northern macro slope of the Greater Caucasus. The north occupies the southwestern part of the vast Caspian lowland bounded by the Kuma River. Dagestan is washed by the Caspian Sea (the coastline is 530 km long). The southern border of Dagestan with Georgia and Azerbaijan runs along the high mountain ranges of the Greater Caucasus and the Samur River (Figure 1).

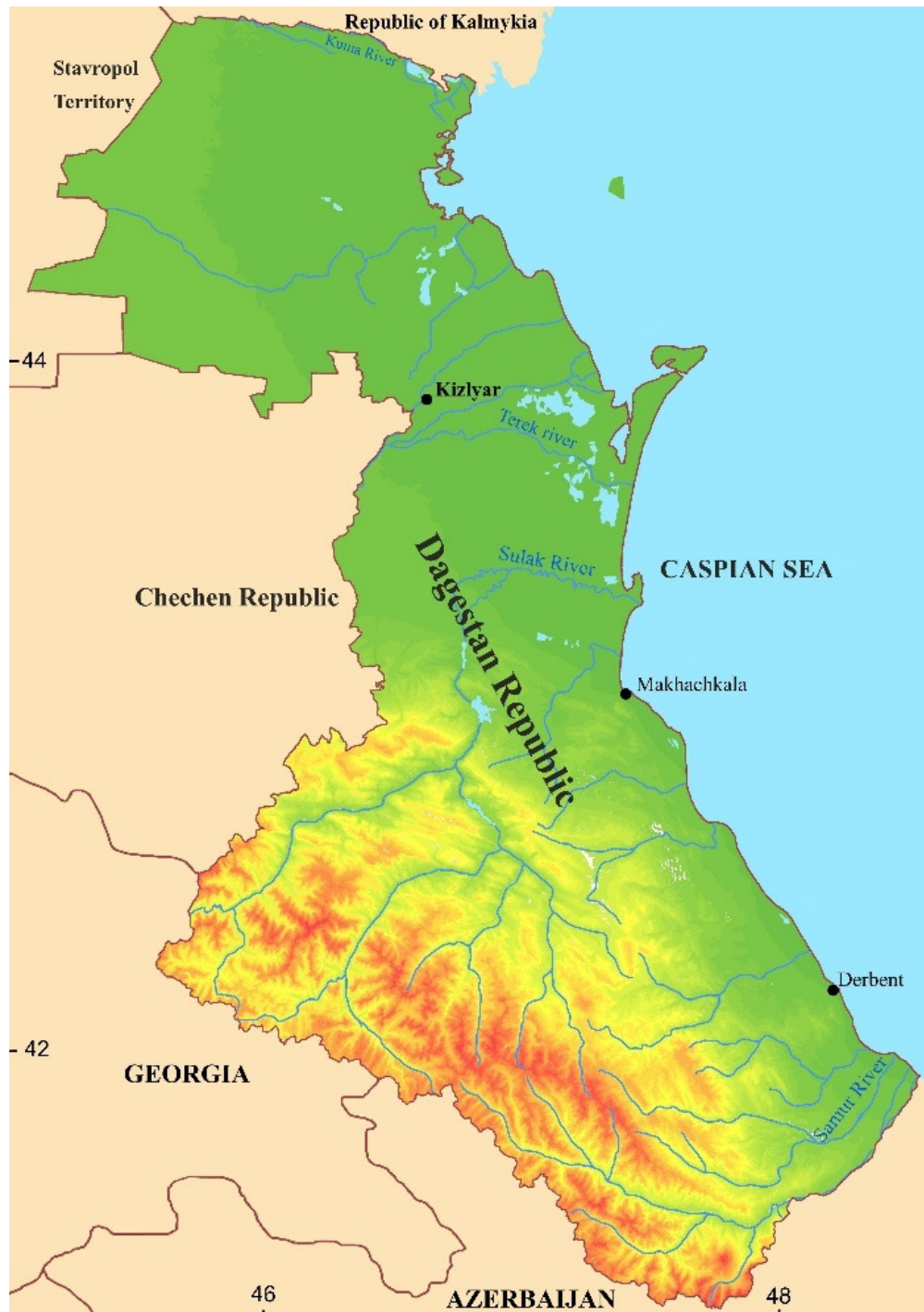


Figure 1. Physical map of Dagestan

The highest peak of Dagestan is Bazarduzi (4466 m above sea level), besides, there are more than 20 massifs with elevations above 4000 m, the minimum elevation is the Caspian Sea shore – 27 meters below sea level (the Caspian Sea level is exposed to fluctuations). The highlands are characterized by considerable depths of relief dissection and large height differences.

Geomorphologically, Dagestan is divided into four main physiographic provinces: Plain, Outer Mountain, Middle Mountain and High Mountain (Figure 2).

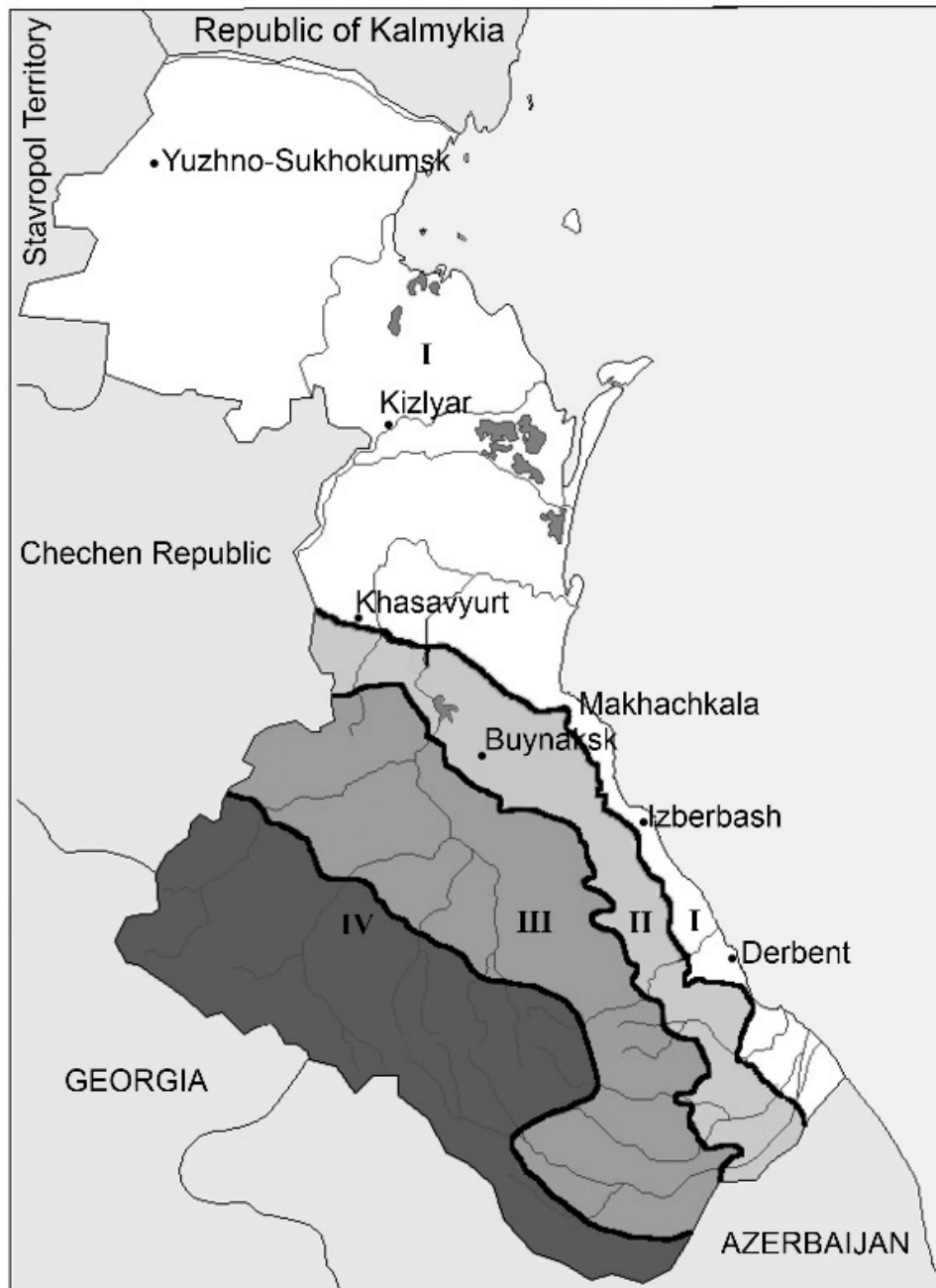


Figure 2. Provinces of Dagestan

Plain Dagestan is mainly represented by the southwestern part of the Pre-Caspian lowland, most of which lies below the level of the world ocean, consists of the Terek-Kuma and Terek-Sulak lowlands, characterized by significant aridity despite the river systems located there. Between the spurs of the Caucasus Mountains and the shore of the Caspian Sea, the Seaside Lowland stretches in a narrow strip in a meridional direction. Lowland Dagestan has elevations from 27 meters below sea level to 300 meters above sea level and occupies 46% of the territory of the republic.

Outer-Mountain Dagestan is extended by an arc-shaped line of 40-60 km wide in the central part, between the valleys of the Aksai and Samur rivers. In the northern part it is separated from the lowlands by a system of foremost cuesta ridges (northern part of Hadum Dome, Narattubi - Kanaburu). Behind these ridges are broad flat-bottomed plains (Figure 3), among which rise the domes of the Khadum, Kukurtau, and Eldama uplands. The foremost ridges are composed of Neogene sandstones and clays.



Figure 3. The ancient salt marsh valley of Kar-Kar. Dagestan, Russia (photo: R. Murtazaliev)

Wide plains are occupied by Maikop clays (Paleogene-Neogene). The domes are composed of Cretaceous limestones. The border with Inner-Mountain Dagestan is formed by monoclinical ridges up to 2700 meters high. These ranges (Salatau, Gimrinsky and Chonkatau) are composed of Paleogene marls under which Cretaceous limestones lie. Near the Sulak River valley and the city of Makhachkala (the Tarki-Tau plateau), sharp ledges form the outcrop areas of Sarmatian deposits (clays interbedded with sandstone and limestone).

Middle-Mountain Dagestan is separated from Outer-Mountain Dagestan by a cuesta steep slope of foremost limestone ridge. H.I. Kuznetsov (Kuznetsov 1909) divided this area into the southeastern sandy-shale and northwestern limestone subareas according to the type of relief and lithologic composition. The average heights of the ridges in this region exceed 2000 m above sea level. Maximum altitudes are noted for the Djufudag Range (3011 m). The ridges are often cut through by river valleys incised to depths of 400-600 m above sea level. Many of the ridges are cut across the extension, resulting in deep and inaccessible canyons in the transverse valleys. For instance, the depth of the Main Sulak Canyon exceeds 1800 meters (Figure 4).

The southeastern region, composed mainly of Middle Jurassic shale and sandstone, is dominated by relief with wide longitudinal river valleys with less steep slopes. However, even here the depth of incision exceeds 1500 meters in cross valleys, for instance, in the Magudere gorge (the canyon of the Chiragchay River in the Djufudag Range). "Limestone" Dagestan forms the most peculiar part of Dagestan (Figure 5).

High-mountain Dagestan is formed by a number of large mountain massifs (Gvozdetsky, 1954): the Snow Range (separating the basins of the Argun and Andi Koisu rivers) along the western border of Dagestan has heights up to 4265 m; the Bogos (separating the Avar and Andi Koisu rivers) is about 70 km long and has heights up to 4152 m; the Nukat! (separating the Avar Koisu and Kara Koisu rivers) is 40 km long with heights up to 3900 m above sea level; the Dyultydag Range has the highest altitude of 4128 m, and others. In general, there is a system of several parallel ridges in this region significantly dissected by erosion and exaration (Figure 6).



Figure 4. The Sulak Canyon. Dagestan, Russia (photo: R. Murtazaliev)



Figure 5. Landscapes of Middle-Mountain Dagestan in the Andi Koisu valley. Dagestan, Russia (photo: R. Murtazaliev)



Figure 6. The Bogos Range. Dagestan, Russia (photo: R. Murtazaliev)

The Main Caucasian (Watershed) Range extends for more than 300 km within Dagestan, ending with the Bazarduzi Mountain in the southeast and the Shavikilde Mountain in the northwest. It is separated from the north belt of the Snow, the Bogos, the Nukatl, the Shalib, the Hultaydag, the Kyabyaktepe, the Shalbuzdag ranges by the large tectonic structure of the Bezhta depression, along which stretches a strip of basins. The southeastern border of Dagestan runs along the steep rocky escarpment of the Shahdag Mountain - the Yarydag wall. Here the height reaches 3950 m above sea level (Figure 7).



