

Ethnomedicinal Uses of Iridaceae Taxa in Turkish Traditional Medicine

Mustafa Eray Bozyel^{1*}, Elif Merdamert-Bozyel²

¹Department of Biology, Faculty of Arts and Science, Çanakkale Onsekiz Mart University, Çanakkale, Turkey

²COVID-19 Diagnostic Center, Kartal Dr. Lütfi Kırdar Education and Research Hospital, Health Institutes of Turkey (TÜSEB), İstanbul, Turkey

*Corresponding author: m.eraybozyel@gmail.com

Abstract: The Iridaceae is one of the geophyte families in the world. It is generally distributed in the Southern Hemisphere. The family includes some of the most popular ornamental genera such as *Freesia*, *Gladiolus*, *Iris*, *Sparaxis*, *Sisyrinchium* and *Tigridia*. The stigmas of *Crocus sativus* are called saffron. It is widely used as a coloring agent and to flavor foodstuffs. Orris root is obtained from *Iris florentina* and used in the production of perfumes and cosmetics. As a result of the study, the authors found that six *Crocus*, three *Gladiolus*, and seven *Iris* taxa are used as herbal remedies in Turkish Traditional Medicine. It has been determined that taxa of the family are mostly used by local people for cold, diuretic, antiurolithiatic, and menstrual irregularity.

Keywords: Iridaceae; *Crocus*; *Gladiolus*; *Iris*; Ethnomedicinal uses; Turkish Traditional Medicine

1. INTRODUCTION

Since the world existed, mankind has benefited from plants in many different ways, primarily for food and therapeutic purposes. The information obtained by trial and error or as a result of coincidence was conveyed from generation to generation verbally or in writing. This information, which has been multiplied up to the present day, has created a botanical culture [1, 2].

Ethnobotany, a branch of ethnobiology, was first used by the American botanist John W. Harshberger in 1895 during the study of indigenous peoples on plant use. His work titled "The Purposes of Ethnobotany" published in 1896 is generally accepted as the beginning of ethnobotanical studies. Also, Harshberger named ethnobotany as "plant use of indigenous people" [3].

The human-plant relationship that has been going on for a long time has gained a scientific quality with the emergence of a new branch of science called ethnobotany in the 20th century and the studies have been developed based on scientific foundations. While knowing the plant, determining its use, documenting it, comparing it with historical documents and revealing the chemical content of the plant are the principles of ethnobotany. This has enabled the ethnobotany to work with many branches of science such as botany, pharmacy, anthropology, archeology, agriculture, genetics, ecology, plant chemistry [4].

Ethnobotanical researches are not only limited to listing the local names and usage form of plants used in the treatment of diseases, but also reveals topics such as how societies in different geographies perceive plants, how natural resources can be used without consuming, and how the results will be used for the benefit of the society [5].

Turkey has various geographical, phytogeographical, geological and climatic characteristics; therefore, it is one of the countries with the world's richest vegetation. Flora of Turkey has about 12,000 plant taxa [6]. There are approximately 12,000 plant taxa spread across the European continent [7]. While there are about 2,750 endemic taxa in all European countries, this number is around 4,000 in Turkey [3, 6, 8].

The fact that Anatolia has hosted many cultures throughout history has led to the formation of a rich ethnobotanical cultural heritage on the use of plants besides agricultural biodiversity. Many local plants in Anatolia have been used for many purposes such as food, human and animal treatment, natural dye, toys, shelter, clothing, entertainment, aesthetics, and belief for centuries. However, reasons such as modernization, rapid migration from rural areas to cities, easier access to health services, and loss of the economic value of village varieties cause the tradition of using useful plants in our country to disappear very rapidly. For this cultural heritage, which is very valuable in terms of ethnobotany, the studies to be carried out in this field need to be increased to reach the next generations [5].

In recent years, the importance given to the plants used for ethnobotanical purposes and the studies on ethnobotany has increased in Turkey [9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38].

