

VEGETATION AND DISTRIBUTION OF MEDICINAL PLANTS IN THE HIGHLANDS OF THE NARYN REGION (INNER TIEN SHAN)

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In this work the general vegetation of the Inner Tien Shan is considered. The Tien Shan is a large system of mountain ranges stretching for 2450 km east-north-easterly direction. 198.5 thousand km² of the Tien Shan territory is located in Kyrgyzstan occupying the Central and Inner Tien Shan, partially-Western and Northern. In the highlands of the Tien Shan, due to special physical and geographical conditions, a complex history of origin and development, a peculiar, distinctive flora and vegetation was formed. Therefore, almost 95% of the territory of Kyrgyzstan is covered by mountains covered with natural vegetation, which is suitable for the use of medicinal plants of pasture and haymaking use. This favors the agricultural production of the republic. The area of the Inner Tien Shan is 80 thousand km². Of these, more than half are raised over 3000 m. urn.m. With the purpose of preserving unique natural complexes, protection of rare and endangered species of animals and plants of the Inner Tien Shan, by the Resolution of the Kyrgyz Republic Government dated 1 March 1994, the Karatal-Japyryk State Reserve was organized on the territory of the reserve about 400 plant species were noted, 50 species of medicinal plants.

Keywords: mountain structure, grass-motley, kobresia, accumulation

In the Central-Eastern part of Inner Tien Shan there is Karatal-Japyryk State Nature Reserve situated. It was established by resolution of the Kyrgyz Republic Government on the 1st of March 1994 with purpose of conservation of unique nature complexes, protection of rare and threatened species of flora and fauna of Central Tien-Shan, and maintaining regional environmental balance. The reserve currently occupies 21,264 hectares at an altitude of 2150-3980 m. above sea level being set with Son-Kul-Too and Acha-Tash ranges in the north and the range of Boor-Albas in the south. In general, the territory is a powerful mountain structure, considerably elevated (at least 2500 m, max – 4000 m above sea level) with a complex combination of ridges that occupy most of the reserve territory [1].

Objectives:

- processing of literature data on Inner Tien Shan vegetation description;
- scheduling of climatic conditions on the reserve's territory;
- tabling of medicinal plants' growing on the territory of the reserve expansion;
- studying the degree of distribution of medicinal plants in various high-landscape belts of the reserve.

Results of research and their discussion

The climate of the reserve is severe, harsh continental, with great fluctuations, both in seasons and during the day. Highland belt is cool in summer and cold (in places) and snowy in winter. July temperature here is +11, +16°C. Winter is long (November-March) with January average temperatures –17, –20°C. Nival belt (from 3500 m and above)

is characterized by a harsh climate. This is the belt of snowfields, rocks, glaciers, moisture accumulation. Even in the lower part of this belt the average July temperatures do not exceed –4, –7°C, average January ones fall to –22°C. The average amount of precipitation is from 400 to 500 mm per year.

The relatively high air temperature in the summer period, followed by increased insolation, and constantly blowing winds contribute to the rapid evaporation of water from the soil and its desiccation. That's why the development of plants in the highlands is strongly influenced by climatic factors, especially atmospheric precipitation [2].

In general, the Inner Tien Shan highland vegetation's features are: narrow floristic spectrum; domination of grassy-motley and kobresia communities, different medicinal plants and low prevalence of shrubby and total absence of woody plants; predominance of steppes over other types of vegetation; low-level monodominant communities; high edifying role of dominants [3].

Woody vegetation is represented mainly by forests from spruce trees (Tien Shan) – *picea schrenkiana* and archaean Turkestan – *juniperus turkestanica*. They are typical for the forest meadow-steppe belt. Common bush – the alberta briar (*rosa aiberti*) is common of the bushes. Common cereals: oatgrass furrowed-festuca *suicata*, pinnate feather-brachypodium *pinnatum*, timothy grass-*phleum pratense*, oat-helictotrichon. Common herbs – geranium rocky-geranium *saxatile*, the vysilistnik simple and smelly-thalictrum *simplex*, *foetidum* [4]. Names of medicinal plants are shown in the table.