Figure 7. The Yarydag Mountain. Dagestan, Russia (photo: R. Murtazaliev)

Dagestan is one of the most floristically interesting places in the Caucasus and is considered to be the center of development and settlement of xerophytic flora in the region (Kuznetsov 1910, Grossheim 1936). The flora of Dagestan has attracted the attention of many researchers, and its study has more than three hundred years of history. The history of the flora formation,

orographic peculiarities and variety of soil and climatic conditions has determined the place of Dagestan as the richest in species diversity of flora among Russian regions (Murtazaliev 2016, Seregin et al. 2020). The location of the region also essentially influenced the species diversity of the flora. The borders between the different floristic provinces of the Old Mediterranean subkingdom run along its territory. The high local endemism, at the level of genera including, made it possible to single out its mountainous part into a separate floristic province together with the adjacent arid territories of the Eastern Caucasus (Kamelin 2004). Currently, 3498 species belonging to 165 families have been identified in Dagestan. 113 of them (3.23% of the total flora) are introduced or naturalized species in the natural environment (Murtazaliev 2021). Table 1 shows data on the taxonomic structure of the Dagestan flora.

Table 1. Taxonomic structure of the Dagestan flora

Departments of higher plants	Number of families	Number of genera	Number of species	% of total number of species
Lycopodiophyta	2	2	4	0.11
Equisetophyta	1	1	7	0.20
Polypodiophyta	16	23	42	1.20
Pinophyta	3	3	8	0.23
Gnetophyta	1	1	2	0.06
Magnoliophyta	142	844	3435	98.20
Cl. Liliopsida	32	190	768	21.96
Cl. Magnoliopsida	110	654	2667	76.24
TOTAL	165	874	3498	100

On the vast territory of the Plain Province of Dagestan a total of 1235 species have been identified, which constitute 35.31 % of the Dagestan flora. This province of Dagestan is covered by 357 species that are not found in the mountain of Dagestan; they make up about 29% of the province's flora. At the same time, entirely all these species are strictly confined to certain plant communities and landscape types. Thus, some species in the lowlands are part of the aquatic and near-water communities of the coastal strip, in particular, to the Agrakhan Bay and adjacent water bodies of the Terek-Sulak lowlands, where the most detailed floristic studies have been carried out (Lvov 1977, Gadzhieva 2006).

The Outer Mountain Province contains the lower part, which stretches from the Sulak River to the Samur River and includes the front ridges with steppe, semi-woodland, forest and shrub communities. The upper part of the province is mainly composed of broadleaved forests and post-forest meadows (Chilikina and Schifferes, 1962). This province is transitional between lowland and mountain parts and contains species common to both (Yarovenko 2005). Besides, the presence of different types of plant communities and a sufficient range of elevations make this province the richest in flora. Here are registered 2125 species, which make up 60.76% of the entire flora of Dagestan. Meanwhile, the quantity of species common only for this province is also the highest - 558 (26.26 % of the total flora of the province). A considerable part of these species is represented on the lower foothills, where steppe and semi-desert communities are mostly developed. In the Outer Mountain Province of Dagestan, the vegetation cover is characterized by a pronounced altitudinal belt, in which five vegetation belts are distinguished: steppe, forest-steppe, arid sparse forests, forest, and subalpine (Abachev and Lvov 1984).

A total of 1624 species (46.44%) were identified in the Middle-Mountain Province of Dagestan. Only 270 species (16.62% of the province flora) are common to this territory, what is the least compared to other provinces (Figure 8). However, this province is the most original and attractive not only in floristic terms, but also in the composition of polydominant plant communities of highland xerophytic vegetation with many endemics as dominants and subdominants. Here there is a variety of ancient endemic forms, including the genera level, due to which the whole Mountain Dagestan is distinguished as a separate floristic province (Kuznetsov 1909, Kamelin 2004).

In the Middle-Mountain Province of Dagestan the main vegetation communities are mountain-steppe, forest and meadow. The lower belt is dominated by groupings of upland xerophytes - beard grass steppes, tragacanth, sibljaks, polydominant phryganoides, and rock and scree vegetation, etc.

A total of 1353 species (38.69 %) have been identified in the High Mountain Province of Dagestan. At the same time, the share of species typical only for this province is the highest in comparison with others - 30.15 % (408 species). The High

Mountain Province is composed of all communities common to this zone - pine and birch forests, alpine and subalpine meadows, rock and scree vegetation of the subnival belt, reaching snowfields and glaciers. In some places pine forests are developed in the lower part of mountain slopes, sometimes only *Pinus kochiana*. Large areas are occupied by complex pine forests with *Betula litwinowii*, *B. pendula*, *B. raddeana*, *Acer campestre*, *A. platanoides*, *A. trautvetteri*, *Sorbus aucuparia*. The undergrowth is composed of *Lonicera caucasica*, *L. xylosteum*, *Ribes orientale*, *Padus racemosa*, and of various species of *Rosa* and *Rubus*.

The rich vegetation, the difficult living conditions in the mountains, the diversity of cultures, of which there are more than 17 ethnic groups with a population of 3,209,781 people, are reflected in the variety of applications of plants for food, medicine and everyday life.

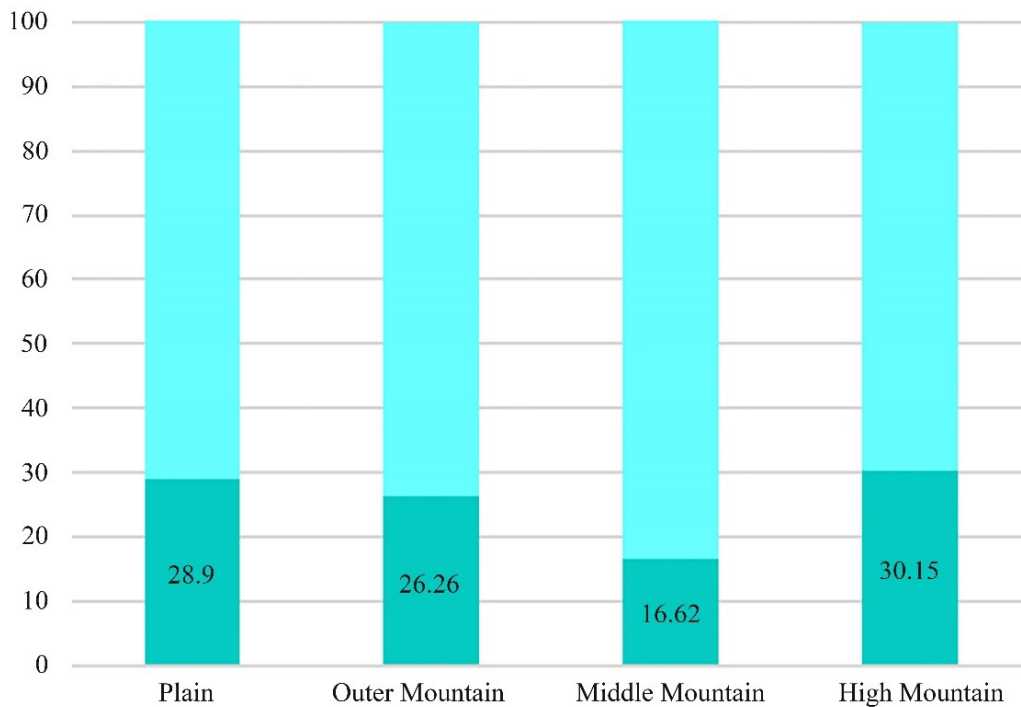


Figure 8. The percentage of specific species in the flora of Dagestan provinces

Materials and Methods

Ethnobotanical information of the region was collected in 2022-2023 by surveying the data received from the population. More than 300 participants were interviewed using a snowball technique among different ethnic groups throughout the territory of the Dagestan Republic after providing prior informed consent, using open ended questionnaires. Data on gender, ethnicity, age and occupation are not disclosed in agreement with the participants. All plants were collected, and vouchers stored in the herbarium of the Mountain Botanical Garden of the Dagestan Federal Research Center of the Russian Academy of Sciences, Makhachkala, Russia

Results and Discussion

During the survey we identify 48 species of wild plants that were used by the ethnic groups of Dagestan, including 20 species used only for cooking or eaten raw and 20 species used both for food and medicinal purposes. 8 species were found to be used only for medicinal purposes. Eight species were used in local handicrafts (Table 2).

The most frequently used plants were from the family ROSACEAE (8), 6 species were used from the family APIACEAE, 4 species were from the family LAMIACEAE, 3 species each were from the families ASTERACEAE and ALLIACEAE, 2 species each were from the families BORAGINACEAE, FABACEAE, POLYGONACEAE, VIBURNACEAE, one species each were from the families AMARANTHACEAE, ASPARAGACEAE, BERBERIDACEAE, CANNABACEAE, CAPPARACEAE, CAPPARACEAE, BRASSICACEAE, CORNACEAE, BETULACEAE, ORCHIDACEAE, JUGLANDACEAE, MORACEAE, PINACEAE, RANUNCULACEAE, CARYOPHYLLACEAE, URTICACEAE. Below we will take a closer look at the application of each species.

Table 2. Application of plant species in Dagestan.

Species name	Uses		
	Food	Medicine	Handicraft
<i>Agasyllis latifolia</i> (M. Bieb.) Boiss.	+	+	-
<i>Agrimonia eupatoria</i> L.	+	-	-
<i>Allium paradoxum</i> (M. Bieb.) G. Don	+	+	-
<i>Allium ursinum</i> L.	+	+	-
<i>Allium victorialis</i> L.	+	+	-
<i>Amaranthus retroflexus</i> L.	+	-	-
<i>Anthriscus cerefolium</i> (L.) Hoffm	+	-	-
<i>Artemisia absinthium</i> L.	+	+	+
<i>Asparagus officinalis</i> L.	+	-	-
<i>Berberis vulgaris</i> L.	+	+	+
<i>Cannabis sativa</i> L.	+	-	+
<i>Capparis spinosa</i> L.	+	-	-
<i>Capsella bursa-pastoris</i> (L.) Medik.	+	-	-
<i>Carum carvi</i> L.	+	+	-
<i>Chaerophyllum aureum</i> L.	+	-	-
<i>Chelidonium majus</i> L.	-	+	-
<i>Conium maculatum</i> L.	-	+	-
<i>Cornus mas</i> L.	+	+	+
<i>Corylus avellana</i> L. and <i>Corylus colurna</i> L.	+	-	+
<i>Crataegus curvisepala</i> L.	+	+	+
<i>Dactylorhiza urvilleana</i> (Steud.) H.Baumann & Künkele	-	+	-
<i>Echium italicum</i> L.	-	+	-
<i>Eremostachys laciniata</i> (L.) Bunge.	-	+	-
<i>Glycyrrhiza glabra</i> L.	+	-	-
<i>Heracleum grandiflorum</i> Stev. ex M. Bieb.	+	+	-
<i>Juglans regia</i> L.	+	+	+
<i>Mentha aquatica</i> L.	+	-	-
<i>Mespilus germanica</i> L.	+	+	-
<i>Morus</i> sp.	+	-	-
<i>Onosma caucasica</i> Levin et T.N. Pop.	-	+	-
<i>Pinus kochiana</i> Klotzsch ex K. Koch.	+	+	+
<i>Prunus armeniaca</i> L.	+	-	+
<i>Prunus divaricata</i> L.	+	-	-
<i>Pyrus caucasica</i> Fed.	+	-	-
<i>Ranunculus oxyspermus</i> Willd.	-	+	-
<i>Rosa</i> sp.	+	+	-
<i>Rubus fruticosus</i> L.	+	+	-
<i>Rumex acetosa</i> L.	+	-	-
<i>Rumex confertus</i> Willd	+	+	-
<i>Satureja hortensis</i> L.	+	+	-
<i>Silybum marianum</i> (L.) Gaertn.	+	-	-
<i>Stellaria media</i> (L.) VILL.	+	-	-
<i>Thymus</i> sp.	+	+	-
<i>Tragopogon graminifolius</i> DC.	+	-	-
<i>Urtica dioica</i> L.	+	+	-
<i>Viburnum lantana</i> L.	+	-	-
<i>Viburnum opulus</i> L.	+	+	-
<i>Vicia sativa</i> L.	-	+	-
Total	40	28	9

***Agasyllis latifolia* (M. Bieb.) Boiss. APIACEAE**

Name of the plant in the languages of Dagestan peoples: Lezgin-Пиф (Pif) – Translated from Lezgin as "light", i.e., relieving effect; **Russian-** Агазиллис широколистный (Agazilis shirocolistniy).

