

Biomorphologic and Therapeutic Features of the Kinds Included into *Stachys* L. Species of Nonstringings (*Lamiaceae* Lindl.) Family Widely Spread in Flora of Nakhchivan Autonomous Republic Azerbaijan

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Abstract:

In the article was given deep information about biomorphological, ecological characteristics and geographical features, areal types and usage perspectives of kinds included into Stachys L. species of nonstringings (Lamiaceae Lindl.) family widely spread in flora of Nakhchivan Autonomous Republic. At the same time it deals with mainly spread areas of existing kinds in the world and on the territory of Nakhchivan, time of blossoming and fruit of herbal plants, their chemical content, pharmacological influence and treatment direction.

Key words: echobiomorphological, thread-like, whorl, atony

Introduction

The investigation, usage, restoration and protection of natural resources are considered not only important matter in economy development of Azerbaijan Republic but also have great national importance. That's why protection and restoration of natural resources is considered one of the most important conditions. Just for solving this matter the state has created

and proved National Strategy and Activity program for saving and durable usage of biological diversities. To investigate modern position of the family and to determine the ecological and anthropological transformations happened with them has both theoretical and practical importance [1, p.12-17; 5, p.176-177]. Glancing through the chronological investigation history of the flora of Nakhchivan Autonomous Republic we can see that *Lamiaceae* Lindl.(nonstringings) family hadn't been investigated enough comprehensively. So, taking into consideration the actuality of the biological morphology, ecology, natural spread ways, chemical structure, therapeutic directions and usage perspectives of the family we may note that it needs to be studied much more deeply. Aiming this the investigation works have been already started. We consider it is necessary to give information about botanical, ecobiological, therapeutic features, spread ways, chemical structure, pharmacological impact, picking up and drainage ways of the species included into the family, as well as their usage opportunities both scientifically and in folk medicine [3, p 825-827].

Being therapeutically important *Stachys* L. specie needs to be investigated deeply. Kinds included into this family contain 8,5% of sesqui-, di- and triterpenoids, flavonoids, fitosterins, alkaloids, nitrogen containing substances, coumarines, sometimes they contains fenol and oil high acids. The leaves contain 10% of acid substances, 0,4% of Essential oils, but fruits 44,3% of fatty oils. *Stachys aspera* specie having great therapeutic impact is widely used in treatment of hemostatic, cardio-vascular diseases, blood expectoration, *Stachys officinalis* (L.) Trevir. is accepted as antitussive, spasmolytic, antiexudative, antidotal action, hypofunctions of gastroenterostomy, liver diseases, toxemia of pregnancy, pulmonary tuperculosis, diphtheria, dysentery, diseases of nervous system, radiculitis, tumors remedy on early stage, except this above-ground parts and petals of the plants are used

in therapy of diarrhea, migraine, and their leaves are widely used in veterinary medicine, intestinal colic, colitis, enterocolitis, diseases of kidneys and urethra. At the same time the above-ground parts are used for treatment of nephritis, cystitis, female disorders, maxillary sinusitis, rhinitis and tonsillitis, psychological diseases, especially considered irreplaceable in hysteria and neurosis, blood diseases and bleeding. *Betonica officinalis* L. specie may show very effective emetic influence, whenever *Stachys palustris* has diuretic action, the leaves and above-ground organs influence positively on laryngeal diseases. *Stachys sylvatica* is a antiphlogistic, sedative, tonic plant, but its above-ground organs are able to treat hemorrhoids, cardio-vascular diseases, hypertension, stroke, influenza, respiratory tract problems such as bronchitis, bronchial asthma, expectoration of blood, as well as skin diseases, purulent wounds, skin eruption and wounds, meteorism, infection of the upper air passages accompanied by giddiness and high temperature or lymphadenitis. *Stachys annua* L. and *Stachys recta* L. species are diaphoretic, wound healing, their leaves are useful in epidemic typhus, metabolism problems, *Stachys byzantine* K.Koch specie has anaesthetic effect, and used in treatment of initials cause to diseases, alcoholic solution, dry extract, infusion and sap made from this plant is used in cases of heart pulse deficit. *Stachys germanica* L. specie's petals are useful for constipation, leaves for dismenorrhea, amenorrhea, mastitis and padagra [4, p.122-129].

