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The biological features of species of *Chelidonium* L. and *Glaucium* Mill. Genus in the nakhchivan autonomous republic

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Abstract
The article provides comprehensive information about biological features of species including *Chelidonium* L. and *Glaucium* mill. genus of *Papaveraceae* Adans. family. It was determined that these species including in this family are considerable among other families. Also useful features were studied and distribution zones of each species were revealed for world, Azerbaijan, Nakhchivan Autonomous Republic and were given separately for each species.

Keywords: biomorphological, species, features, flora, zone, taxonomic

Introduction

The vegetation is in the first place for its soil-climate features inside of the natural resources of Nakhchivan Autonomous Republic. Biodiversity in the area made researchers, naturalists, botanist, pharmaceutist, phytochemists and paleobotanist anxious from ancient time. The material had been printed about vegetation of Arazdeyen and Sadarak field of Grossheim for the first time in 1915. A.A. Grossheim came area again in 1923 and 1926 years for investigation of rich vegetation of Nakhchivan Autonomous Republic. The gathered materials had big importance for writing of Caucasus flora. İ. Gavrilov and A.G. Doluxanov studied the importance of vegetation of Batabat zone in feeding in 1927-1928 years [Talibov; 4]. The entire taxonomic units of existing plant species had been given for that period in Nakhchivan Autonomous Republic flora in the A.A. Grossheim´s 3 volumed Flora Azerbaijan", 7 volumed Flora Caucasus" and other scientific work L.İ. Prilipko´s "The plant relations of Nakhchivan USSR" and "The plant cover of Azerbaijan" works for the first time. 1150 plant species had been shown for area flora in A.A. Grossheim´s work which published in 1936. Afterwards it had been clarified that 1526 species (37.1%) included 65 family and 218 genus from 4112 species distributing in the Autonomous Republic area, which noted for territory in 8 voluminous fundamental Flora Azerbaijan" works. A large floristic investigations had been carried out consecutively in the area of region in the course of time. The flora of separately areas of region, plant types, plant number of apart families, genus, taxonomic content and useful features had been studied based on these investigations. The amount of species had been increased permanently in the area flora, according to revealed new findings in the investigation time.

In after years regardless of existing various scientific investigations and revealed new species, genus and families, in none of investigation had been shown exact schedule of family, genus and species of flowering plants and revealed high sporiferous, naked seedy plants in Nakhchivan Autonomous Republic until that time. 134 family, 618 genus and 2678 species had been demonstrated in flora spectrum which prepared at the first time by T.H. Talibov in 2001 [2]. Henceforth at the result of carried out investigation relating to flora biodiversity of Nakhchivan Autonomous Republic by T.H. Talibov, in addition to flora spectrum of Nakhchivan Autonomous Republic 134 family and 2742 high sporiferous, naked seedy, covered seedy in 773 genus had been illustrated in monograph which printed in 2001.110 rare or endangered species including this spectrum and their possible reservation ways had been noted by author. This spectrum inlarged and reached 153 family, 799 genus and 2791 species in Talibov´s doctorate dissertation called " Flora biodiversity, its useful benefiting and reservation of Nakhchivan Autonomous Republic (about Cormobionta)" in 2003. 8 class, 104 order, 170 family and 2835 species of 874 genus high sporiferous, naked and covered plants had been determined at the result of T.H. Talibov and A.S. Ibrahimov´s scientific investigation works. The investigation work regarding to flora and vegetation had been completed in printed monograph in 2005 by A.S. Ibrahimov, also new findings and 3013 wild and domestic plant species including 914 genus and 177 family had been shown in Nakhchivan Autonomous Republic flora in doctorate dissertation called ″The vegetation, its productivity and botanical-geographical zonation of Nakhchivan Autonomous Republic in 2007″ [Grossheim; 1950] [7].

T.H. Talıbov, A.S. İbrahimov noted that, natural reserve of more than 1000 amoung these species had abound, more than 600 species of them are medicinal plants and they had printed a book regarding to official medicinal plants [Talibov 2008] [5]. The species of Papaveraceae family are important amoung other families for their species content and significance. There are different alcoloids and isochinolin compounds in the content of family species. The treatment importance of papaverine, albumin, bicuciline and qlaucine are known from ancient time.The seed of poppy is using for oil production and culinary. Opium was preparing from ripe poppy buds. Recently carried operations against narcotism cause decrease lose its importance in medicine. Morphine, pantopone and other medicines using now as painkiller. Also *Chelidonium* was known as medicinal plant.