Local food uses

The Lezgins (an ethnic group living in southern Dagestan, Russia) use the young stems of *Agasyllis latifolia* as a vitamin food plant.

Local medicinal uses

In Lezgin folk medicine, *Agasyllis latifolia* is used as a wound-healing, anti-inflammatory and anticancer agent. In the fall, at the end of the vegetation, the root of the plant is carefully pulled out of the soil (Figure 9).



Figure 9. Root cap of *Agasyllis latifolia* (M. Bieb.) Boiss. APIACEAE. Dagestan, Russia (photo: Z. Guseynova).

It is easily pulled out from the ground. The root is covered with mucus, which, immediately after pulling, is removed from the root and collected in a container. At home, the collected mucus is formed into small tablets, 5-7 cm in diameter, and dried in the shade (Figure 10).



Figure 10. Dried mucus from the root surface of *Agasyllis latifolia* (M. Bieb.) Boiss. APIACEAE. Dagestan, Russia (photo: Z. Guseynova)

The obtained raw materials are stored in a cool place. To use, take a small piece of dried mucus, and pour it in a 200 ml glass with boiled warm water (70–80°). The resulting infusion is strained and drunk in the morning for pain in the gastrointestinal tract, for female illnesses. The course of treatment lasts from one week to one month, depending on the degree of soreness. Wounds after cuts are smoked with smoke from a smoldering piece of "pif" after burning. It is also believed that the eating of young stems evens out blood pressure.

***Agrimonia eupatoria* L. ROSACEAE**

Name of the plant in the languages of Dagestan peoples: Russian-Репешок обыкновенный (Repeshok obiknovenniy).

Local food uses

Before the advent of modern tea, the Tabasarans (an ethnic group living in the foothills of Dagestan) brewed an analogue of tea from *Agrimonia eupatoria* L.

Allium paradoxum (M. Bieb.) G. Don ALLIACEAE

Name of the plant in the languages of Dagestan peoples: Lak-Сунчимус (Sunchimus); Lezgin-Цирияр (Ciriya), Сурар (Surar); Kumyk, Nogai-Халияр (Haliyar); Russian-Лук странный (Luk stranniy); Tabasaran-Лиццар (Lizar)

Local medicinal uses

The Dagestan peoples use wild leek as an early-spring food plant, rich in vitamins.

Local food uses

Wild leek is collected before and during flowering and eaten both raw and cooked. It is also eaten fresh with bread and salt, or as an appetizer, as an addition to meat dishes, is used in salads, combined with vegetables, cottage cheese, cheese, boiled eggs, added to cold soups (Figure 11).



Figure 11. Filling of *Allium paradoxum* with cottage cheese. Dagestan, Russia (Photo: A. Alibegova)

Leaves of wild leek are used to prepare various dishes: scrambled eggs, traditional soups, as well as when cooking dishes such as cornmeal quiches (muchari, chi-chudu), “spring” khinkal. Wild leek is added to fillings for dishes such as dumplings (kurze, halpama) and various pies (chudu) (Figure 12).



Figure 12. Chudu stuffed with *Allium paradoxum*. Dagestan, Russia (Photo: A. Alibegova).

For preservation, wild leek is pickled: the leaves are separated from the peduncles, chopped, sprinkled with salt and left for several days, and the scapes are pickled separately. Pickled leeks are eaten as a snack or used to make the drink “kambar”. To prepare “kambar”, chopped grass of fresh or pickled wild leek and wild chervil are added to homemade kefir (sour milk), and are let to draw for 1.5-2 days in a cool dark place in a small earthenware jug.

***Allium ursinum* L. ALLIACEAE**

Name of the plant in the languages of Dagestan peoples: Lak-Сунчимус (Sunchimus); Кумык-Сармисак (Sarimsak); Russian- Лук медвежий (Luk medvezhiy), Черемша (Cheremsha).

Local medicinal uses

Wild garlic is rich in vitamin C and is used by the Dagestan population for the prevention and treatment of infectious diseases as a bactericidal, anthelmintic, fungicidal and antiscorbutic agent, an antisclerotic agent that can increase the potency of men. The aerial part of wild garlic has a wound-healing, antiseptic effect.

Wild garlic increases appetite, increases the secretion of digestive glands, enhances the motor function of the intestines, prevents the accumulation of cholesterol in the blood, stimulates cardiac activity, lowers blood pressure and contributes to the normalization of metabolism.

Local food uses

Wild garlic has a piquant taste, reminiscent of green onions and garlic. Both young shoots and all parts of an adult plant, leaves, stem are eaten. Wild garlic is consumed raw and in hot dishes.

Fresh sprouts of wild garlic are dug up already in February before the start of the growing season, still under the snow (Figure 13).



Figure 13. Fresh sprouts of *Allium ursinum* L. ALLIACEAE. Dagestan, Russia (Photo: A. Alibegova)

Fresh sprouts of wild garlic, collected in early spring (in February – early March), are boiled in milk with the addition of ghee, salt and spices to prepare a soup (Figure 14).

For preservation, young wild garlic sprouts, leaves and stems are marinated separately. Pickled bear leek is used as an appetizer for other dishes, or to prepare a refreshing drink "kambar" by adding it to kefir.

Bear leek is added as a spicy plant to salads with vegetables, cottage cheese, cheese, boiled eggs. Omelets, soups, various dishes such as dumplings (kurze, corn halpama) and "spring" khinkal are also prepared from the leek (Figure 15).

Shoots, leaves, stems are also added to the preparation of stews, soups according to traditional recipes.

The filling for various national dishes is prepared from chopped wild garlic, onions stewed in butter or with fat tail, raw eggs, sometimes cottage cheese or chopped cheese is added, seasoned with salt and spices to taste.



Figure 14. Sprouts of *Allium ursinum* L. ALLIACEAE boiled in milk. Dagestan, Russia (Photo: A. Alibegova)



Figure 15. Traditional dish of the Dagestan cuisine kurze stuffed with *Allium ursinum* L. ALLIACEAE. Dagestan, Russia (Photo: A. Alibegova)

***Allium victorialis* L. ALLIACEAE**

Name of the plant in the languages of Dagestan peoples: Avar-Соб (Sob), Калусал (Kalusal); Dargin-Ирзе (Irze), Уре (Ure); Kumyk-Саримсак (Sarimsak); Lak-Уртил чимас (Urttil chimus), Сунчимус (Sunchimus); Lezgin-Сурар (Surar); Russian-Лук победный (Luk pobedniy).

Local medicinal uses

In folk medicine, the plant is used as a vitamin-containing agent, tonic, diuretic, anthelmintic, bactericidal, hemostatic, enhancing the secretory activity of the stomach and intestines. Infusion of the leaves of the Alpine leek is taken orally for rheumatism, atherosclerosis, fever, as an expectorant for coughing.

Local food uses

Peoples of Dagestan eat Alpine leek both fresh (Figure 16), as an appetizer for other dishes, and as part of other dishes. The taste and smell of victory onion is similar to garlic.



Figure 16. *Allium victorialis* L. ALLIACEAE, picked before flowering. Dagestan, Russia (Photo: A. Alibegova)

It is added to salads with vegetables, cheese, boiled eggs. The leaves and stems of the leek are used to make stews, vegetable soups, milk soups with dried meat, rice and potatoes (Figure 17).



Figure 17. Milk soup with *Allium victorialis* L. ALLIACEAE. Dagestan, Russia (Photo: A. Alibegova)

Alpine leek is used in the preparation of “spring” khinkal and cornmeal quiches (muchari, chi-chudu). Alpine leek is also used as a filling in combination with other herbs – orache, chickweed, and nettle for cooking various dishes such as dumplings (kurze, halpama), pies and chudu (Figure 18).

For preservation and later use, Alpine leek, collected in spring, is either frozen or dried. Dried leek is consumed in the same way as fresh one, but after preliminary soaking the plants in water, or stewed in milk.



Figure 18. Chudu stuffed with *Allium victorialis* L. ALLIACEAE and cottage cheese. Dagestan, Russia (Photo: A. Alibegova)

***Amaranthus retroflexus* L. AMARANTHACEAE**

Name of the plant in the languages of Dagestan peoples: Nogai- Алабота (Alabota); **Russian-**Амарант (Amarant); **Tabasaran-** Тери (Teri).

Local food uses

Young amaranth plants are widely used in the Tabasaran cuisine in spring to prepare herbal porridge. The porridge can also include such plants as nettle, chickweed, shepherd's purse, low mallow, plantain, dandelion, saltbush, few-flowered leek, dill and cilantro and unripe cherry plum fruits. The dish is called "chirgin". For cooking it, herbs are chopped and boiled (Figure 19, Figure 20)

Wheat or emmer groats and an egg fried in melted butter are also added. The porridge is dressed with kefir with young garlic leaves chopped into it.



Figure 19. Chopped herbs. Dagestan, Russia. (Photo: A. Aliev)



Figure 20. Preparation of the herbal porridge. Dagestan, Russia. (Photo: A. Aliev)

***Anthriscus cerefolium* (L.) Hoffm. APIACEAE**

Name of the plant in the languages of Dagestan peoples: Russian-Купырь бутенелистный (Kupir butinolistniy); Tabasaran-Пелгюм (Pelgyum).

Local food uses

The Tabasarans eat the stem, leaves and flowers as a source of vitamins (Figure 21). The plant has a pleasant taste.



Figure 21. *Anthriscus cerefolium* (L.) Hoffm. APIACEAE. Dagestan, Russia (Photo: M. Mallaliev)

***Artemisia absinthium* L. ASTERACEAE**

Name of the plant in the languages of Dagestan peoples: Avar-Мечл (Mech); Dargin-Шуркъ (Shurk'); Kumyk-Ювушан (Yuvushan); Lak-КӀяла ла (K'yala la); Lezgin-Явшан (Yavshan), кьалар (Tuk'ul k'alar); Nogay- Ювсан (Yuvsan); Russian-Полынь горькая (Polin gorkaya); Tabasaran-Кьал (K'al), Къуркъли үкӀ (K'urk'li uk').

Local food uses

Fresh or dried leaves of wormwood are added for better digestion or to add a spicy flavor to meat dishes ("Chudu", "Flatbread", "Khinkal"). In some areas of Dagestan (Avars), residents also use young wormwood grass with the addition of cottage cheese to cook "Chudu".

Local medicinal uses

Wormwood (*A. absinthium*) was used in ethnoscience as an herbal remedy (mothers and grandmothers gave wormwood decoctions to their children since childhood); wormwood decoction was also used for gastrointestinal diseases (diarrhea).

Local handicraft and other uses

To protect crops from pests, villagers in Dagestan sprayed crops with a wormwood decoction in their gardens and orchards. To repel bedbugs, moths, and fleas in their closets, residents kept bundles or brooms of wormwood. The Tabasarans used wormwood to make brooms for household cleaning. Women of Dagestan used wormwood to make dyes of different colors: pale yellow, dark green, and dark blue, which were often used to dye yarn.

***Asparagus officinalis* L. ASPARAGACEAE**

Name of the plant in the languages of Dagestan peoples: Lezgin-Ч'улавкъалар (Chulav kalar); **Russian-**Спаржа лекарственная (Sparzha lekarstvennaya).

Local food uses

The Lezgins (Dagestan ethnic group) give great preference to plant food. One of the plants often used for cooking is young shoots of asparagus, as people say that it possesses a great deal of beneficial properties and is rich in nutrients (Figure 22).



Figure 22. *Asparagus officinalis* L. ASPARAGACEAE. Dagestan, Russia (Photo: F. Islamova)

In some villages of the Lezgi ethnic group asparagus is widely consumed. The recipe is very simple. Ghee and chopped onion are put in a deep-frying pan and fried, then coarsely chopped asparagus shoots are added. Then, simmer for 15 minutes over low heat, add cilantro, dill, salt, hot pepper to taste, and pour chicken eggs. Stew for another 5 minutes, then serve. People say that asparagus helps with vitamin deficiency, treats cardiovascular diseases, rheumatism, bronchial asthma.