Material and method

The research conducted in the summer season 2013-2014, route forwarding method. Collected more than 335 herbarium specimens mint. Materials in a laboratory desk-processed condition Used loupes MBS-2 microscope and MCI-2 and 5-MKI. Clarify the types of plants was of Grossheim A.A. out

"Flora of the Caucasus" Prilipko L.I. "Vegetables relations in Nakhchivan ASSR" Prilipko L.I. "The vegetation Azerbaijan", Cherepanov S.K. "Vascular plants of Russia and adjacent states (the former Ud.SSR)" and Flora of Azerbaijan".

Discussion of the Investigation

***Stachys atherocalyx* C.Koch - Artistocracy Woundwort**

The plant has numerous stems as usual of simple structure or branching, their height is 30-60 sm. Lower leaves are scalpel-like, upper leaves are sharp-pointed with toothed edges. It has 8-10 flowers in one flower borders, spaced in the top, sepal is lined, throat-like, the receptacle is bell-shaped, triangle-like, toothy. Petals are yellow, the mouth is orange. Occurs in dry rocky places and shrubbery. Upper lip is wide, egg-shaped, a bit short, lower lip is wide egg-shaped, with short hollow, filament is longer than style. Blossoming and fruit period is May-July. Spreads in dry rocky and shrubbery places of Front Caucasus, and Daghestan. It is an endemic plant. Firstly was noted on the territory of Chorokha. Belongs to Minor Asia- Caucasus geographic type.

On the territory of Nakhchivan Autonomous Republics these species especially spread in Bilav, Unus, Kalaki, Tivi villages of Ordubad region, Arafsa, Milakh, Nahajir Goynuk, Gazanji of Julfa region, Heydarabad and the same named village of Sadarak, Eastern Gishlag, Gomur, Garababa of Shahbuz region in dry sandy, shingle, rocky places.

***Stachys balansae* Boiss. et Kotschy – Balansa Woundwort**

This perennial plant, named Balansain on the honor of French botanic Benjamin (Benjamin) (1825-1891) is especially spread on the territory of Caucasus. It is common in upper forest zone and subalpine beaches. Its stem is simple or branching, its height is about 60-100 sm. Lower leaves are scalpel-like, young

shoots are of 6-7 sm. height. The upper part of stem is prolonged egg-shaped, sepals have integral edge. The flowers are long, lined, receptacle is tubiformed, bell-shaped, petals are pink. Its upper lips are hollowed a bit, lower lips are triple-screwed. Nut-like fruits have inversed egg shape, upper part is blunt and not covered. This specie is included into Minor Asian mountainous geographical areal type.

Mainly spread in dry sandy, shingled rocky areas of Haydarabad village of Sadarak region, Boyahmad, Milakh, Nahajir villages of Julfa region, Bilav, Disar, Khanagha villages of Ordubad region, South Qishlag, Gomur, Qarababa of Shahbuz region of Nakhchivan Autonomous Republic.

***Stachys fominii* Sosn. - Fomin Woundwort.**

Its stem is usually of 20 sm., branching and blunt in certain degree, the upper part of which is scalpel-like sharp, veined, and has small star-shaped hairsprings. It has few prolonged petals, teeth of the sepal consist of short scalpel-like, thorny, star-shaped hairsprings placed along the tube. Inner side is whity-pink, canvas-like. Blossoming and fruit period is May-June. Mainly spread in medium stony and rocky zone of front Caucasus. It is endemic plant. Firstly was mentioned on the territory of Nakhchivan, included into Atropatani geographical areal type.

Spread in dry shingled sandy territories, especially in rocky areas of Validagh village of Sadarak region, Badamli and Gomur of Shahbuz, Boyahmad and Arafsa of Julfa, Behrud and Disar of Ordubad region of Nakhchivan Autonomous Republic.

