

Spreading of *Astracantha* and *Astragalus* Species on the Highland Zones of the Nakhchivan Autonomous Republic

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Abstract:

The article deals with the naturalness of Astracantha and Astragalus species on the highland zones of the Nakhchivan Autonomous Republic (NAR). While determining the species according to the height of the region we chose seven vertical zones that differ by their physical-geographical and ecological position. The height of these zones was defined exactly and naturally spreading of the Astracantha and Astragalus species have been widely studied. It is clear that on some zone borders mentioned above we can meet some Astracantha and Astragalus species. But some species we can meet only in one zone.

Key words: zone, genus, species, *Astracantha*, *Astragalus*, type, ecological object, law, zonality.

Introduction

NAR is an inseparable part of the Azerbaijan Republic. NAR is a mountainous area located in the North-West region of the Low Caucasus range. The total borderline of the NAR is 398 km. The frontier with Iran Islamic Republic is 163 km, and with Turkey - 11 km. The length of the territory from North to East is 75 km. The farthest point is Komurly mont. The farthest point in the South is Zereny railway station. The farthest point in the West is the village Urmiya at the bank of the river Araz. That village does not exist now. The fartheset

point in the East is the top of Zereny mont. It is the Southern end of the Zangezur range. The NAR territory is divided into Sherur, Sadarak, Babek, Shahbuz, Julfa, Ordubad, Kengerly administrative regions and the city of Nakhchivan. The Sadarak region was formed in 1994 and Kengerly was formed in 2004. The relief of the territory consists of plains, lowlands, mid-highlands and upper highland zones. The riverside plain along the Araz river is 600-1000 m above sea level. The Zangezur range is in the North-East of the NAR. Its highest point is Gapijik (3906m). The other highest point of the Zangezur range is Soyugdag (2000-3000 m). (1. p. 23-140).

The vertical zonality is met much more in the NAR territory. The spreading character of some plant species on the highland zones is different. The variety of climate ecotocenetic nature of plants and their acclimatizing to this place causes spreading of some species on the different highland zones. This process has a long geological history.

Some species and some plants do not spread on the same highland zones. It is because of the direct or indirect influence of some ecological factors on them. Besides all these mentioned above some weak and intensive broken relief, different climate, different soil layer in the NAR territory, vertical difference of flora according to the zones depends on the height difference of the zones, annual rainfall, the temperature and difference of the sun radiation. To say exactly, a complex influence of biotic and abiotic factors was assumed as a basis.

Material and Method

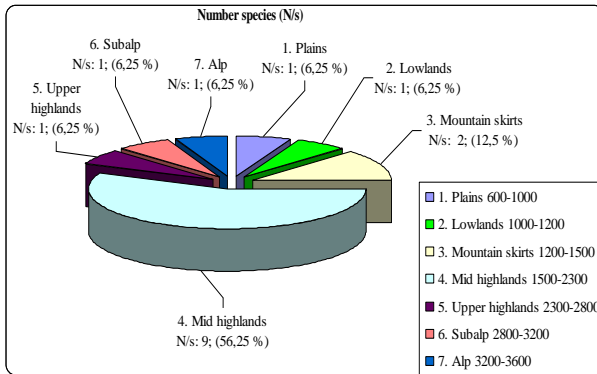
The spreading nature of the plants on the highland zones and the role of these types have been studied resting upon the investigations methods by A.A.Alyokhin, L.I.Prilipko, A. Sh. Ibrahimov (2, 7, 8).

Experimental part

In 1915 for the first time Y. S. Medvedyev investigated the spreading nature of plants, their floristic principles according to the position of zones and determined the floristic species (6, 18-97). O.S.Grebennikov, A.A.Grossheym, A.G.Dolukhanov and Y.S.Medvedev rest upon the complex climatic condition on spreading of the plants along the zones of the Caucasus. (3, 117-129; 4, 15-264; 5, 86-93; 6, 18-97). Plains, lowlands, mountain skirts, mid highlands, upper highlands have been described by A.A.Grossheym (4, 15-264). A.Sh. Ibrahimov described the plains (600-1000 m above sea level), lowlands (1100-1300 m), lower highlands (1400-1800 m), mid highlands (2000-2600 m), upper highlands (2200-2800 m), subalp (2900-3000 m), alp (3200-3600 m), subnival (3600-3800 m), nival (3850-3906 m) mountainous zones (2, 56-140).

Most of the NAR territory is a mountainous zone. The spreading of the floral species obeys the rights of the zones and changes beginning with the plains to the upper highlands. This change consists of the difference of environment. While determining the floral species according to the height of the zones there have been chosen seven vertical zones which differ by their physical-geological and ecological condition. We met some difficulties on determining the exact borders of the zones and floral species mentioned above. We met some *Astracantha* and *Astragalus* species on the same zones. While investigating their spreading zones we paid attention to the spreading nature of the plants on these zones. We met 85 species of *Astragalus* and *Astrachanta* in these regions. 16 species of *Astracantha* and 69 species of *Astragalus* have spread on the highland zones of the NAR.