***Berberis vulgaris* L. BERBERIDACEAE**

Name of the plant in the languages of Dagestan peoples: Avar-Сани(Sani); **Dargin-**Мих1я (Mih'a); **Kumyk-**Къатынтузлукъ(K"atyntuzluk"); **Lak-**Ят|ул сус (Yat'ul sus); **Lezgin-**Мерт (Mert), Мертин ттар (Mertin ttar); **Russian-**Барбарис обыкновенный (Barbaris obiknovenniy); **Tabasaran-**Сигар (Sigar), Цунзазар (Cunzazar).

Local medicinal uses

The ethnic groups of Dagestan use barberry leaves, fruits, bark and roots for medicinal purposes.

Gargling with a decoction of barberry roots is a way of treating a sore throat. Chopped barberry roots are boiled for 10 minutes, cooled until warm and later strained. The decoction is gargled 3-4 times a day after a meal. Laks used the decoction of barberry roots to treat abdominal pain (a glass of the decoction was taken three times a day).

Avars used compresses of a decoction of barberry twigs, bark and roots to treat joint dislocations, sprains and simple bone fractures. About one or two tablespoons of the ground mix were boiled in a glass of water for 5-10 minutes. A cloth was then soaked in the decoction and applied to the injured area. The compress had to be changed two times a day.

A decoction of barberry flowers is used for preventing hypertension and as a treatment for chest pain. Pour two glasses of water over a tablespoon of the product, bring it to a boil and simmer for about 10 minutes over low heat. Infuse for one or two hours, then strain the liquid. Two teaspoons of the decoction are taken two or three times a day.

A decoction of *Berberis vulgaris* leaves is often used for its hemostatic effect to treat women's health issues.

Local food uses

Barberry fruits are widely used in Dagestan to make fruit preserves and kompot (stewed fruit beverage) for the winter season. Dried ground fruits make a savory sour seasoning for meat and vegetable dishes. Both dried and fresh barberry fruits are added to soups and pilaf (a rice dish) to give them sour flavor. Barberry baby leaves and ripe fruits can be used to make tea: a mix of dried and fresh leaves and fruits is infused in boiling water for about half an hour. It is considered that the tea has curative properties and generally helps to boost the immune system.

Local handicraft and other uses

The mountain peoples of Dagestan used hard yellow wood of barberry for making handicrafts. The barberry root decoction was used to dye yarn pink.

***Cannabis sativa* L. CANNABACEAE**

Name of the plant in the languages of Dagestan peoples: Agul-Къант1узай (K'ant'uzay); Avar-Ганаби (Ganabi), Хьон (H'on); Dargin-Къама (K'ama); Lak-Ниц1айхъуварал кьартри (Nis'ayhuvaryl kyarti); Lezgin-Канап (Kanap); Russian-Конопля (Конопля); Tabasaran-Гиниб (Ginib).

Local food uses

The peoples of Dagestan roasted the cereal seeds (barley, wheat, spelt, oats, rye), added roasted hemp seeds at a proportion of 1:1 and ate them. The Tabasarans call this mixture k'urits'i. It was one of the main sources of food for people working away from home. Men going out to the "godekan" (a place for meetings of the villagers) filled their pockets with the mixture of fried cereal seeds and hemp and ate them as a snack during long discussions of problems or news of the village. Crushed in a quern, "k'urits'i" was added to kefir, cereals, or mixed with water sweetened with *Glycyrrhiza glabra* L. roots. The resulting dish was called "myushduk'u", which looks like dark dough.

Local handicraft and other uses

When *Cannabis sativa* L. ripened, the seeds were shaken out for consumption, and the above-ground part was collected in small sheaves and submerged in a lake or river. After 10-20 days, when the plants became soft after the start of decay, the sheaves were pulled out of the water and dried for several days, then they were broken and separated from the fibers. The collected fibers were beaten with a special wooden mallet until they started to look like wool, from which yarn or ropes of any thickness were woven using a spinning wheel. The thinnest yarn was bleached by washing and freezing in winter 6-7 times. Bleached yarn was used to make cloth for sewing clothes or weaving mats, which were laid on the clay floor in houses. The peoples of Dagestan had mats in every house which have survived to our time.

***Capparis spinosa* L. CAPPARACEAE**

Name of the plant in the languages of Dagestan peoples: Lezgin-Къакъацлар (K'ak'asar), Пехъре халияр (Peh're haliyar), which means "crows" watermelons".

Local food uses

Capers have been collected in Dagestan for a long time. Now, due to the expansion of the list of plants with great potential in both pharmacological and nutritional aspects, interest in this type of plant is gradually increasing. Women picked capers' buds and young shoots for pickling; the fruits were also used for drying and salting (Figure 23).



Figure 23. Salting fruits of *Capparis spinosa* L. CAPPARACEAE. Dagestan, Russia (Photo: F. Vagabova)

***Capsella bursa-pastoris* (L.) Medik. BRASSICACEAE**

Name of the plant in the languages of Dagestan peoples: Agul-Айша меджер (Aysha medzher); Lak-Хьути (Khuti); Lezgin-Тагьмезхан (Tehmezhan), Кекремичар (Kekremichar); **Russian-** Пастушья сумка (Pastush'ya sumka); **Tabasaran-**Хач (Hach).

Local food uses

Shepherd's purse is mainly used in the cuisine of the Dagestani ethnic groups, living on the lowlands and foothills (Lezgins, Tabasarans, Aguls). Relatively recently, the Dargins (Chirags), a Dagestani ethnic group bordering the Aguls, have also begun to use it. Shepherd's purse is used both in its pure form and in mixture with other spring herbs (*Stellaria media* (L) VILL, *Urtica dioica* L.) as a stuffing for various dishes (kurze-pchekar, chudu-afrar) (Figure 24). For example, Tabasarans have a popular Shepherd's purse pie "Uklan tcikav" (Figure 25).

An interesting fact is that the Chiragians call the Shepherd's purse Agul grass "agvlan kyar", because it was used by their closest neighbors Aguls.



Figure 24. Shepherd's purse "Kurze". Dagestan, Russia (Photo: F. Vagabova)



Figure 25. Shepherd's purse "Uklan tcikav". Dagestan, Russia (Photo: A. Aliev)

***Carum carvi* L. APIACEAE**

Name of the plant in the languages of Dagestan peoples: Agul-Хлашар (Hashar); Avar-Мучари (Muchari); Dargin-Аши (Ashi), Пяши (Hashi); Kumyk-Тавмучери (Tavmucheri); Lak-Явш (Yavsh); Lezgin-Эферар (Eferar); Nogay-Артын (Artin); Russian-Тмин обыкновенный (Tmin obiknovenniy); Tabasaran-Гашниш (Gashnish).

Local medicinal uses

C. carvi was used in the ethnoscience for flatulence, for diseases of the gastrointestinal tract in the form of tinctures and water decoctions. It was given to women against pain in labor in the decoction form; in the case of liver and bladder diseases, cumin was used as a choleretic agent in the form of infusions.

Local food uses

Cumin is widely and universally used in the cuisine of the peoples of Dagestan: when dressing meat and flour dishes “Chudu”, bread, potatoes and pumpkin, when drying homemade sausages and spicing canning vegetables. The cuisine of the peoples of southern Dagestan (Lezgins, Tabasarans) is characterized by “Chudu” (Afrar, Galar), made from rice (with milk) and spelt (boiled in chicken or turkey broth, with the addition of finely chopped meat) porridge (Figure 26). Previously slightly fried cumin is usually added to this type of “Chudu” for special flavor.



Figure 26. “Chudu” with spelt porridge and turkey meat. Dagestan, Russia (Photo: F. Vagabova)

***Chaerophyllum aureum* L. APIACEAE**

Name of the plant in the languages of Dagestan peoples: Russian-Бутень золотистый (Butenv zolotistiy); **Tabasaran-**Гуй (Gui).

Botany and Ecology

Grows everywhere in Dagestan in humid places up to an altitude of 2100 meters above sea level.

Local food uses

Fresh stems peeled of leaves and flowers are eaten (Figure 27). If the stem is hard and rough, the bark is peeled before consumption (Figure 28). The stem has a pleasant taste, and among the Tabasarans, the plant is considered beneficial for health.



Figure 27. *Chaerophyllum aureum* L. APIACEAE. Dagestan, Russia (Photo: A. Aliev).



Figure 28. *Chaerophyllum aureum* L. APIACEAE. peeled of bark. Dagestan, Russia (Photo: A. Aliev)

***Chelidonium majus* L. PAPAVERACEAE**

Name of the plant in the languages of Dagestan peoples: **Avar-** Цинкразул хер (Cinkrazul kher); **Lak-**Читлулуртту (Chit'ul urttu); **Lezgin-**Гъетре цуьк (G'etre tcuk); **Russian-** Чистотел большой (Chistotel bolshoy); **Tabasaran-**Къюччюлин ук1 (K'ujulin uk'u).

Local medicinal uses

For the treatment of lichen and other fungal skin diseases, Tabasarans scratch around the affected area with a needle or a sharp knife, then the entire affected part of the skin (inside the encircled part) is scratched until the surface bleeds. The next step is to pour the ashes of hazel, hornbeam or beech (or a mixture of them) onto the affected surface until the bleeding stops. After removing the ash with the absorbed blood, a new portion of ash is applied again with the juice from the fresh stem of *Chelidonium majus* L., rubbing it in a circular motion into the affected area, while mixing the plant sap with ash. After that, the affected area is bandaged for 2-3 days. The procedure is repeated up to 3 times with an interval of 7 days.

***Conium maculatum* L. (M. Bieb.) Boiss. APIACEAE**

Name of the plant in the languages of Dagestan peoples: **Russian-** Болиголов пятнистый (Boligolov pyatnistiy); **Tabasaran-**Бит1ран ук1 (Bit'ran uk'). Translation from Tabasaran means "snake grass".

Local medicinal application

Recently, the Rutuls and Avars (ethnic groups living in the Dagestan Republic, Russia) have been using *Conium maculatum* as an anti-cancer and prophylactic agent. Medicinal raw materials are inflorescences of spotted hemlock, collected at the flowering phase.

Prepare a tincture at the rate of 150 grams of flowers *Conium maculatum* pour 1 liter of 70% ethanol. Infuse in a dark place for 21 days. Strain through several layers of cheesecloth. Drink according to the scheme: for 40 days, starting with 1 drop to 40 drops, then for 40 days in descending order from 40 drops to 1 drop. Drink with 0.5 cup decoction of oregano. From practice: people who have frequent sore throats had no problems with sore throats for a year when they took this course. From practice: people who have frequent sore throats had no trouble with throat ailments for a year when they took this course. One could assume that spotted hemlock has the ability to increase immunity.

Also, the Rutuls take a tincture of *Conium maculatum* for epilepsy. The tincture is taken according to the scheme: the 1st day - 1 drop per 100 ml of water 3 times a day for 1 hour before a meal, from the 2nd to the 10th day - every day increasing the single dose by 1 drop. From the 11th day a tincture of 10 drops per 100 ml of water 3 times a day is taken for 3 months without a break. Good results are noted.

***Cornus mas* L. CORNACEAE**

Name of the plant in the languages of Dagestan peoples: Avar-Жулан (Zhulan); Dargin- Жунаб (Zhunab); Kumyk-Чум (Chum); Lak-Жунаврал мурхъ (Zhunavral murh'); Lezgin-Чумал (Chumal); Russian-Кизил обыкновенный (Kizil obiknovenniy); Tabasaran-Чмил (Chmil).

Local medicinal uses

Cornus mas has been used for centuries in Dagestan as a source of food and in traditional medicine. Fruits, leaves, roots and even seeds are used for their medicinal properties. Tea made from dried *Cornus mas* fruits is usually drunk in order to strengthen the immune system, improve the digestive health and as a treatment for a cold. The tea is made in the following way: a teaspoon of dried fruits is infused in a glass of boiling water for 15-20 minutes in a teapot wrapped with a cloth. The tea should be drunk throughout the day.

The juice of fresh *Cornus mas* leaves is used as eye drops to treat various inflammations.

A mixture of barley flour and the decoction of *Cornus mas* leaves is used as a treatment for abscesses. The mixture is applied to boils and secured with a bandage. The process is repeated every 4-6 hours.

A decoction of *Cornus mas* roots is used to treat rheumatism: one teaspoon of finely chopped roots is boiled in two glasses of water for 20 minutes over low heat and later infused for 2-3 hours. The decoction is then strained and two tablespoons of it are taken three times a day half an hour before a meal.