***Stachys Fruticulosa* Bieb. - Bush Woundwort.**

This undershrub has height of 20-30 sm., has long bare and woody branches. Side branches are covered with short hairsprings. Whole-edged and toothy leaves are placed in group

of 4-6 together and have prolonged shape of 7-13 sm. in length and 2-3 sm. in width. Its top part is lined, sharp-pointed, lower part is creased and has lying short hairsprings, upper part is bare. The floral part may place on a stalk or stalkless. The receptacle is bell-shaped with short hairsprings, teeth are triangle-shaped, two times shorter than tube. Inner side is light-purple or pink, twice longer than receptacle. Middle part kidney-shaped, sides are wavy, filaments is twice longer than pollen tube, in the shape of inversed egg and naked. Blossoming and fruit period is May and June. Mainly spread in shingled, strict rocky areas of Front and East Caucasus. Belongs to Atropaten-Alban areal type.

Common spread area – Iran. Firstly was included into science from the territory of Caucasus.

Mainly grows in dry mountainous areas of Asni village of Kangarli region, Arafsa village of Julfa region of Nakhchivan Autonomous Republic.

Stachys germanica L. - German Woundwort

This Perennial plant is widely spread on the territory of Europe, Canary islands, Caucasus, Morocco and Turkiye. Occurs in the grass plot areas full of different kinds of weeds on the roadsides. The stem is straight, simple, the upper part is branching. Height is about 60-120 sm. Color is white. Leaves are prolonged, egg-shaped, heart-shaped in the middle. The buds are prolonged on the upper part, grayish-green. The lower leaves are holed and yellow. The plant has plenty amount of flowers thickly placed on the top, receptacle is tubelike, bell-shaped, petals are light-purple. Belongs to European geographical areal type.

In Nakhchivan Autonomous Republic occurs in north-east hilly of the same-named village of Sadarak region and mountainous areas of former Paradash village of Julfa region.

Stachys iberica Bieb. – Georgian Woundwort

Stem height is about 20-50 sm., branching. The branches may be of simple structure, not smooth, covered with short hairsprings or bare. The leaves are prolonged, lined, blunt, with toothy edges. The flowers are scalpel-like, covered with fine hairsprings. Petals have short foot, bell-shaped, flower borders are a bit branching, hair-like. The receptacle is tube-like, bell-shaped, rill, toothy, a bit short, triangle-shaped, scalpel-like, sharp in the top, of the height of 1,5-2 sm. and have purple color. Filament is short, hairy, equal to the height of style of pistil or a bit longer. The nut-shaped fruits are brown, grey, bare and prolonged egg-shaped. The period of blossoming and fruit is May- August. Mainly spread in shingled, impenetrable mountainous zone and among verdure bushes, especially in the Crimea and Front Caucasus. Belongs to Minor Asia geographic areal type.

Common spread area - Balkan countries, and Minor Asia. Firstly was discovered and included into science on the Georgian territory.

Occurs in north mountainous area of Najafalidiza village of Babak region of Nakhchivan Autonomous Republic.

Stachys inflata Benth. - Puffy Woundwort

This subshrub plant has the height of 25-45 sm. branching in the foundation. The branches are straight or a bit wry, with white felt-like thick star-shaped hairsprings on it. The leaves are prolonged, egg-shaped. The petals of 2,5-3 sm. in length and 7-10 sm. in width are equal to the receptacle or shorter. Flower borders consist of 4-6 flowers prolonged, with short receptacles, a bit wry, bell-shaped, of 8-10 sm. The fruits placed too close have prolonged form, toothed, egg-shaped, the top is sharp-pointed, 2,5-3 times shorter than tube. The upper lip is shorter than lower one, toothy with short hairsprings, the lower lip is wide kidney-like, side parts are egg-shaped. the filament is

longer than style of pistil. Period of blossoming and harvest is May-June. Mainly spread in dry shingled rocks of low and middle mountainous zones of the Caucasus and South Caucasus(Qarabagh region). Belongs to whole Iran geographical areal type.

Common spread area - Iran. Firstly was enlisted scientifically from the territory of Iran.

Occurs in most of the mountainous areas of Nakhchivan Autonomous Republic.

Stachys lavandulifolia Vahl.- Lavander leafed woundwort.