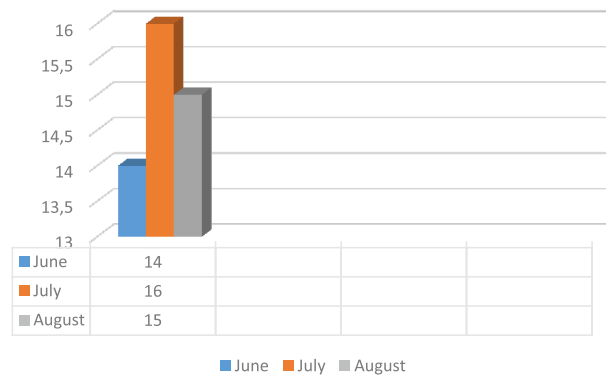


Fig. 1. High mountain belt (2200–3500 m) in summer

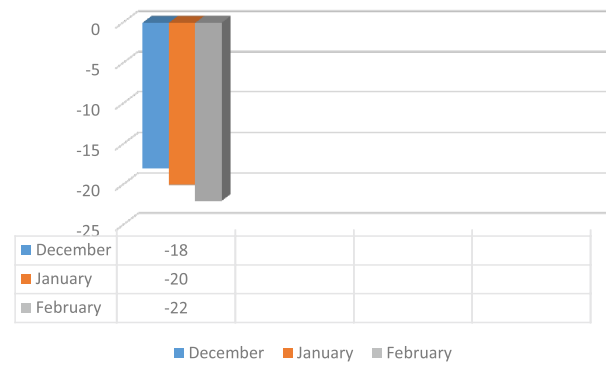


Fig. 2. High mountain belt (2200–3500 m) in winter

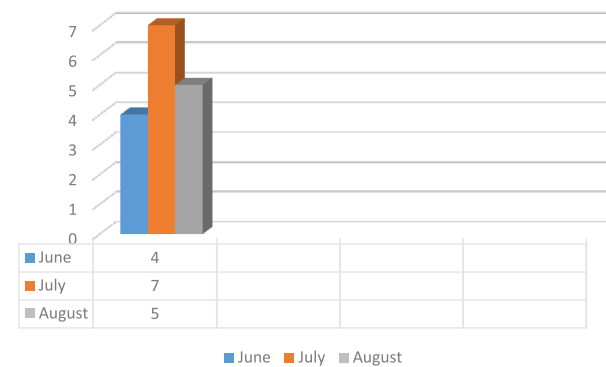


Fig. 3. Nival belt (3500 m and above) in winter

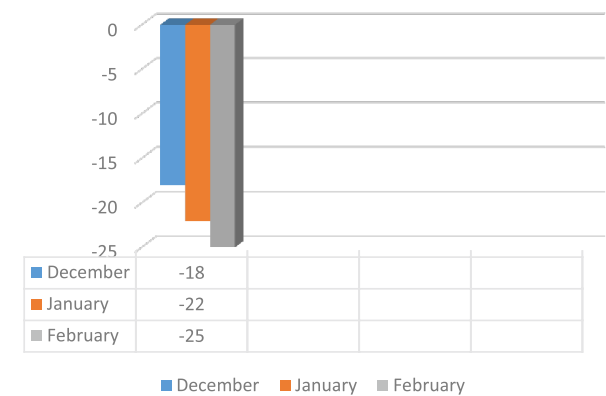


Fig. 4. Nival belt (3500 m and above) in summer

Names of medicinal plants

	Common medicinal plants in nature reserve	Reserve areas.		
		Karatal-Achatash	Song-Kul	Chatyr-Kul
1	Tien Shan Wormwood – <i>Artemisia tianschanica</i> Composite Family -Asteraceae	Mai-Küngöy, Karatal-Achatash, Kol-Tor, Korzhoy.	Teipshi, Song Kol southern part	
2	Green Wormwood – <i>Artemisia viridis</i> Composite Family -Asteraceae	Korzhoy, Achatash, Kol-Tor		
3	Turkestan Allheal - <i>Valeriana turkestanica</i> (V tianschanica. V officinalis auct). <i>Valeriana</i> Family – <i>Valeriana</i>	Zhele-Karagai, Zhazy-Karagai, Mai-Küngöy		
4	Common dandelion Composite Family – <i>Taraxacum officinale</i> – Asteraceae	Considered to be a popular herb	Batail-Aral, Teipshi, Kumduu-Suu	South-eastern part
5	Foalfoot. <i>Tusilag-Ofarfara</i> Composite Family – Asteraceae	Kol-Tor, Achatash, Karatal		
6	Yarrow - <i>A.millefolium</i> L Composite Family – Asteraceae	Sai-Achyk, Zhele-Karagai, Zhazy-Karagai, Mai-Küngöy		
7	Marshalov thyme – <i>Thymus. marschallianus</i> L. Mint Family – Lfmiaceae	Karatal-Achatash		
8	Meadow pine – <i>Equisetum arvense</i> Horsetail Family– Equisetaceae	Karatal-Achatash, Kol-Tor	Kumduu-Suu, Teipshi, Kaz-Uya.	South-eastern part
9	Marjoram – <i>Origanum vulgare</i> Mint Family – Lamiaceae	Zhazy-Karagai, Archaluu Tor, Zhondomo		
10	Hoary plantain – <i>Plantago media</i> Plantain Family– Plantaginaceae	Zhazy-Karagai, Archaluu Tor, Zhondomo		