6-7 alcoloidare known in the content of poisonous must content of this plant: chelidonine, homochelidonine, protonine and others.

Chelidonium was used for treatment of joint disease and bone breaks in middle ages. Papaveraceae family plants come across dry stony slopes to high altitude zone, clayey soil, among weeds in crop areas. They create high formations depend on biological features. All of poppies are ornamental plants. Majority of them cultivated in parks and gardens. Glaucium elegans Fisch. Et C.A.Mey. species of this family included in Red book of Nakhchivan Autonomous Republic.

The flowers of plants including in Papaveraceae family are regular or irregular. Sepals are 2, usually fall down before flowering. They cover all bud or being small and cover certain part of flower. Petals 4, pair and opposite. Sometimes 5-6, free or compound. Stamen numerousç sometimes 4 or 2. Ovary 2-16 organized joint fruit leaves upward, usually consist one hole. Ovules and seeds more. Stigma is roundel, with two part or two wing. Fruits are box formed, open with 2 lidded. Sometimes 3-6 lidded or divided into shares and disc formed. Occasionally fruit is one seedy small hazel or outstretched crusted, divided crosscut. Seeds are small, black, bright, smooth or hollowed. Annual or perennial grass plants with milky juice. In some species have not milky juice [9]. Family divided 2 half family- *Papaveroideae* and *Fumarioideae*. The species including Chelidonium L. and Glaucium Mill. genus are different each other for their features.

Materials and Methods

The research conducted in the summer season 2016. A lot of herbarium specimen had been collected. Materials desk-processed condition used loupes MBS-2 microscope and MCI-2 and 5-MKI in the laboratory. Clarify the types of plants was 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 and increasing the last solution and ethanol

Mixture was measured at between 200-700 nm by Hitachi U-2900 UV-VIS. Labconco Clear Drying Chamber with Valves 7443500. Thin layer chromatographic analysis has been carried with DC-fertigfolien ALUGRAM SİL G/UV 254. The qualitative analysis of flavonoids has been studied with Fe (III) chloride and cyaniding tests.

Morphology and biology

Subfamily –Papaveroideae

The buds of plants including in this subfamily fall down when open, green boat formed sepals joint with their edges create granary, which all parts of flower closed there. Petals are inverted ovoid, long, round or kidney formed, big, flat, not divided. Surface not swelled, buds without scale, 4 piece (2+2), sometimes 6 (3+3) or 5. Stamen more, indefinite numbered. Pistil 2 or more members, fruit is sheath box fruit, porous. Milk juice is solid, white, yellow or orange. Herbs usually hairs or bristle, rarely naked [KMK, 2012] [9].

Chelidonium L.

Petals are yellow, circular. Stamen are few, stalk of stamen is thin, pollens are long. Ovary is single hollowed, rounded, pillar feeling clear. Fruit short, thick, cylindrical. Stigma thin, scale, open to upper with 2 lid from main part, its length is 2 mm. Milk juice is stiff, orange. Milk juice of demrovotu is poisonous. There is specific acid and alcoloids in the content. İt is useful for industry. Stem is branched. Leaves blue in down side, naked and few hairs, big, leather like divided, segmental, some of them short stem leaves on root. Flower grows from armpit of stem leaves, they are short from leaves and polypetalous, gather 3 flower group. Perennial herbaceous plant [KMK, 2012] [9].

Chelidonium majus L.

Chelidonium majus L. 1753, Sp. Pl.: 505. The plant discribed from Europe. İt is perennial plant. Stem is non smooth. 100 sm height, branched in upper side, straight, naked or sometimes bristle. In some plants leaves over root are several or sometimes with bristle. İn some plants the leaves over root are several or maybe more decrease to below 5 segmental. Petioles are short from lamina. Length of leaves 208 sm, width 5 sm 5-7 divided segmental. Segments are irregular formed, blunt, kidney formed, supplements divided in main part. Upper leaves 3 segmental, below with petiole. In some species the leaves of stem separate from each other, differ from root leaves, segments are few, long petiole or upper leaves are potty. Bottom parts of segments are deep blue.(sometimes green), naked or thin pubescence. Flowers aggregated in 3 ambelliform group. The length of flower stalk 5-10 sm. Bud is oval-globular or stubborn ovoid, blunt or sharp pointed, naked or netted, length 7-10 mm lobes are yellow, stubborn, oblonged or stubborn ovoid, length 8-16 mm. Box straight stand, relatively compact, length 2-5 sm, width 2-3 mm, the length of tunic 1-2 mm, black, oblonged, shaved-hollow, ribbon shaped with protuberance.