This subshrub has the height of 10-20 sm. and spread mainly in mountainous areas of Iran, irak, Turkiye, Ftont Caucasus and Turkmenistan. Occurs in south territories of the mountainous areas. The plant has numerous stems, straight, woody, bared. It has plenty amount of lined, scalpel-like or prolonged, parallel stretched veins, brown leaves, the stem narrowed. Flower border consist of 4-6 prolonged flowers, receptacle is covered with lined, hard hairsprings. Petal is light-pink. Nut-like fruits are egg-shaped and naked. Belongs to the front Asian geographical areal type.

Occurs in mountainous area of the same - named mountain of Ashabi-Kahv of Babak region of Nakhchivan Autonomous Republic.

Stachys macrantha (C.Koch) Stearn - Largeflowered Woundwort.

Perennial plant of 20-50 sm. Straight, simple or arc stem which is covered with sparse having oval, heart-shaped, curly hairsprings in upper part. Egg-shaped or heart-shaped in upper, and easy seen veins and sparse flowers in lower part. Receptacle is tubelike - bellshaped, little branchlets are covered

with hairsprings, in the shape of thorny triangle, the thorns on the top are sharp and 1,5 - 2 times shorter than style. Inner side is pink, petals are 3-4 times longer than receptacle, hairy, the upper lip is wide egg-shaped, lower lip is round toothy or hollowly. The period of blossoming and fruit is June-July. Spread on the subalpine and alpine greenlands of Front, East, South Caucasus and Daghestan. Belongs to Armenian-Caucasian geographical areal type.

Common spread area- Eastern Anatolia and Iran.

Occurs in east territories of Nurs village of Shahbuz region.

***Stachys macrostachya* (Wend.) Briq. – Big Woundwort.**

Plant with straight stem and height of 70-120 sm., branching. The leaves are large, length about 11-16 sm, egg-shaped or even round, blunt, heart-shaped in base, with big teeth, and smooth leaves covering all sides of the plant, side parts are whitish. The petals are long and gathered in the flower border. Flower sole is equal to the flower border or a bit shorter. It is bilateral, has iron-like white hairsprings, upper lip is shorter than lower one. Flower sepal is pink, and 1,5 times longer than receptacle. Mainly spread in light forests, low and middle mountainous zones [2, p. 109-115]. Belongs to Armenian mountainous geography areal type.

Occurs approximately in major territories of Nakhchivan Autonomous Republic.

***Stachys officinalis* (L.) Trevis. – Herbal Woundwort.**

This herbaceous plant spread almost in whole Europe, Russia, Caucasus, West Siberia and Ural. Occurs in dry and humid grasslands, high places, among shrubberies and undergrowth, steppe, forest edges. The roots are perennial, fringed, short and in vertical position. Stem is straight, height is about 30-60,

sometimes 100 sm., covered with stiff hairsprings. The leaves are placed opposite to each other, having a stalk, prolonged egg-shaped, blunt, heart-shaped in base, wrinkled, covered with stiff hairsprings from both sides, the leaves around the root are too long, those which are in the middle are short stalked, the upper leaves are almost non-stalked. The flowers are big, not standard, bisexual, buds are without stalk. Receptacle is right, bell-shaped, five-toothed, the teeth have triangle form, consist of two short tubes. Petals are light-purple, sometimes white, bilabial, covered with hairsprings from the outer side, the inner side is hairless. The upper lip is prolonged egg-shaped, whole, the upper side is holed, has straight form and rolling on the tip. The lower lip is three-screwed, round. Blossoming period begins in June and continues till September. The fruits are Dry, prolonged, three-sided, convex from outer side, monocotyledon, rapes in July-October. Must be gathered and dried during newly blossoming period. The dried plant has bitter smell and specific taste. It has bitter and acid matters in content. In scientific medicine it is used for treatment of inflammatory of respiratory tract, but in folk medicine the roots are used as emetic and purgative medicament. It is melliferous plant. There are fatty oils in their seeds. Belongs to Armenian-mountainous geographical areal type.

Occurs in shingle, shrubbery and dry sandy places of East mountainous areas of Nahajir village, Julva region, Nakhchivan Autonomous Republic.

***Stachys stchegleewii* Sosn. - Shegleyev's woundwort.**

Woody, feelery plant having little hairsprings on it. The stem is growing up, leafy, sometimes the lower part is covered with whitish, felt-like, thick hairsprings. The leaves are wide enough and oval, covered with white hairsprings and grow without stalk. Flower border consists of 4-6 flowers. The receptacle is short, sharp, covered with white felt-like

hairsprings, the fruits are covered with more longer hairsprings. Flower petal is purple-pink, twice longer than receptacle. Belongs to the whole Iranian geographical areal type .