An infusion of *Cornus mas* leaves and fruits is used to stop migraine attacks. A handful of dried leaves or fruits are infused in a glass of boiling water for 2-3 hours in a teapot wrapped with a cloth. A third of the infusion is taken three times within the day. Compresses made from fresh mashed fruits of *Cornus mas* can be also used to treat a headache.

Local food uses

Cornus mas berries are used throughout Dagestan to make kompot (stewed fruit beverage) fruit preserves and jam. Lezgins use *Cornus mas* fruits as a condiment. First, fresh and clean fruits are passed through a sieve. The resulting paste mixed with spices is then brought to a boil and cooked over low heat until thick. This condiment is served with meat dishes and dishes made with dough.

Local handicraft and other uses

Cornus mas was domesticated in Dagestan as a berry-producing shrub. It is often used in villages to form hedges. *Cornus mas* bark was used to dye yarn yellow. It was valued among the indigenous peoples of Dagestan for the strength of its wood. There were well-known craftsmen in Dagestan who used to make canes out of *Cornus mas* branches. Its wood was also the material for buttons.

***Corylus avellana* L. and *Corylus colurna* L. BETULACEAE**

Name of the plant in the languages of Dagestan peoples: Avar-Рохьил цулак'одул гъвет' (Roh'il cilak'odul hvet'); Kumyk-Чертлевюк (Chertlevyuk); Lak-Вац'лул к'ат'а (Vac'lul k'at'a); Russian-Лещина (Leshina); Tabasaran-Гьялмюхъ (Halmukh')

Local food uses

The nuts are eaten both fresh and dried. Crushed fruits are added to the filling of meat dishes “chudu”, “kurze”, “dolma”. Crushed nuts are also poured onto “khinkal” (cooked thinly rolled dough). The fruit is considered to give strength.

Local handicraft and other uses

The young branches are used in making fences, baskets and home furniture. In the foothills of Dagestan, hazel wood is most often used in the construction of pens for livestock and poultry since it is elastic and easy to process. Away from home, for heating food or, for example, to bake *Prunus divaricata* Ledeb, they are wrapped in hazel bark freshly removed from a tree and placed on hot coals. This makes the food taste good. Disposable spoons are also made from the bark out in the field (Figure 29).



Figure 29. Disposable hazel bark spoon. Dagestan, Russia (Photo: A. Aliev)

***Crataegus curvisepala* L. ROSACEAE**

Name of the plant in the languages of Dagestan peoples: **Avar**-Тюгы (T'ohi); **Kumyk**-Ябушгъан (Yabushg'an); **Lak**-Ятлүл махлия (Yat'ul mahiya); **Lezgin**-Инид тар (Inid tar); **Russian**-Боярышник вееролистный (Boyarishnik veerolistniy); **Tabasaran**-Миун гъар (Miun har), Ми'ар (Mi'ar)

Local food uses

Consumed fresh and added to tea. Compotes are also brewed for the winter.

Local medicinal uses

Tinctures, decoctions of the plant are drunk to normalize blood pressure.

Local handicraft and other uses

Branches and wood of the plant are used to build thorny fences. Spoons are made from the dried wood.

***Dactylorhiza urvilleana* (Steud.) H. Baumann & Künkele ORCHIDACEAE**

Name of the plant in the languages of Dagestan peoples: **Russian**-Пальчатокоренник Дюрвиля (Palchatokorennik Dyurveliya); **Tabasaran**-Ахсирдин укл (Akhsirdin uk').

Local medicinal uses

Herbaceous tuberous perennial plant, 20-40 cm high (Figure 30). For the treatment of stomatitis, the Tabasarans wrapped a finger with a leaf of a young *Dactylorhiza urvilleana* and wiped the oral cavity with it (Figure 31).



Figure 30. *Dactylorhiza urvilleana* (Steud.) H.Baumann & Künkele ORCHIDACEAE. Dagestan, Russia (Photo: A. Aliev)



Figure 31. A leaf of *Dactylorhiza urvilleana* wrapped around a finger. Dagestan, Russia (Photo: A. Aliev)

The procedure was repeated in the morning, afternoon and evening for up to 5 days. If no effect was observed, they stopped the procedures and sought for another method. Since the leaves of *Dactylorhiza urvilleana* wither already at the beginning of summer, they were dried in the spring for use at other times of the year. Before use, the dried leaves were softened by soaking them in warm water, after which they were wrapped around the finger for procedures.

***Echium italicum* L. BORAGINACEAE**

Name of the plant in the languages of Dagestan peoples: Russian-Синяк итальянский (Sinyak italyanskiy); Tabasaran-Гъизил гъаш (Gizil gash)- golden fiber.

Local medicinal uses

In folk medicine, the Tabasarans (an ethnic group living in the Republic of Dagestan, Russia) use the root of the first-year plant, which is dug out in the fall (Figure 32). A root-infused butter is prepared using the chopped root (about 2 cm long) or the bark of dried or fresh root (Figure 33). The chopped root or root bark is placed in a pan with butter ghee and heated for 10-15 minutes over low heat, no frying allowed. In the process, the butter is colored bright red (Figure 34), after that the colored butter is poured into a container for storage (Figure 35, Figure 36). In recent years, along with the butter ghee, one also uses a vegetable oil with a similar preparing procedure. Some representatives of the ethnic group claim that the bark of the root is sufficient to prepare the *Echium italicum* L. (Boraginaceae) root-infused butter, others argue that it is necessary to take the whole root.



Figure 32. Fresh root of *Echium italicum* L. BORAGINACEAE. Dagestan, Russia (Photo: A. Aliev)



Figure 33. Dried root of *Echium italicum* L. BORAGINACEAE. Dagestan, Russia (Photo: A. Aliev)



Figure 34. Heating of *Echium italicum* L. BORAGINACEAE root in ghee. Dagestan, Russia (Photo: A. Aliev)



Figure 35. Pouring off the butter ghee after the infusion of *Echium italicum* L. BORAGINACEAE. Dagestan, Russia (Photo: A. Aliev)



Figure 36. *Echium italicum* L. BORAGINACEAE root-infused butter ghee. Dagestan, Russia (Photo: A. Aliev)

The obtained infusion is applied to painful joints, used for muscle pain, bruises, sprains, bone fractures. If pain continues, a piece of the infused butter-soaked tissue put on a sore place or a site of fracture and bandage. From time to time (usually once a day) the bandage is changed, but there are no strict rules for changing the dressing. More rarely the infusion is used for skin diseases in the absence of open wounds only. The rarest case of the *Echium italicum* L. root-infused butter use is ingestion to relieve abdominal pain, but the oral use of this infusion is considered undesirable and ineffective in ethnoscience.

***Eremostachys laciniata* (L.) Bunge. LAMIACEAE**

Name of the plant in the languages of Dagestan peoples: Russian- Пустынноколосник надрезанный (Pustirnocolosnik nadrezannyj); Lezgin-Чла-дагъ (Chla dag). In Lezgin means "plant that heals."

Local food uses

In Lezgin (an ethnic group living in southern Dagestan, Russia) folk medicine, decoction of the *Eremostachys laciniata* roots is used in the treatment of musculoskeletal diseases, particularly of the joints as an analgesic that facilitates the procedure. Local healers and chiropractors successfully use decoction for sprains, dislocations of joints, injuries, bruises, etc.

The roots of *Eremostachys laciniata* are dug up in the fall at the end of the growing season, or in early spring before the active vegetation period begins. Roots are washed, cut into 1-2 cm pieces, and dried in the shade (Figure 37). Raw material is stored in a cold place.

The inhabitants of Magaramkent district, Dagestan, prepare a remedy for compress on the basis of root brew and flour. The roots are poured cold water, boiled for 30-40 minutes and cooled to 40 degrees. Next the decoction is strained and used for preparing unleavened dough. The painful area is massaged, and the dough is applied to it. Then, a warm bandage is placed over the dough and held for 12 hours. Every 12 hours the bandage is removed; the dough is warmed by adding heated root decoction and applied again. This procedure is done for 3 days.

Inhabitants of another Ashagastal district, Dagestan, prepare a decoction of roots with milk. Roots are poured with milk and boiled until softened. Then the roots are mashed to a mushy state. The pulp obtained from the roots of *Eremostachys laciniata* put on the sore place and apply a warm bandage. This procedure is done for 3-5 days (Figure 38).



Figure 37. Dried raw materials of *Eremostachys laciniata* (L.) Bunge. LAMIACEAE. Dagestan, Russia (photo: Z. Guseynova)



Figure 38. Folk remedies from *Eremostachys laciniata* (L.) Bunge. LAMIACEAE. Dagestan, Russia (photo: Z. Guseynova): 1 – decoction; 2 – dough on decoction; 3 – pulp on milk

***Glycyrrhiza glabra* L. FABACEAE**

Name of the plant in the languages of Dagestan peoples: Agul-Метутай (Meturay); Lezgin-Биян (Biyan); Russian-Солодка голая (Solodka golaya); Tabasaran-Мелли кьав (Melli k'av).

Local food uses

The peoples of Dagestan, before the advent of sugar, used licorice root (*Glycyrrhiza glabra* L.) as a delicacy and sweetener in cooking. The Aguls of the high-altitude mountain villages, having visited the lower-lying areas where licorice grew, dug up and collected the roots to treat children, similar to how children are now treated to sweets. Peeled and chopped roots were not only chewed, but also poured with water and drank like sweet juice. The Tabasaran ethnic group used water sweetened with the root of *Glycyrrhiza glabra* L. for cooking "mushdukyu" from hemp seeds (*Cannabis sativa* L.).

***Heracleum grandiflorum* Stev. ex M. Bieb. APIACEAE**

Name of the plant in the languages of Dagestan peoples: Lezgin-Чунун кьач (Chunun kach). Means "fibergrass"; Russian-Борщевик крупноцветковый (Borshchik krupnocvetkoviy); Tabasaran-Даччибиклы (Dacchibicloo)

Local medicinal uses

In Dagestan, *Heracleum grandiflorum* is used as a general restorative, immune-boosting, and pressure-elevating and vitamin food plant. The medicinal raw material is the young stems harvested in early spring.

Local residents tell of cases when a man with a heart condition and a woman who could not be diagnosed recovered after consuming *Heracleum grandiflorum* for a long time.

***Juglans regia* L. JUGLANDACEAE**

Name of the plant in the languages of Dagestan peoples: Agul-Хев (Khev); Avar-Чахлияб цулакьо (Chakhiyab tsulak'o); Dargin-Хиви (Khivi); Kumyk-Къоз (K'oz); Lak-Гъивхъхъ (Ghivkh); Lezgin-К1ерец (Kerets), Хвех (Khveh); Nogai-Коз (Koz); Russian-Грецкий орех (Gretskiy orekh); Tabasaran-Хиф (Khif)

Local food uses

Walnut (*Juglans regia*) is a plant with great beneficial potential, a cure for seven diseases, according to the Lezgins. Walnut trees are often found in the gardens of South Dagestan. In Dagestan, walnut kernels are consumed fresh and dried, added to baked products and meat dishes (pch'ekar, afarar), are made into jams. Walnut is recommended to men who are planning to get married, since it allegedly increases potency and promotes the birth of healthy children. Among the Lezgi ethnic group, one of the main dishes that is prepared for the festive table is Khvehver fch'ekar (nut dumplings). To cook this dish, a walnut filling is prepared in advance. Peeled kernels of nuts are lightly fried and chopped, after which onions fried in melted butter, ground coriander, salt, black pepper are added, then dumplings (kurze) are molded. They are boiled for 5-7 minutes, and served in a wide dish with cream sauce, garlic, and fresh dill. This dish is also preferred to be cooked during Ramadan for breaking fast, as giving strength. Among the Tabasaran ethnic group, walnuts are added to almost all meat dishes that are prepared from minced meat (ts'ikav, ginchvar, etc.). *Juglans regia* is known to be a medicinal plant that has great therapeutic potential in traditional and alternative medicine. All botanical parts of this plant have antimicrobial, anti-inflammatory, anti-cancer properties (Kaur et al. 2003., Shah et al. 2014).

Local medicinal uses

Locals used an extract or tincture of walnut leaves for the treatment of veins (the resulting extract was rubbed into the area of varicose veins), against diarrhea and anthelmintic (the tincture was taken orally). A decoction of the pericarp was used for rinsing hair from falling out, rubbed onto teeth to whiten, while the teeth first acquired a yellowish tint, then the yellowness disappeared and became dazzling white.