11	Common tansy - <i>Tanacetum vulgare</i> . Composite Family -Asteraceae		Batail-Aral, Teipshi	South-eastern part
12	Common edelweiss – <i>Leontopodium ochroleucum</i> Composite Family – Asteraceae	Karatal, Kol-Tor, Achatash, Sai-Achyk nival areas		Kara-Suu, Karasai-Bulak
13	Bur beggar-ticks - <i>Bidens tripartite</i> Composite Family -Asteraceae	Kok-Bel, Achatash		
14	Horseheal - <i>Inula helenium</i> .L Composite Family – Asteraceae	Kok-Bel, Karatal Kol-Tor.		
15	Knot grass- <i>Polygonum aviculare</i> .Buckwheat Family- Polygonaceae	Korzhoy, Kok-Bel, Mai-Küngöy		
16	Grey wallflower- <i>Erysimum canescens</i> Cabbage Family – Brassicaceae	Zhele-Karagai, Mai-Küngöy		
17	Small-flowered Adonis - <i>Adonis</i> Buttercup Family. – Ranunculaseae	Kol-Tor		
18	Rotundifolious monkshood - <i>Aconitum rotundifolium</i> Buttercup Family – Ranunculaseae	Kok-Bel, Сай -Ачык, Kol-Tor, Zhele-Karagai, Mai-Küngöy		
19	Blindweed – <i>Capsella bursa-pastoris</i> Cabbage Family – Brassicaceae	Mai-Küngöy, Kok-Bel, Zhondomo		
20	Turkestan Motherwort – <i>Leonurus turkestanicus</i> .Mint Family- Lamiaceae	Kara-Jylga, Zhele-Karagai, Kok-Bel, Kol-Tor, Karatal		
21	Desert sage - <i>Salbia dererta</i> Mint Family – Labiatae(Lamiaceae)	Bel-Teipshi, Sai-Achyk, Kyzyl-Belec, Kara-Jylga		

Note: [5, 6].

Conclusion

The study of wild medicinal plants in various phytocenoses of high-mountainous areas has great theoretical and practical significance.

The main wild-growing species are valuable medicinal plants of the steppes, meadow-steppes, subalpine meadows of the Tien Shan. Therefore, the proper planning of further research works will yield good results in the study of plants and plant communities, the sustainable use and conservation of vegetation in the Inner Tien Shan.

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