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Wild Medicinal Plants of Central Uzbekistan

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Abstract: The article presents the results of expeditionary and ethnobotanical studies on the study of the species diversity of medicinal plants of Central Uzbekistan and their use in pharmacy and medicine. It is shown that over 200 species of medicinal and related plants grow on the territory of Central Uzbekistan. The largest families in terms of the number of genera are Asteraceae, Appiaceae, Lamiaceae, Brassicaceae, Fabaceae, Rosaceae and others, the total number of which is 51%. The number of species is dominated by the genera Artemisia L., Ferula L., Nepeta L., Polygonum L. and others. Most of the medicinal plants of Central Uzbekistan are used only in folk medicine, and only 15-20% are included in the list of pharmacopoeial plants that are used in pharmacy and scientific medicine.

Keywords: species diversity, medicinal plants, Central Uzbekistan.

Introduction

The vegetation of Central Uzbekistan is rich and varied. Thanks to the subtropical climate, a huge variety of both wild and cultivated plants grow here. Many species valuable for pharmacy can be found in environments of this diversity. So, many alkaloid-containing and essential oil plants grow on the territory. The latter mainly belong to the family Labiaceae, and some of them can be attributed to the Compositae family. Vitamin-bearing plants belonging mainly to the Rosacea family are also very diverse here. [1,2]. All this diversity is a huge potential for the pharmaceutical industry. Unfortunately, most types of medicinal plants in this area have not been studied and are used only in traditional medicine. The purpose of this study was to identify the diversity of medicinal plants of Central Uzbekistan for their further study and application in pharmacy.

Materials and methods

Location of the study. Expeditionary research (2021-2022) was carried out in the mountainous regions of Samarkand, Kashkadarya and Jizzakh regions, which are part of Central Uzbekistan.

Methods of ethnobotanical [3,4] analysis were carried out to identify the significance and use of plants in folk medicine. The herbarium material was studied and the Flora of Uzbekistan was analyzed.

Research results and discussion

Studies have shown that in the study area, there are mainly several families, in terms of the number of genera and species containing medicinal plants, they are superior to the rest. These are Asteraceae-composites, Appiaceae-umbelliferous, Lamiaceae-labial, Brassicaceae-cruciferous, Fabaceae-legumes, Rosaceae-rosaceae and others that have an obvious dominance over the rest. The percentage of dominant families is approximately 51%.

Half of the medicinal plants of Central Uzbekistan belong to only 6-7 families. In terms of the number of species, the genera Artemisia L., Ferula L., Nepeta L., Polygonum L. are superior. Almost

all of these genera have a huge species diversity. Thus, the genus wormwood contains 49 species, 22 of which grow in Central Uzbekistan. Of this number, about 12 species are wild medicinal plants that are used in folk medicine in Central Uzbekistan, and only 5 species are listed as pharmacopoeial plants.

Meanwhile, almost all types of wormwood are rich in bioactive substances and are highly valued in folk medicine. The mountaineer genus also contains a rich variety of medicinal plants. About 6-7 species are considered medicinal and 3 of them are included in the list of pharmacopoeial plants that are used in scientific medicine [6]. The species diversity of medicinal plants here reaches over 200. Despite this, most of them are perceived at the level of folk medicine. Studies have shown that more than 70% of medicinal plants of Central Uzbekistan have not been studied and have their use only in folk medicine.