Local handicraft and other uses

In order to obtain black color for the manufacture of handmade carpets, the Tabasaran ethnic group cook the pericarp (husk) of a walnut with woolen yarn for several hours.

Walnut wood is used in the construction of houses as durable and resistant to insect damage.

***Mentha aquatica* L. LAMIACEAE**

Name of the plant in the languages of Dagestan peoples: Agul-Уриар (Uriar); Avar-Саран (Sahan); Dargin-Шамре (Shamre); Lak-Сура (Sura); Lezgin-Чидрикар (Chidrik'ar), Пурнияр (Purniyar); Nogai- Куврайда'ри (Cuvrayda'ri); Russian- Мята водная (Myata vodnaya); Tabasaran-Шюршиниар (Shyurshiniar).

Local food uses

In South Dagestan, almost no dish is complete without the addition of various plants, including medicinal ones. One of such medicinal plants is *Mentha aquatica*. Water mint has a strong and pleasant aroma. The fresh, aerial part is used in cooking as a spice, in the preparation of various dishes (soups, pies, chudu). Decoctions and tinctures are prepared from it and used for various ailments: cardiovascular diseases, high blood pressure, neuroses, etc. (Getahun et al. 2008, Dhifi et al. 2011). Dried or fresh, the mint is added to tea, used to flavor jellies, sauces, punches, liquors. Kefir soup (tuguga among the Lezgins, davga among the Tabasarans) is especially popular in South Dagestan, with *Mentha aquatica* being the main ingredient (Figure 39). To cook this soup, you need freshly prepared fermented kefir.



Figure 39. Kefir soup with *Mentha aquatica* L. LAMIACEAE. Dagestan, Russia (Photo: A. Aliev)

Pour kefir into a saucepan, add finely chopped *Mentha aquatica*, rinsed rice, a well-beaten chicken egg and salt to taste. Then, put the mixture on the stove and bring to a boil with continuous stirring. With a slow boil, stirring, add a spoonful of flour diluted in water (for density), dill and cilantro. The dish is served warm or cold. It is recommended to eat this dish to maintain weight, restore intestinal flora, improve the gastric-intestinal tract, normalize sleep.

***Mespilus germanica* L. ROSACEAE**

Name of the plant in the languages of Dagestan peoples: Agul-Китик (Kitik); Avar-Гваргин (Gvargin); Dargin-Мушум (Mushum), Дуркби (Durkbi); Lak-Диркк (Dirkk); Lezgin-Кчик (Ktsik); Russian- Мушмула германская (Mushmula germanская); Tabasaran-Чич (chich).

Local medicinal uses

The fruits of the *Mespilus germanica* are used as an antidiarrheal agent.

Food Use

The fruits of medlar in Dagestan are in high demand and consumed after the first frost, when they soften, becoming wrinkled, and the astringent taste changes to sweet (Figure 40).



Figure 40. *Mespilus germanica* L. ROSACEAE tree with fruits. Dagestan, Russia (Photo: A. Aliev)

In South Dagestan, the fruits are also soaked: the fruits are poured into a jar vessel with a narrow neck, completely filled with spring water, then sealed hermetically and stored in a dark cold room. In this form, the medlar is stored for up to 4 months. After unsealing the vessel in a warm room and contact with oxygen in the air, the process of intensive fermentation of the sugars contained in the medlar begins. As a result of it, the fruits swell and acquire a pleasant taste with a slight sharpness. Since sugars pass into the water during the soaking, it also begins to ferment intensively, resembling champagne in appearance. At the beginning of fermentation, the liquid is consumed, and after complete transformation into vinegar, it is used as a seasoning.

***Morus* L. MORACEAE**

Name of the plant in the languages of Dagestan peoples: Agul, Avar, Dargin, Kumyk, Lak and Nogai-Тур (Tut); Lezgin-Туртат (Turtar); Russian-Шелковица (Shelkovica); Tabasaran-Хартут (Khartut)

Local food uses

Mulberry has been cultivated in Dagestan since ancient times. There are 2 species in Dagestan: white and black mulberries (*Morus alba*, *Morus nigra*). It is considered a beneficial and healing fruit, giving energy especially for those who are on a diet. Mulberry berries are used for making syrup, jam, sherbet, molasses, honey (pekmez), are added to baking, and also dried.

Decoctions, infusions, tea are prepared from the leaves (mostly black) of the mulberry tree. Decoctions or tinctures are used for high blood pressure, for cardiovascular diseases. Mulberry pekmez is considered a particularly popular and valuable product. It is mainly prepared from white mulberry. It is a very nutritious, high-calorie food product. To prepare pekmez, ripe mulberries (about 7 kg) are put into a saucepan and about 200-250 ml of water is added. (photo) Then the berries are steamed over low heat, after which juice is squeezed out of them through cheesecloth. The resulting juice is boiled over low heat, evaporating water until a thick mass is formed, which Lezgins call pekmez. Mulberry pekmez is a healthy dessert enriched with biologically active substances (antioxidants, vitamins, amino acids, macro-microelements) (Batu 2005, Karababa 2005). The content of natural sugars in the composition (fructose, glucose) gives a special appeal to this product, and makes it possible to exclude refined sugar from the diet. Pekmez is a natural product that strengthens the immune system, increases hemoglobin in the blood. It is also recommended for colds, gastric diseases and anemia.

***Onosma caucasica* Levin et T.N. Pop. BORAGINACEAE**

Name of the plant in the languages of Dagestan peoples: Russian- Оносма кавказская (*Onosma Kavkazskaya*)

Local medicinal uses

In the folk medicine of ethnic groups of Dagestan, Russia (Avars, Dargins, Lezgins, Kumyks, Rutuls, and others), *Onosma caucasica* is widely used as an antiviral and antitumor prophylactic agent.

The medicinal raw material is the above-ground part of *Onosma caucasica*, collected during flowering. Annual rosetted leaves and flowering shoots are dried in the shade. Before use, the dried raw material is finely ground. There is evidence that *Onosma caucasica* is an effective remedy for internal polyps and papillomas. There are two known methods of intake. The first method: 1 teaspoon of raw materials, ground just before use, mixed with honey or curd, rolled into a ball (Figure 41). Take orally one ball once a day on an empty stomach - in the morning.



Figure 41. The use of *Onosma caucasica* Levin et T.N. Pop. BORAGINACEAE in treatment - curds and honey balls. Dagestan, Russia (photo: Z. Guseynova)

The course of treatment 20-30 days. The second way: 1 teaspoon of ground herbs poured boiling water and insist 20-30 minutes in a closed container, then strain. Drink in the morning on an empty stomach, a course of 20-30 days.



Figure 42. *Onosma caucasica* Levin et T.N. Pop. BORAGINACEAE decoction, Dagestan, Russia (photo: Z. Guseynova)

Residents of the Rutul ethnic group use *Onosma caucasica* for hypertension: 1 teaspoon of ground herb 3 times a day for an hour before meals.

Onosma caucasica is also used in veterinary medicine. It is known that if *Onosma caucasica* decoction is given to donkeys with large growths on their bodies, the growths fall off.

***Pinus kochiana* Klotzsch ex K. Koch. PINACEAE**

Name of the plant in the languages of Dagestan peoples: **Avar**-Нак|к| (Nak'k'); **Dargin**-Ургаккан (Urgaccan); **Kumyk**-Нарат (Narat); **Lak**-Ттар (Ttar), Ттарлил мурхь (Ttarlil murh'); **Lezgin**-Шамагъаж (Shamag'azh), Нарат ттар (Narat ttar); **Russian**-Сосна Коха (Sosna Koha); **Tabasaran**-Нарат (Narat)

Local medicinal uses

Almost all ethnic groups of Dagestan widely use pine trees in traditional medicine, since it is so abundant and available. Pine pollen, buds, needles, twigs, resin and cones are used for medicinal purposes.

In Dagestan, it is rather common to treat respiratory diseases (from bronchitis to tuberculosis) by breathing in phytoncides in pine forests. Sanatoriums (health resorts that provide medical services) are often located close to pine forests.

The mountain people of Dagestan often use pine resin as a good expectorant (they swallow small grains or pieces of resin) as well as a treatment for abdominal pain.

Various ethnic groups of Dagestan often use pine twigs to treat joints. They can be prepared during any season. Pine twigs are infused in a bucket full of boiling water at room temperature. The warm liquid is then strained and used as a foot soak to relieve the pain. The treatment session is repeated for several days until the pain goes away.

Laks often make tea from pine bark and wood that boosts the immune system. Avars make tea from young pine twigs. The mountain people of Dagestan make an infusion of young cones and use it as an expectorant for respiratory diseases. Cones are picked in June. They are first cut and covered with sugar in a jar. Then they are left to sit in the sun until they release their juice. The resulting product is stored in a cool place. A tea- or a tablespoon of the syrup is taken several times a day.

Lately, a tincture of mature pinecones has gained popularity as a way of treating or preventing strokes. Mature pinecones with seeds (5-6 cones per 1.5-litre jar) are infused in alcohol or vodka for two weeks in a dark place. A tablespoon of the tincture is taken 1-3 times a day for 1-3 months.

To prevent vitamin deficiency in winter and spring, an infusion of pine needles is usually taken. One tablespoon of ground pine needles is infused in a glass of boiling water for half an hour and then strained. Two tablespoons of the infusion are taken three times a day.

The mountain people of Dagestan attribute medicinal properties to pine pollen. The ethnic groups of Dagestan (Laks, Dargins and Avars) use it to treat neurological disorders, cardiovascular and stomach diseases, and overall to boost the immune system. It is believed that regular consumption of pine pollen normalizes blood pressure. As a rule, pollen is mixed with honey; a teaspoon of the mixture is taken once a day half an hour before a meal. Pollen is usually collected in late April or in May. It is produced by yellow male cones that grow on branch tips. Male cones are picked by women in dry and calm weather. Then they are dried for several days in the shade while occasionally being stirred. During this time, the cones shed their pollen, which is later sifted and stored in a refrigerator in a glass container.

Local food uses

Avars, Laks and Dargins have been making sweet pinecone preserves for the past several years. Young and soft pinecones are picked in late May – early June before they become woody. They are rinsed and soaked in cold water for 24 hour to remove most of their bitterness. Afterwards, the cones are transferred to a wide pan, pressed by hands or a plate (so that the cones do not float to the surface) and covered with water – 1-2 cm above the cones. Once sugar is added in a ratio of 1:1, the cones are cooked over high heat while being stirred. Once all the sugar dissolves, the heat is lowered, and the cones are cooked for another two hours. The finished preserve is poured into dry, sterile glass jars and stored in a cool place.

Local handicraft and other uses

Pine wood was widely used in households of the mountainous regions of Dagestan for timber and firewood.

***Prunus armeniaca* L. ROSACEAE**

Name of the plant in the languages of Dagestan peoples: **Avar**-Ахбазан(Akhbazan); **Dargin**- Авхазан кюпера (Avkhazan kurega); **Kumyk**- Кюпере (Kurege); **Lak**-Ахъбазан (Akhbazan); **Lezgin**- Машмаш (Mashmash); **Nogai**- Кюьпере (Kuirege); **Russian**-Абрикос обыкновенный (Abricos obiknovenniy); **Tabasaran**-Мишмиш (Mishmish)

Local food uses

Apricot fruit contains a lot of vitamin A and carbohydrates (up to 20%), malic and citric acids, as well as pectin, which determines the high quality of manufactured fruit products. According to technological qualities, local varieties and forms of apricot in Dagestan are divided into dietary-therapeutic, table, dried, canned and all-purpose [Gaziev et al. 2009]. Various ethnic groups of Dagestan (Avars, Dargins, Laks, Tabasarians, Kumyks, etc.) use apricot fruits to make compotes, juice, jam. Wild apricot and some local varieties are dried (Figure 43) to then make compote, which is recommended for colds.

The Avars prepare a very nutritious product called “urbech”: apricot kernels are crushed by passing through millstones, and the resulting thick paste is eaten with a small amount of honey and butter to taste. This product is usually consumed for breakfast (Figure 44).