Spread in low and middle mountainous zone especially in limestony rocks of Soyugdagh and Mehri villages of Ordubad region of Nakhchivan Autonomous Republic. Belongs to Atropatan geographic areal type.

***Stachys pubescens* Ten. – Hairy Woundwort.**

This subshrub spread on the territory of Mediterranean sea, Crimea, Front Caucasus. Mainly occurs in the mountains, dry rocky places and in medium degree shrubby places. The stem is grooving vertically, branching, the height is about 20-40 sm. The lower leaves are stalked, prolonged, the base is round and cut sidewise, the upper part is prolonged egg-shaped. The flowers are prolonged, the top parts are approaching to one another, flower edging consists of 4-6 flowers, covered with undeveloped rough hairsprings. The receptacle is tube-like, bell-shaped, scalpel-like, toothy, flower petal is light-yellow. Nut-like fruits is wide, round, sharp-pointed, holed. Belongs to Eastern Mediterranean sea- Minor Asia geographic areal type. Occurs in mountainous areas of Qizil Qishlaq village of Sahbuz region of Nakhchivan Autonomous Republic.

***Stachys setifera* C.A.Mey. - Shaggy Woundwort.**

This Perennial plant spread on the territory of Front Caucasus and west Tien-Shan. Mainly occurs in mountainous zones and humid grass fields. The stem is uneven, branching, the height is about 30-60 sm. The leaves are prolonged, egg-shaped, smooth, toothy, the flower are egg-like long, the flower plot consists of 8-10 flowers, the lower part is spaced, but upper side is closely placed. The sepal is scalpel-like, receptacle is triangle-

like, toothy, the petals are dark-pink. Nut-like fruits are naked and three-vertexed. Belongs to the Front Asia Geographical areal type.

***Stachys sylvatica* L. - Forest woundwort.**

Is a perennial plant which is spread on the territory of Europe, Turkiye, Caucasus, Middle Asia and China. Occurs mainly in shady forests, medium shrubbery places, among high meadow. Has long rhizome. The stem is straight, sometimes a bit crooked, the height is about 35-120, branching in the upper part, covered with smooth hairsprings. The leaves are stalked, the length is 10-12 sm, egg-like, heart-shaped, the tip part is sharp-pointed, the edges are toothy. The leaves in the top are grayish-green and may have the shape either prolonged and egg-shaped or prolonged, scalpel-like, the edges are whole. The flowers are long, awl-like, flower plot is placed on the top and consists of 6-8 flowers. The receptacle is tube-like, bell-shaped, the teeth are narrow, triangle-shaped, scalpel-like, petals are bilabial, matte-red, hairy, the upper lip is whole but the lower one is grayish-purple-like. The fruit is dark-brown, smooth, wide, egg-shaped, nutlet. Blossoms in June-July. Rapes in August. Over-ground part contains betaine basis chemicals like stahidrin, betonitcin, turitcin, triqonellin and other items like choline, allantoin, acid matters, resin, essentials, ascorbic acid (0,085%) and organic acids. Seeds contain 28 % of fatty oils but flowers 0,05 % of essentials. Dried flower, leave and stem contain 0,08 %, but newly picked plant contains 0,3 – 0,4 % of essentials. The flowers and leaves of this plant may be used as spices in fish products processing and for giving green color to dye. In medicine is used for treatment of such diseases like podagra, stomachic and hepatic diseases. In clinical practice widely used against womb bleeding, except this has sedative action in treatment of central nervous system, in arterial pressure reduction and other diseases. Obstetric-gynecological

practice were successfully used in postpartum hemorrhage and intestinal atony. In folk medicine usuallu used for hysteria, nervous, fainting, epilepsy, besides used as inflammatory and healing mean. Belongs to West-Palearktic geographical areal type.

Occurs in humid places of “meshalik” forest of former Paradash village of Julfa and Tillak forest edge of Ordubad region of Nakhchivan Autonomous Republic.

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