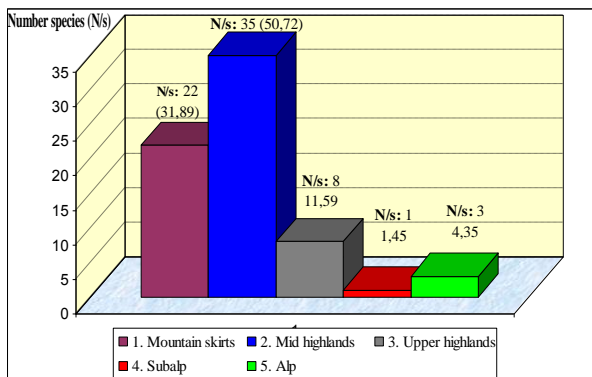
Species including the *Astracantha* genus, their spreading percentage on the highland zones have been shown exactly in the diagram below (Diagram 1).



The diagram shows the species including to the *Astracantha* Podlech genus and its spreading on the highland zones.

As it is shown in the diagram the following species have spread on the following zones: in the plain 1 species – *Astracantha pycnophyllus* (6,25%); in the lowlands 1 species–*A. vedica* (6,25%); in the mountain skirts 2 species-*A. andreji*, *A. barba-carpina* (12,5%); on the mid highlands 9 species - *A. alexeenkoana*, *A. gudrathi*, *A. jucunda*, *A. karabaghensis*, *A. karjagini*, *A. meyeri*, *A. microcephala*, *A. oleifolia*, *A. flavirubens* (56,25 %); on the upper highlands 1 species – *A. stenonychioides* (6,25 %); on the subalp zone 1 species - *A. insidiosa* (6, 25 %); on the alp zone 1 species- *A. aurea* (6,25%).

Species including the *Astragalus* genus, their spreading percentage on the highland zones have been shown exactly in the diagram below (Diagram 2).



The diagram shows the species including the *Astragalus* L. genus and its spreading on the highland zones.

22 species of *Astragalus* genus have spread on the lowland zones of the NAR. 13 species out of them have spread on the lowlands. They are *A. ammophilus*, *A. longicuspis*, *A. aduncus*, *A. hamosus*, *A. odoratus*, *A. schelkovinikovii*, *A. arguroides*, *A. asterias*, *A. montis-aquilae*, *A. conspicuus*, *A. candolleanus*, *A. nachitschevanicus*, *A. paradoxus* (59,09%). 3 species – *A. campyllorhynchus*, *A. corrugatus*, *A. psiloglottis* (13,63%) have spread on the highland zones. 6 species- *A. cancellatus*, *A. cicer*, *A. commixtus*, *A. ordubadensus*, *A. strictilobus*, *A. szovitsii* (27,27%) have spread on the lowland and midland zones.

35 *Astragalus* species have spread on the midland zones. 10 species out of them – *A. calycinus*, *A. glycyphyllos*, *A. glycyphylloides*, *A. kochianus*, *A. persicus*, *A. schasbuzensis*, *A. striatellus*, *A. takhtadzhjanii*, *A. tribileides*, *A. aegobromus*, have spread on the highland and midhighland zones (28,57%).

The rest of the species – *A. achundovii*, *A. angustiflorus*, *A. aznabjurticus*, *A. badamliensis*, *A. chalilovii*, *A. choicus*, *A. cornitus*, *A. compactus*, *A. erivanensis*, *A. fabaceus*, *A. grammocalyx*, *A. hajastanus*, *A. karakuschensis*, *A. lagurus*, *A. macrostachys*, *A. mesites*, *A. prilipkoanus*, *A. polyphyllus*, *A. regelii*, *A. robustus*, *A. sevangenses*, *A. viridis* (72,13 %) have spread on the midland zones.

12 species of *Astragalus* have spread on the upper highlands - alp zones. Three species out of them- *A. alpines*, *A. gezelderensis*, *A. incertus*, (25%) spread on the alp zones; one – *A. polygala* (8,33 %) spread on the subalp-alp zones; 5 species – *A. falcatus*, *A. finitimus*, *A. goktchaicus*, *A. pineterum*, *A. strictifolius* (41,66 %) on the spread on the midlands and upperhighlands. 3 species – *A. uraniolimneus*, *A. saganlugensis*, *A. euoplus* (25 %) spread on the upper highlands.

There is a special complex of ecological factors

concerning the plants of the upper highland zones. On the highland zones, as a result of purity and thinness of the air the degree of the Sun radiation is higher than in the plains. On one hand the amount of ultraviolet rays on the highlands is especially higher than in the plains. On the other hand low temperature on the upper highland and strong winds shorten the vegetation term of the plants. On the highlands the humidity regime is formed according to the general climate of the territory. So the ecological position on the highlands has significant importance in the life, structure and seasonal growing of the plants.

Conclusion

By the aim of investigation of the *Astracantha* and *Astragalus* species in the NAR territory, according to the expedition materials and geobotanical reports there have been determined 85 species in the territory. 16 species out of them concern the *Astracantha* genus and 69 species concern the *Astragalus* genus.

While determining the species according to the height there have been chosen seven vertical zones which differ according to the physical- geographical and ecological position. Spreading degree and percentage of the species concerning to these genera have been shown exactly.

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