Figure 43. The process of drying *Prunus armeniaca* L. ROSACEAE fruits. Dagestan, Russia (Photo: R. Osmanov)



Figure 44. "Urbech" from the kernels of *Prunus armeniaca* L. ROSACEAE. Dagestan, Russia (Photo: R. Osmanov)

If the apricot kernels are bitter, they are soaked for a long time in running water to get rid of its bitterness. The Avars also cook porridge from apricot juice or soaked dried fruits by adding wheat flour, which is called "kurakul karsh" (eaten mostly with "urbech") (Figure 45). A similar porridge is prepared by the Laks, which they call "kkurch".



Figure 45. “Kurakul karsch” from fruits and kernels of *Prunus armeniaca* L. ROSACEAE. Dagestan, Russia (Photo: R. Osmanov)

For the Avars, apricot-based dishes are important attributes of festive and wedding ceremonies, which emphasizes the high importance of apricot for this ethnic group.

Local handicraft and other uses

Among the Avar (mainly residents of the village of Untsukul) artistic woodcutters, apricot wood serves as the basis for the manufacture of plates, vases, jugs, musical instruments (zurna), etc. Only branches that are at least five years old are used in the production. Apricot wood is used for the creation of large products, as it has a smooth and attractive texture when cut, and also lends itself well to polishing.

Prunus divaricata L.ROSACEAE

Name of the plant in the languages of Dagestan peoples: Agul-Чирин хут (Chirin hut); **Avar**-Гисинпихъ (Hisinpih), Кюлкюна (K'olk'ona), Кюркюни (K'ork'oni); **Dargin**-Гъямгъи (Gamgi); **Lak**-Ккурмуз (K'urmuz), Кякан (Kayan); **Lezgin**-Хват (Khvat), Хутар (Hutar); **Kumyk**-Кокан (Kokan); **Russian**- Слива растопыренная (Sliva rastopirennaya), Алыча (Alycha); **Tabasaran**-Ч1ирихуду (Chiri hudu).

Local food uses

The ripe fruits of *Prunus divaricata* L. is used to season meat dishes. Ripe fruits are put in a pan with a little water and simmered until the juice comes out (Figure 46). The extracted juice is then strained through a cheesecloth (Figure 47).

The strained juice is simmered over 10 hours steadily stirring with a large colander to remove a water (Figure 48.) until you get a thick black mass (Figure 49.). The stones are removed from the plum cake, the pulp is spread in a thin layer on a flat dish and after drying is eaten as a pastille (Figure 50).

The sauce is not only added when preparing meat dishes, but it is also used as a condiment to cook meat (Figure 51). Also Tabasarans (ethnos of Dagestan) dry *Prunus divaricata* Ledeb previously in a tandoor on a low fire (Figure 52) and after heat treatment they finish drying in the sun (Figure 8). The dried *Prunus divaricata* Ledeb. is added to soups and herbal porridges.



Figure 46. Cooking process of *Prunus divaricata* L. ROSACEAE. Dagestan, Russia (Photo: A. Aliev)



Figure 47. The filtration of juice of *Prunus divaricata* L. ROSACEAE. Dagestan, Russia (Photo: A. Aliev.)



Figure 48. The water evaporation from the juice of *Prunus divaricata* L. ROSACEAE. Dagestan, Russia (Photo: A. Aliev)



Figure 49. The *Prunus divaricata* L. ROSACEAE sauce. Dagestan, Russia (Photo: A. Aliev)



Figure 50. *Prunus divaricata* L. ROSACEAE cake on drying. Dagestan, Russia (Photo: A. Aliev)



Figure 51. Meat dipped in *Prunus divaricata* L. ROSACEAE sauce. Dagestan, Russia (Photo: A. Aliev)



Figure 52. The process of the thermal drying of *Prunus divaricata* L. ROSACEAE sauce. Dagestan, Russia (Photo: A. Aliev)



Figure 53. The air drying of *Prunus divaricata* L. ROSACEAE sauce. Dagestan, Russia (Photo: A. Aliev)

In spring, the unripe fruits of *Prunus divaricata* L. are used to make a compote, called Kukuly, with addition of some water and sugar. Farmers working away from home often cook *Prunus divaricata* Ledeb. on coals wrapped in the bark of *Corylus avellana* L. (Figure 54, Figure 55).



Figure 54. Baking of *Prunus divaricata* L. ROSACEAE in *Corylus avellana* L. bark on coals. Dagestan, Russia (Photo: A. Aliev)



Figure 55. Eating of charcoal baked *Prunus divaricata* L. ROSACEAE. Dagestan, Russia (Photo: A. Aliev)

***Pyrus caucasica* Fed. ROSACEAE**

Name of the plant in the languages of Dagestan peoples: Agul-К1ураки (K'uraki); Avar-Гени (Geni); Dargin- Хъяр (Kh'yar); Lak-Хъюрт (Hurt); Lezgin-Чеуьхвер (Cheuhver); Kumyk-Гъармут (Harmut); Nogai-Кертпе (Kertpe); Russian- Груша кавказская (Grusha kavkazskaya); Tabasaran- Кьюкки (Kyugi).

Local food uses

P. caucasica is eaten both in ripe and unripe form. Since it has a bitter and astringent taste, it is consumed in an unusual way: small pieces of 2 pears are bitten or cut off from each fruit, then are rubbed against each other with the cut sides, until a "puree" is formed in the place of friction, which is then licked off. During the autumn preparations for the winter, ripe pears are poured into a 10–20-liter container, filled with water and stored in a dark and cool place. After 15 days, when the pears acquire a sweet and sour refreshing taste, they are ready for consumption.

***Ranunculus oxyspermus* Willd. RANUNCULACEAE**

Name of the plant in the languages of Dagestan peoples: Avar-Загъруяб хер (Zah'ruyab her); Russian- Лютик остроплодный (Lyutik ostroplodniy); Tabasaran-Кесмин ук1 (Kesmin uk').

Local medicinal uses

For the treatment of hemorrhoids, the Tabasarians a little rubbed the flowers in their hands, after which they twisted it into a ball about 0.5 cm in size (Figure 56) and inserted it into the anus. In the event of severe pain from the procedure, the flowers had to be removed. The next day, the procedure was repeated by forming a ball from a smaller amount of flowers. The *Ranunculus oxyspermus* flowers was also dried and before use they were softened by soaking in warm water, after which the procedures were carried out.



Figure 56. *Ranunculus oxyspermus* Willd. RANUNCULACEAE flowers for the procedure. Dagestan, Russia (Photo: A. Aliev)

Rosa L. ROSACEAE

Name of the plant in the languages of Dagestan peoples: Agul-Ч|ивар (Ch'ivar); Avar-Г|инт|и (Ginti), Нольо (Nol'o), К|еще (K'eshche); Dargin-Низигъар (Nizig'ar), Мизигъар (Mizig'ar), Низигъарла (Nizig'arla), Ц|едеш (Cedesh); Lak-Ццац (Tsac), Хъанак| (Khanak), Хъунк|улт|ут|и (Khunkul tuti); Lezgin-Жик|ид вал (Zhik'id val), Жик|ид ттар (Zhik'id ttar), Жик|ияр (Zhik'iyar); Kumyk-Итбурун (Itburun); Russian-Шиповник (Shipovnik); Tabasaran-Харан чич (Haran chich).

Local medicinal uses

Among shrubs that grow in Dagestan, wild roses (*Rosa*) are highly valued for their medicinal properties. Their therapeutic effect is due to a high level of vitamin C contained in their fruits. Rosehip tea is commonly used by all ethnic groups of Dagestan as a cold remedy to boost the immune system. Laks (an ethnic group of Dagestan) use the infusion of wild rose roots in traditional medicine for kidney diseases. The recipe: carefully wash wild rose roots, cut them into roughly 1cm pieces, put them into a glass or enameled container and fill it with boiling water. The roots should be infused for 8-10 hour in warm water (on a stove without bringing to a boil or in a thermos flask). Half a glass (about 80-100 ml) of infusion should be taken two times a day for no more than 10-14 days. Avars (an ethnic group of Dagestan) use the infusion of wild rose petals as an eyewash for various types of inflammation. Pour a glass of boiling water (150-200 ml) over two to three handfuls of fresh or dried rose petals, cover them and infuse for 20-30 minutes. Kumyks (an ethnic group of Dagestan) use rosehips as a diuretic. Pour three litres of boiling water over 30 rosehips and infuse them for one to two hours. The infusion should be drunk throughout the day. Tabasarans (an ethnic group of Dagestan) consume fresh wild rose petals during the flowering to boost the immune system.

Local food uses

Laks widely consumed rosehips as an additional source of plant fibers, protein and vitamin C. They would usually dry large amounts of rosehips in September and use them later in winter to make tea and various decoctions (Figure 57).



Figure 57. Rosehip decoction. Dagestan, Russia (Photo: B. Ramazanova)

Dried fruits were also used for making flour by grinding them on millstones. The flour was used in baking and various dishes to enhance their flavor. It was also common to make a soup with dried rosehips during winter (a very rare and forgotten dish) (Figure 58).

Recipe: dried fruits were infused in boiling water (1-1,5 L) for 10-12 hours. Then the infusion was mixed with sprouted wheat flour, brought to a boil and cooked for 10 minutes with the addition of dried wild apricots. The soup was eaten warm. Fresh fruits were usually preserved for the winter season in different ways: kompot (stewed fruit beverage), purée, syrup and fruit preserves (Figure 59).



Figure 58. Rosehip soup. Dagestan, Russia (Photo: B. Ramazanova)



Figure 59. Rosehip compote (stewed fruit beverage). Dagestan, Russia (Photo: B. Ramazanova)

To make purée, washed rosehips were boiled in a small amount of water, after which they were mashed and mixed with sugar and some boiling water, if necessary. Later they were canned and stored in a cool place. To make syrup, crushed rosehips were first boiled, then mashed and mixed with sugar. Finally, the whole substance was cooked until it thickened. The syrup could be both a dessert and a cold remedy used to boost the immune system. Fresh rosehips were used for making a fruit preserve. The fruits were sorted out, deseeded, washed, covered with sugar (in a ratio of 1:1) and left to sit for several hour (for the night) until they released their juice. Then they were cooked in two or three steps. The finished fruit preserve was then poured into jars and stored in a cool place. Fruit preserves were made with wild rose petals as well. Freshly picked petals sprinkled with sugar and covered in honey were first left to sit in the sun for a couple of hour until they released their juice. Afterwards, the substance was brought to a boil and subsequently cooled. The whole process was repeated two or three times. Aside from the aforementioned uses of wild roses, Laks also made a rosehip porridge (Figure 60).



Figure 60. Rosehip porridge. Dagestan, Russia (Photo: B. Ramzanova)

Rosehips, just covered with water, were first boiled and then passed through a fine sieve. The paste was then mixed with wheat or corn flour (about 1 tablespoon of flour per glass of paste). Next, the mixture was cooked until thick. The porridge was usually served with *urbech* (flax seed butter mixed with honey and clarified butter).

Avars consumed young shoots of wild roses. Young shoots chopped into 1-2 cm pieces were dried outdoors in the shade. Dried shoots were added then to Kalmyk tea (a hot beverage traditional in the Caucasus made with green tea, milk, salt, spices and butter).

Local handicraft and other uses

Laks and Tabasarans used roots of wild roses to dye yarn. Clean chopped roots were boiled in water until it turned dark brown. Yarn was then boiled in that water for some time, after which it was left to cool. With this method, yarn could be dyed in various shades of brown.

Rubus fruticosus L. ROSACEAE

Name of the plant in the languages of Dagestan peoples: Avar-Гюдокари (G'odokari), чабтӀи (Ch'abt'i); Kumyk-бюрлюген (Byurlugen); Lak-жядур (Zhyzdur); Lezgin-мереп (Merer); Russian-Ежевика кустарниковая (Ezhevika Kustarnikovaya); Tabasaran-Хамс (Khams).

Local medicinal uses

The leaves are applied to furuncles and bandaged to speed up the release of pus from the inflamed area

Local food uses

The berries are eaten as a treat. Currently, for the inhabitants of the foothills of Dagestan, it is the main wild berry from which compote is brewed

***Rumex acetosa* L. POLYGONACEAE**

Name of the plant in the languages of Dagestan peoples: **Avar**-Ціек'у (Сек'у); **Kumyk**-Къозукъулакъ (K'ozuk'ulak'); **Lak**-Къурч' (K'urch'); **Lezgin**-Цурун пешер (Curun peshher); **Russian**- Щавель кислый (Shavel kisliy); **Tabasaran**-Ичвири каччу (Ichviri kachu).

