



## NATURAL RESOURCES OF MEDICINAL PLANTS OF FERGANA VALLEY

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### ABSTRACT

*This article provides information on the bioecological properties, natural resources and protection of some medicinal plants common in the Fergana Valley.*

**KEYWORDS:** *habitats, flora, natural resources, natural resources, medicinal plants, species, genus, biomass.*

### INTRODUCTION

Today, the conservation and efficient use of plant and animal biodiversity is one of the most pressing issues.

One of the main tasks in the study of pharmaceuticals and vitamin-rich medicinal raw materials is to study their laws of bioecological properties, such as growth, development, biomass formation. Therefore, in our study, we focused on identifying the range of medicinal plant species and calculating their natural reserves. As a result of scientific research, the total volume of natural resources of the most common and important medicinal plants in our region, the amount of possible annual production was determined.

Prior to our study, plants in this group were poorly studied. However, only three species of the most important and significant alkaloid and glycoside plants distributed in our region (*Adonis chrysocyathus* Hook.fil. & Thomson, *Phisochlaina alaica* Korotkova, *Vinca erecta* Regel & Schmalh.) Were studied by Abubakirov and Yamatova (1961). First, 40-50 years have passed since the study of these species. Second, in recent years, under the negative influence of anthropogenic factors, the natural state of vegetation has undergone a number of changes. Therefore, the data of the study on medicinal plants named above

(Jalolov, 1968; Hakimov, 1980; Hamidov et al., 1995) are outdated. It cannot reflect the current state of affairs. An analysis of the literature has shown that data on the total area of the *A. chrysocyathus* plant have been provided, but, raw material resources have not been identified. *Aconitum seravshanicum* Steinb. The available areas of the plant and their reserves were not mentioned. Only, there are data on the distribution areas of *V. erceta* species belonging to the family *Apocynaceae* and their reserves. The groundwater and surface parts (biomass) of this plant, even in some areas (streams, river basins), are listed and published as their raw material (Hamidov et al., 1998).

### METHODOLOGY

Medicinal plants in the Fergana Valley have special methods for determining their distribution and reserves in nature. In conducting the study, Krilova and Shreter, 1971; Schreter et al., 1986 methods were used. These methods are characterized by simplicity and accuracy.

### RESULTS

As a result of our research, we provide information on *V. eresta* areas and natural resources distributed in the Fergana Valley (Tab.



1). It turns out that the area and natural resources of this plant are large enough. It was noted that the most common areas are the southern part of the Fergana Valley. It is widespread in the northern

foothills of the Alay mountain range in the villages of Shohimardon, Yordan, around Tamasha and Nodirmatsay. Its total area in Izbosar, Karadavan and Mashalangsay is more than 100 hectares.

**Table 1**

**Reserves of *V. eresta* type in the Fergana valley**

Arrays	Area, hectares	I category area, hectares	II category area, hectares	Surface reserve, tons	Subsoil reserve, tons	Annual preparation rate	
						surface, tons	underground, kg
Tamasha	61	28	33	6.1	3.1	1.3	310
Nodirmatsoy	60	26	24	6.7	3.4	1.3	340
Izbosar	39	10	29	9,7	3.1	1.9	310
Qoradovon	35	-	35	3.5	1.4	0.7	140
Mshalang	30	-	30	3.0	2.2	0.6	220
Total	215	64	151	29,0	13,2	5,8	1310

As a result of our research, we identified the total area and raw material resources of 46 species of medicinal plants that are widespread and considered important in the Fergana Valley (Tab. 2). The total area of these species is 10,304 hectares. The species that grow in the largest areas of them are: *Perovskija scrophulariifolia* Bunge (Tayjanov, 1994) with an area of 4450 hectares. This essential oil plant is found

in very large areas around the villages of Shohimardon, Jordan, Mashalangsay, Dugobasay, Tamasha, Izbosar, Nodirmatsay and other arrays. It forms thick coverings on dry, rocky gravel substrates and around streams, on all terraces of the above streams. *P. scrophulariifolia* is a tall plant that forms a large mass.