The economic importance.

There are 6-7 alcoloids in the content of bright-orange juice obtained from roots of *Chelidonium*: chelidonine, homochelidonine, protopine, sanguinarine. The content of juice from leaves is more compound. There is 50-66% oil in seeds, but this oil do not use. Milk juice strong and bitter, unpleasant smell and scorching tasty. İt was used for eliminate warts. İt was considered medicine to recently time, specially used for against measles in Germany. It awakes inflammatory reproductions in skin. Some doctors try to use this ointment for treatment cancer.

The new herbs of *Chelidonium* are used in zootechnics used against hoove with salt for sheep. It grows in forests, gardens, plantations, near the leaving places. Also planted as ornamental plant. (Grossheim, 1936; Talibov, 2014; Ibrahimov, 2005; Prilipko 1939) [1, 6, 8, 11].

General distribution zones: all Europe, Caucasus and Siberia, Middle Asia, Eastern Mongolia, China, Northern America.

Distributions zones in Azerbaijan: Ganja, Baki.

Distributions zones in Nakhchivan: Nakhchivan mountainous and Nakhchivan altitudes botanical-geagraphical zone. This plant is ornamental.

Glaucium Mill

Stems grow branchy, steady, fragile, one flowering, petioles usually short, sometimes long, straight, in few times

wrapped to inside, buds sharped, petals are yellow or orange, in pedestal part. Petioles usually short, sometimes long, straight, in few times wrapped to inside, buds sharped, petals are yellow or orange, pedestal part red or completely red, surface black spotty, stamen yellow and numerous, filament is thin, anther lined, ovary 2 hollowed, created 2 fruit leaves. Pistil is big, flat, 2 adjoining stigmatic, looking from side spear-shaped triangular, comparatively wide looking from upper. Capsule is crusty, longish, usually cylinder lined, length 25 cm, opening with 2 lid. Lids are stiff, sometimes opening hard and late. Seed is enough big, black, longish, kidney shaped, annual, biennial, perennial, herbs covered with cilium. Milk juice being only roots, before liquid, then thickening (Talibov, 2014; KMK, 2012; Prilipko, 1939) [9, 1, 11].

Fruit stalk is straight, plain or arched, length is 10-20 cm. Leaves are feather-like, divided. Length of bud is 1-2 cm, sometimes 3 cm. The diameter of petals 1-3 cm, different colored.....G. corniculatum (L.) J.Rudolph

The length of bud 205-4 sm. The diameter of petals is 3-5 cm. Red-orange, violet spot in base part. Annual plants. Stems are leafy. Little box with bristle, sometimes naked, petals are yellow, red in the inner side. There is black spot in the base part. Stigma is round, width is 2 mm..... G. grandiflorum Boiss. & A.Huet

The tube of pistil flexible. The length of petals 1-105 cm. Flowers are sedentary on branches..... ..... G. elegans Fisch. et Mey

Glaucium corniculatum (L.) J.Rudolph

Glaucium corniculatum (L.) J.Rudolph, 1781, Fl. Jen. Pl.: 13. The description of plant had been given according to accepted materials from Hungary, France, Czech Republic. Annual plant, rarely biennial. Plant covered with bluish or greyish curly, flat cilium, height 10-30 cm, straight stem, rough, furrowed. Sometimes simple, standing upright. Mostly branched, root leaves are less, feather-like divisible, thin, longish, lancet shaped, having irregular segmental teeth. Upper side is small, stubborn, triangular, with sharp teeth, stem with leaves, very big, sedentary feather-like, divisible, the leaves are thin near root. Bud sharp-longish, with bristle, length 2.5-3 cm. The length of petals 1-3 cm, oblonged-ovoid or round, wine red colored, base part with black –violet spots, few brick-red with black spot or edges are yellow, middle is red, base part with black spot, black-spot with yellow line, ovary with thick white-bristle. Fruit stalk is straight, wide, short, length 25 cm, width 3-4 mm, unripe fruit thick, thin, white bristle, ripe, naked, width stigma, width 7 mm, horizontal or upward tubes (Grossheim, 1936; Talibov, 2014; Ibrahimov, 2005; KMK, 2012; Prilipko, 1939) [1, 6, 8, 11]. Grows in arable stony lands.