Table 1. Some medicinal plants of Central Uzbekistan used in folk medicine

Genus	Species
Adonis L	*A. turkestanicus* Adolf
Ocimum L	*O. basilicum* L.
Helichrysum Mill.	*H. maracandicum* M. Pop. Ex Kirp.
Veronica L.	V. persica Poir.
Peganum L.	*P. harmala* L.
Inula L.	*I. Macrophylla* Kar. Et Kir.
Angelica L.	*A. Ternate* Regel et Schmalh
Origanum L.	*O. tuttanthum* Gontsch
Lagochilus Bunge	L. seravschanicus Knorr.
Ziziphora L.	*Z. pamiroalaica* Juz.
	Z. tenuior M.
Hyssopus L.	H. Seravschanicus Pazij
Verbascum L.	*V. songaricum Schrenk*
Lalemantia Fisch. Et Mey.	L. baldshuanica Gontsch.
Amygdalus L.	*A. Bucharica* Korsh.
Menthe L.	*M. asiatica* Boriss.
Asperugo L.	*A.procumbens* L.
Prangos Lindi.	*P.pabularia* Lindl
Tanacetum L.	*T.pseudoachillea* C. Winkl.
Artemisia L.	*A.tournefortiana* Reichenb.
	A.scoparia Waldst. Et Kit.
Leonurus L.	*L.turkestanicus* V.Krecz. et Kuprian.
Thymus L.	*Th.seravshanicus* Klok.
Ferula L	*F. tadshikorum* M. Pimen.
	F. moschata H. Reinsch
Salvia L.	*S.sclarea* L.
Marrubium L.	*M.anisodon* C. Koch

Plants such as Samarkand immortelle, camphor basil, Tournefort wormwood, Tajik ferula, Muscat ferula, Turkestan adonis and others are still used mainly in folk medicine at the local level. While they have great potential and can be used in pharmacy for the manufacture of drugs. Thus, carnation four-scaled, a wild plant growing on rocky slopes, is widely used in folk medicine for cardiovascular disease, especially from hypertension, as well as for diseases of the nervous system [7]. Wormwood Tournefort, found in black forests, almonds, barley, juniper; pistachios and other places, is used for diseases of the digestive tract and metabolic syndrome [8]. Oregano has a calming effect and is widely used for diseases of the nervous system.

Currently, only 15-20% of the plants of this territory are included in the list of pharmacopoeial plants from which it is allowed to manufacture medicine. Tab. 2.

Table 2. Some pharmacopoeial medicinal plants of Central Uzbekistan

№	Plant name	№	Plant name
1	*Althaea officianalis* L.	18	*Capsella bursa pastoris* Medik.
2	*Hyoscuamus niger* L.	19	*Plantago major* L.
3	*Crataegus altaica* Lange	20	*Artemisia absinthium* L.
4	*Polygonum aviculare* L.	21	*A.vulgaris* L.
5	*P.persicaria* L	22	*Matricaria recutita* L.
6	*P.hydropiper* L.	23	*Carum carvi* L.
7	*Inula helenium* L.	24	*Cucurbita pepo* L.
8	*Datura stramonium* L.	25	*Achilea millefolium* L.
9	*Rhamnus cathartica* L.	26	*Anethum graveolens* L.
10	*Hypericum perforatum* L.	27	*Foaniculum vulgare* Mill.
11	*Calendula officinalis* L.	28	*Equisetum arvensis* L.
12	*Urtica dioica* L.	29	*Bidens tripartite* L.
13	*Zea mays* L.	30	*Rosa beggeriana* Schrenk.
14	*Rubia tinctorum* L.	31	*R.canina* L.
15	*Tussilago farfara* L.	32	*R.fedtschenkoana* Regel
16	*Taraxacum officinale* Wegg.	33	*Ephedra equisetina* Bunge
17	*Ferula moschata* H. Reinsch	34	*Ferula tadshikorum* M. Pimen

It should be pointed out that in the last decades new steps have been taken towards the study of medicinal plants of Central Uzbekistan with the aim of their standardization and introduction into production. Many scientists have studied the composition of essential oils of some medicinal plants and revealed their antimicrobial and other pharmacological properties [9].

A sore point is still the determination of the stock of raw materials and the resource potential of medicinal plants both in this and other territories of the country. This side of the study is very poorly understood. Meanwhile, it is one of the important aspects for pharmacy, since only plants with sufficient raw materials have the potential for pharmacy. Some research in this direction was made by scientists who studied the resources and biodiversity of wild medicinal plants in some areas (Urgut, Yakkabag, Bakhmal) of Central Uzbekistan. Their works provide information on the formation of the raw material base of introduced plants for the development of domestic pharmaceutical production.

However, these studies are not yet quite sufficient for the creation of a domestic pharmacopoeia and the full use of all the rich species diversity of medicinal plants of Central Uzbekistan in the pharmaceutical industry.

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