**Table 2**

**Stocks of medicinal plants common in the Fergana Valley.**

№	Types	Preparatory Part	Area (hectares)	Productivity kg / hectares	Raw materials (dry state), tons	
					total volume of raw materials	raw materials that can be prepared per year
1	<i>Rosa sp.sp</i>	fruit	350	250	87,50	29,16
2	<i>Berberis nummularia</i> Bunge	"	50	45	2,25	0,75
3	<i>Rhamnus catartica</i> L.	"	55	30	1,65	0,55
4	<i>Crataegus turkestanica</i> Pojark.	"	71	40	2,84	0,94
5	<i>Ephedra intermedia</i> Schrenk et C.A.Mey.	"	48	15	0,72	0,24
6	<i>Origanum tyttanthum</i> Gontsch.	the surface part of the ground	430	160	68,96	22,98
7	<i>Ziziphora pamiroalaica</i> Juz.	"	380	144	54,72	18,24
8	<i>Perovskija scrophulariifolia</i> Bunge	"	4550	465	2115,75	705,25
9	<i>Vinca erecta</i> Regel et Schmalh.	"	269	145	39,00	13,00
10	<i>Physochlaina alaca</i> E. Korot.	"	65	15	0,97	0,32



11	<i>Jnula macrophylla</i> Kar. Et Kir.	The	35	48	1,68	0,96
12	<i>Tussilaga farfara</i> L.	upper part of the root surface	18	130	2,34	0,78
13	<i>Plantago major</i> L.		45	83	3,73	1,24
14	<i>Artemisia absinthium</i> L.	"	31	1420	129,22	43,06
15	<i>A. dracunculis</i> L.	"	33	1513	49,92	16,64
16	<i>Melilotus officinalis</i> (L.) Pall.	"	33	2500	82,50	27,50
17	<i>Equisetum arvense</i> L.	"	26	35	0,91	0,30
18	<i>Scutellaria galericulata</i> L.	"	27	25	0,67	0,22
19	<i>Achillea millefolium</i> L.	"	28	38	1,06	0,35
20	<i>A. pilipendulina</i> Lam.	"	46	2100	36,60	32,20
21	<i>Gentiana oliveri</i> Griseb.	"	27	25	0,67	0,22
22	<i>Thalictrum isopyroides</i> C.A Mey	"	43	91	3,91	1,30
23	<i>Salvia selarea</i> L.	"	52	723	37,59	12,53
24	<i>Urtica dioica</i> L.	"	25	729	3,75	1,25
25	<i>Thymus seravschanica</i> Klok.	"	419	63	26,39	8,79
26	<i>Hypericum perforatum</i> L.	"	28	55	1,54	0,51
27	<i>Melissa officinalis</i> L.	"	32	48	1,53	0,51
28	<i>Polygonum hydropiper</i> L.	the surface part	40	125	5,0	1,66
29	<i>Capsella bursa-pastoris</i> (L.) Medik.	"	31	96	2,97	0,99
30	<i>Cerasus erythrocarpa</i> Nevski	fruit	158	79	12,48	4,16
31	<i>Hippophae rhamnoides</i> L.	"	15	19	0,28	0,09
32	<i>Adonis chrysocyathus</i> Hook. Fil. et Thoms	the surface part	550	215	118,25	39,45
33	<i>Rheum turkestanicum</i> Janisch.	"	49	310	15,15	5,06
34	<i>Delphinium biternatum</i> Huth	"	82	651	55,33	18,44
35	<i>Corydalis ledebouriana</i> Kar. et Kir.	"	219	81	17,73	5,91
36	<i>Polygala hybrid</i> DC.	"	520	82	42,64	14,21
37	<i>Impatiens parviflora</i> DC.	"	520	82	42,64	14,21
38	<i>Agrimonia asiatica</i> Juz.	"	351	318	111,61	37,20
39	<i>Glaucium fimbriigerum</i> (Traut.) Boiss.	"	79	312	24,64	8,21
40	<i>Trifolium repens</i> L.	the surface part	76	156	11,85	3,95
41	<i>T. pratense</i> L.	"	89	389	34,62	11,54
42	<i>Bunium persicum</i> (Boiss.) B. Fetsch.	"	18	8	0,144	0,05
43	<i>Poterium polygamum</i> Waldst. et Kit.	"	71	209	14,83	4,94
44	<i>Cichorium intybus</i> L.	"	89	167	14,86	4,95
45	<i>Tanacetum pseudachillea</i> C.Winkl.	"	93	312	29,01	9,67
46	<i>Taraxacum officinale</i> Wigg.	"	102	81	8,26	2,75
<b>Total</b>			<b>10304</b>	<b>14139</b>	<b>3334</b>	<b>1110</b>