General distribution zones: some parts of Europe, all Caucasus, Middle Asia, Turkey, Iran, Iraq.

Distribution zones in Azerbaijan: South, North and middle parts of big and small Caucasus, mountainous regions of Lankaran and Nakhchivan.

Plant grows in stony slopes, edge of wood and roads. Distribution zones in Nakhchivan Autonomous Republic. Come across Nakhchivan mountainous and Nakhchivan high altitudes botanical-geagraphical zones, specially Shurud, Arazin, Bananiyar, Arafsa villages of Julfa region, Tivi, Bilav, Paraga, Gilancay of Ordubad, Kolani, Garababa, Kuku of Shahbuz region.

Glaucium grandiflorum Boiss. & A.Huet

Glaucium grandiflorum Boiss. & A.Huet, 1856, in Boiss. Diagn. Pl. Or. Ser. 2, 5: 15. The plant described from Turkey (Arzurum). Biennual plant. Nearly looks like previous species but all parts more big. Covered with thick and long hair, stems are thick, length 30-50 cm, branched. The leaves near the roots, with short stalk, stem leaves are sedentary, feather-like furrowed, stem embracing. Leaves are widely, longish, with sharp teeth segments. Bud is longish, with bristle, length 2.5-4 cm. Petals are wide, round, diameter 3-5 cm, orange, middle part red and base part with black-violet spots. Fruit stalk is short, straight thick. Fruits are plain, length 10-20 cm, with thick white bristle (Grossheim, 1936; Talibov, 2014; Ibrahimov, 2005; KMK, 2012; Prilipko, 1939) [1, 6, 8, 9, 11]. Stigma is wide.

General distribution zones: East and south parts of Caucasus. Turkey, Iran, Iraq.

Distribution zones in Azerbaijan:South, North and middle parts of great and small Caucasus, mountainous regions of Lankaran and Nakhchivan. Grows in dry stony slopes. Come across Nakhchivan mountainous and Nakhchivan high altitudes botanical-geagraphical zones. Specially Shurud of Julfa, Tivi, Bilav, Paraga, Gilancay of Ordubad, surroundings of Kolani village of Shahbuz region.

Glaucium elegans Fisch et. C.A. Mey.

Glaucium elegans Fisch et. Mey. 1835, İndex Sem. Hort. Bot. Petropol. 1: 29.Discription of plant had been given from Northern Iran. Annual plant, dark- blue, stem thin, 8-30 cm, toward main part from half branch dichotomous the leaves are rosette formed, which near the root, edges and stalks are curled, with bristle, leather like or divided. Laminas longish or oblonged-ovoid triangle. Latest leaves are oblonged-ovoid, intact, stem leaves small, stem embraced, irregular divided or intact, pistil short, with blunt edge. The leaves in flank branchare small, obscurities, opposite and it is not near flower. Bud thin-longish, sharp, 1-2 cm length, naked or thorny, with short papilla, petals oblonged-ovoid, yellow, middle part is red (sometimes completely red), base part with longish black spot. Fruit stalks are short, straight stand. Fruits are thin or covered irregular from upper. Length 6-10 cm, sometimes 15 cm, width 2 mm, opening from base part to upper, rarely naked, mostly covered thorn, with blister. Pistil is small, semiglobe tubular, width 1.5 mm, seed black, length 1-2 mm, straigth, netted, stony slopes.

General distribution zones: East and south parts of Caucasus, Middle Asia, Turkey, Iran, Iraq.

Distribution zones in Azerbaijan: South, North and middle parts of great and small Caucasus, mountainous regions of Lankaran and Nakhchivan.Come across Nakhchivan mountainous and Nakhchivan altitudes botanical-geagraphical zones. Tivi, Bilav, Paraga, Gilancay of Ordubad, Kolani, Garababa, Kuku, Kulus, Nursu, Kecili villages of Shahbuz region (Grossheim, 1936; Talibov, 2014; Ibrahimov, 2005; Prilipko, 1939) [1, 6, 8, 11].

Conclusion

The new and general distribution zones of *Papaveraceae* Adans. family in the world, in Azerbaijan and also in Nakhchivan Autonomous Republic of species including in this family has been determined. The biological descriptions has been given for each species. There are some alcoloids in the content of bright-orange juice obtained from roots of Chelidonium: chelidonine, homochelidonine, protopine, sanguinarine. The content of juice from leaves is more complex. There is 50-66% oil in seeds. It awakes inflammatory reproductions in skin. Some doctors try to use this ointment for treatment cancer.

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