Local food uses

The ethnic groups living in the foothills of Dagestan eat raw leaves and soft stems of *Rumex acetosa* L. as a source of vitamins.

***Rumex confertus* Willd POLYGONACEAE**

Name of the plant in the languages of Dagestan peoples: **Agul**-Лусар (Lusar); **Avar**-Жух (Zhukh), Ціек'ма (Tsek'ma); **Dargin**- Хіулус (Hulus); **Lak**-Нац'у меч' (Natsu metch), Тяр'яччи (Tyaryatchi); **Lezgin**-Эвелук (Eveluk), Нурсар (Nursar), Лырсар (Lyrsar); **Nogai**-Аткулак (Atkulak); **Tabasaran**-Лишв (Lishv).

Local medicinal uses

A tincture of dried *Rumex confertus* is taken for disorders of the gastrointestinal tract after lunch or dinner for up to 10 days, or when cured.

Local food uses

All ethnic groups of Dagestan use chopped young sorrel leaves with the mix of cottage cheese, walnuts, spelt and dried meat to prepare national dishes "kurze" and "chudu" (Figures 61 and 62). Sorrel is also harvested for the winter for later consumption (Figure 63).



Figure 61. The process of cooking «Chudu» from *Rumex confertus* Willd POLYGONACEAE. Dagestan, Russia (Photo: M. Mamaliev)



Figure 62. «Chudu» from *Rumex confertus* Willd POLYGONACEAE. Dagestan, Russia (Photo: M. Mamaliev)



Figure 63. Dried leaves of *Rumex confertus* Willd POLYGONACEAE. Dagestan, Russia (Photo: M. Mamaliev)

Dried sorrel is prepared in the same way as fresh sorrel, but it is first poured over with boiling water to eliminate bitterness and to make it soft. Sorrel is also part of the drink, which in Dagestan is called "Kalmyk chai". For the preparation of this drink, dry mature plants with seeds are used. It is consumed with the addition of butter, milk and other spices to taste (Figure 64). Peoples of Dagestan also use horse sorrel to make omelets (Figure 65).



Figure 64. «Kalmyk chai» from *Rumex confertus* Willd POLYGONACEAE. Dagestan, Russia (Photo: M. Mamaliev)



Figure 65. Omelet from *Rumex confertus* Willd POLYGONACEAE. Dagestan, Russia (Photo: M. Mamaliev)

Name of the plant in the languages of Dagestan peoples: Russian-Чабер садовый (Chaber sadoviy); **Avar**-Гъамил цӀан (Hamil tsan). Translation from Avar language means “donkey grass”.

The peoples of Dagestan take an herbal infusion of *Satureja hortensis* for high blood pressure, nervousness, headache and gastro-intestinal colic. Pour 2 tablespoons of herbs 500 ml of boiling water, leave for 1 hour, take ¼ cup 3-4 times a day. Juice from the fresh leaves of *Satureja hortensis* is applied to places where bees sting. Herb tincture is used to treat nail fungal diseases (Figure 66). Pour 70% ethyl alcohol in a vessel filled with the *Satureja hortensis* herb. Insist in a dark place for 21 days, strain, store in a cool place. Apply daily lotions to the nails.



Figure 66. *Satureja hortensis* L. LAMIACEAE: 1 - dried raw material; 2 - alcohol tincture. Dagestan, Russia (photo: Z. Guseynova)

The highlanders of Dagestan, dried grass *Satureja hortensis* is added as a spice to meat in the preparation of sausages ("bak" in Avar, "duldurma" in Lezgin).

Name of the plant in the languages of Dagestan peoples: Russian- Расторопша пятнистая (Rastoropsha pyatnistaya);
Tabasaran-Къалакъан ццацц (K'alak'an tsats)

In the spring, the upper part of the stem is consumed until it becomes woody, after which the bark is peeled, cleaned of leaves and bud. The stem has a slightly sweet and pleasant taste.

Name of the plant in the languages of Dagestan peoples: Avar-Гъургъум (Hurhum); Dargin-Хъалта (K'khalta), Хъалтунте K'khaltunte; Kumyk-Халта (Khalta); Lak-Мамма-аьжа (Mamma-a'zha); Lezgin-Инжи (Inzhi); Жим-жилим (Zhim-Zhilim); Царцар (Carsar); **Russian-** Звездчатка средняя (Zvezdchatka srednaya), Мокрица (Mokrica); **Tabasaran-**Джлмджлм

Local medicinal uses

Wood louse was used in the treatment of mastopathy in women (applied to sore breasts at night); as a source of vitamins in the spring (decoctions, various dishes).

Local food uses

Since ancient times, wood louse (*S. media*) dishes take pride of place in the cuisine of the peoples of Dagestan. It is used in pure form or mixed with other herbs (*Capsella bursa-pastoris* (L.) Medik, *Urtica dioica* L.). With the addition of cottage cheese (or without), fried onions (or without) and eggs Dagestani make everyone's favorite "Kurze" (Figure 67) or "Chudu" (Figure 68, Figure 69). "Kurze" is usually served with sour cream or clarified butter. In times of famine, residents used to make small tortillas from corn flour, kefir and chopped wood louse.



Figure 67. "Kurze" is a flour dish stuffed with fresh spring greens *Stellaria media* (L)VILL. Dagestan, Russia (Photo: F. Vagabova)



Figure 68. The process of making Woodlice “Chudu”. Dagestan, Russia (Photo: F. Vagabova)



Figure 69. “Chudu” is a flour dish stuffed with fresh spring greens *Stellaria media* (L)VILL. Dagestan, Russia (Photo: F. Vagabova)

***Thymus* L. LAMIACEAE**

Name of the plant in the languages of Dagestan peoples: **Avar**-Ташк'у (Tashk'u); **Lak**-Ттуккулц'у (Ttukgul c'u); **Lezgin**-Ц'антарар (Cantarar); **Russian**-Чабрец (Chabrec), Тимьян (Timyan); **Tabasaran**-Гунт'ан ук'1 (Gunt'an uk').

Local food uses

Used for adding flavor to tea by all ethnic groups of Dagestan.

Local medicinal uses

Tincture of thyme is consumed for colds.

***Tragopogon graminifolius* DC. ASTERACEAE**

Name of the plant in the languages of Dagestan peoples: **Russian**-Козлобородник злаколистный (Kozloborodnik Zlakolistniy); **Tabasaran**-Миршран Ук'1 (Mirshran uk'), Никкун ук'1 (Nigun uk').

Local food uses

Herbaceous taproot perennial 20-90 cm high (Figure 70). The Tabasarans (an ethnic group living in the foothills of Dagestan) eat the soft parts of the plant stem cleared of leaves before flowering.



Figure 70. *Tragopogon graminifolius* DC. ASTERACEAE. Dagestan, Russia (Photo: A. Aliev)

***Urtica dioica* L. URTICACEAE**

Name of the plant in the languages of Dagestan peoples: **Agul**-Меджер (Medzher); **Avar**-Мич'1 (Mijj); **Dargin**-Муцце (Муссе); **Kumyk**-Къычытгъан (Kichithan); **Lak**-Мич'1 (Mijj); **Lezgin**-Бепг (Verg); **Russian**-Крапива (Krapiva); **Tabasaran**-Варжи,(Varzhi).

Local medicinal uses

In ethnoscience, the *U. dioica* herb was used for bleeding, anemia, and vitamin deficiency in the form of decoction or tincture. Women rinsed their hair with nettle decoction after washing to give them a shine.

Local food uses

Nettle is widely used in Dagestan as a rich source of vitamins, especially during spring vitamin deficiency. Young nettles are used to prepare soups. Especially popular are “Kurze” (general Dagestani name) (Figure 71) and “Chudu” (general Dagestani name) (Afarar is a Lezgin-language name and Galar, Tabasaran name), stuffed with chopped young nettle shoots in pure form or mixed with other spring plants (*Stellaria media* (L.) VILL, *Capsella bursa-pastoris* (L) Medik) with walnuts (*Juglans regia* L.), fried onions, eggs, tallow.



Figure 71. “Kurze” from a mixture of *Urtica dioica* L. URTICACEAE and other spring plants. Dagestan, Russia (Photo: F. Vagabova)

In spring, to increase immunity and hemoglobin, Dagestani also use a salad of fresh young nettle stems, peeled from their leaves (Figure 72), pre-mashing them in their hands (Figure 73), which is called “kyikyishv” by the Tabasaran ethnic group, “khyikyif” by the Lezgin ethnic group, and “tishilai” in the Agul ethnic group. Omelet with nettle is also widely spread in the cuisine of the peoples of Dagestan. In the mountains, people dried nettles for the winter. At the right moment, they soaked them in water or milk (yoghurt) if necessary and got a mushy “pitakhoi”. It was used to stuff “wet chudu” (shyamzi)-(Dargin-Chirag ethnos).



Figure 72. Stems of *Urtica dioica* L. URTICACEAE peeled from leaves. Dagestan, Russia (Photo: A. Aliev)



Figure 73. Kjikjishv (hjikjif, tiishilai) (Crushed young shoots of *Urtica dioica* L. URTICACEAE). Dagestan, Russia (Photo: A. Aliev)

Local handicraft and other uses

In Dagestan, all ethnic groups wove carpets, paths; burkas and floor mats were made from sheep skins. In this regard, the technique of dyeing yarn of wool, cotton, linen threads, fabrics with natural dyes obtained from various plant organs is widely developed. Natural mordants (salt, soda, urea, etc.) were used to deepen, strengthen, and give different shades. Nettle grass, both raw and dried, was often used to give fabrics and threads green (all shades), brown (different shades) colors.

***Viburnum lantana* L. VIBURNACEAE**

Name of the plant in the languages of Dagestan peoples: Russian- Калина гордовина (Kalina gordovina), Калина чёрная (Kalina chernaya); **Tabasaran**-Маллин урхъар (Mallin urhar).

Local food uses

Ripe berries are eaten as a delicacy during haymaking, but with a certain peculiarity. Before consuming, it is recommended to put the cyme of berries in a haystack for at least 3-5 days to a depth of about 10-15 cm. Tabasarans believe that after keeping the berries in hay, the bitterness becomes much less noticeable.

***Viburnum opulus* L. VIBURNACEAE**

Name of the plant in the languages of Dagestan peoples: Avar-Палам (Palam); **Kumyk**-Ателбалам (Atelbalam); **Lak**-Бурц1ил ахъулсса (Burchil akhulsa); **Lezgin**-Члхлумлар (Chuhlump'ar); **Nogai**-Канине (Kanine); **Russian**:-Калина обыкновенная (Kalina obiknovennaya); **Tabasaran**-Урхъар (Urhar).

Local medicinal uses

In the foothills of Dagestan, *Viburnum opulus* L. is a berry that is gathered for the winter. The gathering begins after the first frost. For drying and storage, branches with berries are cut off and tied up and hung on the veranda (Figure 74). The berries are eaten raw to treat coughs. With the advent of sugar, people began to cook jams and confitures, which are also consumed to treat coughs.



Figure 74. *Viburnum opulus* L. VIBURNACEAE on the veranda. Dagestan, Russia (Photo: A. Aliev).

***Vicia sativa* L. FABACEAE**

Name of the plant in the languages of Dagestan peoples: Russian- Горошек посевной (Goroshek posevnoy); Вика посевная (Vika posevnaya); **Tabasaran**-Харук (kharuk).

Local medicinal uses

The Tabasaran ethnic group used the seeds of *Vicia sativa* L to treat obstinate diseases. Since it was uncommon for the Dagestan peoples to give names to diseases, it is difficult to say exactly what was meant by intractable or severe diseases. However, judging by the description, it was cancer.

Seeds were collected simultaneously with cereals (wheat, spelt, oats, rye, barley), since *Vicia sativa* L. grows as a weed in agricultural fields (Figure 75).



Figure 75. Seeds of *Vicia sativa* L. FABACEAE. Dagestan, Russia (Photo: A. Aliev)

For the simultaneous cleaning of crops and the collection of *Vicia sativa* L. seeds, a handcrafted mat from hemp fibers (*Cannabis sativa* L.) was used, fixed at an angle of about 30 degrees, onto which grains of cereal crops were poured mixed with weed seeds. The grains of cereals rolled down the mat, and the seeds of *Vicia sativa* L. remained on it. Only black seeds were collected for medicinal use. Immediately before use, they were crushed in a mortar. Unfortunately, the recipe for treatment has been lost, or at least we could not find it (at present, Tabasarans do not use this method).

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List of abbreviations: Not applicable

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