## DISCUSSION

In terms of area, after *P. scrophulariifolia*, *A. chrysocyathus* is in second place, with an area of 550 hectares. It ranks among the most important and valuable among our medicinal flora. The areas where *A. chrysocyathus* is distributed are 2,500 m and above sea level, i.e., a pasture zone. *Impatiens parviflora* DC in terms of area abundance. ranks

third, and its phytocenoses are 520 hectares. In the middle mountainous region of our region, ie at an altitude of 1800-2500 m above sea level, large areas are covered with junipers, broadleaf trees and shrubs. Their phytocenoses are found in mesophytic forests. *I. parviflora*, *Thymus seravschanica* Klokov, *Agrimonia astatra* L., *Polygala hybrid* DC, which are considered mesophytes in the cover of this and other



plants. etc., they are spread over an area of 300-400 ha. In relatively large areas there are several species of the Rosa genus, with an area of 350 ha. If we consider together the species *Origanum vulgare* L., *Zizifora* L. and *V. eresta* among the above species, the total area of the 10 most common species is 8137 hectares. They make up 78.97% of the total area.

Of the medicinal species, the area of *C. ledobouriana* is 219 hectares. The area of species such as *C. erythrocarpe* and *T. affinalis* is also much larger, i.e. 158 and 102 ha. In addition, we found that the area of more than 10 species, such as *R. catartica*, *C. turkestanica*, *P. polyganum*, ranged from 55 to 93. In addition, the area of many species is small, ranging from only 15 to 18 to 40 to 50 hectares. Such rare species include *B. vulgaris*, *E. foeminea*, *Inula grandis* Schrenk, *Erytroxylum coca var.ipadu*, *M. officinalis*, *Thalictrum*, *U. dioica*, *A. absinthium*, *A. millefolium*, *H. perforatum*, *Solvia* L. The areas of *H. rhamnoides*, *B. persicum* and *H. perforatum*, which are widely used in medicine and folk medicine, are very limited, their total area is small.

It should be noted that some species are so rare that their total area cannot be calculated. One such species is *Leonurus turkestanica* V.I.Krecz. & Kuprian., *Helichysum maracandicum* Popov ex Kirp., *Lagochilus paulsenii* Brig., *Rhodiola heterodontha* (Hook.fil. & Thomson) Boriss., *A. seravshanicum*, *Reseda luteola* L. and others.

In addition to determining the area of our medicinal species, it is important to determine their productivity, that is, the resources of raw materials. In analyzing them, the following became clear. As noted earlier, *P. scrophulariifolia* was found to have the highest index in area and biomass.

It turns out that 465 kg of biomass can be obtained from one hectare of distributed areas of *P. scrophulariifolia*. The total volume of raw materials is 2115 tons, of which 70 tons can be produced per year. Among our medicinal plants, white wormwood is also characterized by high yield, ie it is 1420 kg per hectare and an annual volume of 43 tons. Below are the following 10 species that are characterized by maximum productivity (Tab. 3).

**Table 3**  
**Natural reserves of common medicinal plants in the Fergana Valley.**

No	Names of plants	Area (hectares)	General reserves (tons)
1	<i>Perovskija scrophulariifolëia</i>	465	2115
2	<i>Artemisia absinthium</i>	1420	129
3	<i>Adonis chrysocyathus</i>	215	118
4	<i>Agrimonia asiatica</i>	318	111
5	<i>Achilla filipendulina</i>	2100	96
6	<i>Rosa sp.sp.</i>	250	87
7	<i>Melilotus officinalis</i>	2500	82
8	<i>Origanum tyttanthum</i>	160	68
9	<i>Ziziphora pamiroalaica</i>	144	54
10	<i>Delphinium biternatum</i>	651	55
Total		8223 - 79,80%	2915 - 26,26%

As can be seen, these species are the most productive, occupying an area of 8223 hectares, which is 79.80% of the total area occupied by medicinal species. Their biological reserves are 2915 tons, which is 26.26% of the total.

Of course, the data on the habitats of plants and their natural resources, which are considered natural resources, cannot be said to be the same. Still, they represent real possibilities. These materials can serve as a practical application for state-owned enterprises and individuals who produce these medicinal plants. Based on this, long-term training plans can be developed.

## CONCLUSIONS

In short, the Fergana Valley has great resources of medicinal plants. They can be used on an industrial scale (*P.scrophulariifolia*, *A. vernalis*, *A. absinthium*, *O. tyttanthum*, *Ziziphora*, *Rosa sp. Sp.*) And for limited local needs. It should be noted that the reserves of *H. perforatum*, *H. maracandicum*, *H. rhamnoides*, *A. seravshanicum*, *A. chrysocyathus*, *C. ussurensis* from some important and significant species have been greatly reduced. With this in mind, it is necessary to cultivate these species. So, all medicinal plants are an important component of our biosphere. should be protected as an important resource for the national economy and medicine.



They must serve many years now, both for our people and for future generations.

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