1.1 The Iridaceae Family

The Iridaceae family contains 77 genera and 1750 species, generally distributed in the Southern Hemisphere. Africa is the diversity center of the family, and species are found extensively in the temperate and Mediterranean regions of the south of the continent. Secondary diversity is most common in tropical and subtropical America [39]. The family includes some of the most popular ornamental genera such as *Freesia*,

Gladiolus, *Iris*, *Sparaxis*, *Sisyrinchium* and *Tigridia*. The stigmas of *Crocus sativus* are called saffron. It is widely used as a coloring agent and to flavor foodstuffs. Orris root is obtained from *Iris florentina* and used in the production of perfumes and cosmetics [40]. Distinctive features of the family are isobilateral, equitant leaves, styloid crystals, flowers with three stamens, and inferior ovaries [41]. Iridaceae distributed in Turkey with a total of 6 genera, 91 species, and 159 taxa. These genera are *Crocus*, *Gladiolus*, *Gynandrisis*, *Hermodactylus*, *Iris*, and *Romulea* [42].

In this study, the authors have examined recent ethnobotanical studies to compile the ethnomedical uses of Iridaceae taxa in Turkish Traditional Medicine.

2. RESULTS

As a result of the study, the authors found that six *Crocus*, three *Gladiolus*, and seven *Iris* taxa are used as herbal remedies in Turkish Traditional Medicine. Two of them are endemic: *Crocus ancyrensis* (Herb.) Maw and *Iris sari* Schott ex Baker (Table 1).

Table 1. Iridaceae taxa are used as herbal medicine in Turkish Traditional Medicine

Plant species*	Local name*	Parts	Usage form	Intended use	References
** <i>Crocus ancyrensis</i> (Herb.) Maw	Ankara çiğdemi	Flowers	Infusion	Diuretic	[43]
			Infusion	Abdominal pain	[43]
<i>Crocus biflorus</i> subsp. <i>tauri</i> (Maw) B.Mathew	Berfan	Roots	Infusion	Cancer	[44]
			Infusion	Antiuro lithiatic	[44]
			Infusion	Strengthening	[44]
		Flowers	-	Sedative	[45]
-	Menstrual irregularity		[45]		
<i>Crocus graveolens</i> Boiss. & Reut.	Yelçiğdemi	Aerial parts	Sap	Gynecological cysts	[10]
			Decoction	Premenstrual syndrome	[10]
<i>Crocus kotschyanus</i> subsp. <i>kotschyanus</i> K.Koch	Gezgin çiğdem	Aerial parts	Decoction	To make a barren woman get pregnant	[10]
<i>Crocus sativus</i> L.	Safran	Stigma	Infusion, Paste	Menstrual irregularity	[46]
		Flowers	-	Sedative	[45]
			-	Menstrual irregularity	[45]
<i>Crocus vitellinus</i> Wahlenb.	-	Aerial parts	Decoction	To make a barren woman get pregnant	[10]
<i>Gladiolus atroviolaceus</i> Boiss.	Kıraçsüseni	Flowers	Infusion	Cold	[47]
			Infusion	Flu	[47]
		Aerial parts	Raw eaten	Immunostimulant	[48]
<i>Gladiolus illyricus</i> W.D.J.Koch	Osmançiçeği	Flowers	Infusion	Diabetes	[49]
<i>Gladiolus italicus</i> Mill.	Kılıçotu	Flowers	Infusion	Cold	[49]
<i>Iris</i> sp.	Süsen	Rhizomes	Infusion	Antitussive	[50]
		Roots	Graded root is roasted with flour	Inflammatory wounds	[51]
			Graded root is roasted with flour	Abscess	[51]
<i>Iris caucasica</i> subsp. <i>turcica</i> B.Mathew	Türknavruzu	Aerial parts	Infusion	Cold	[52]
		Whole plant	Infusion	Cold	[53]
<i>Iris elegantissima</i> Sosn.	Alaca kurtkulağı	Rhizomes	-	Diuretic	[45]
			-	Antiuro lithiatic	[45]
<i>Iris paradoxa</i> Steven	Hoşkurtkulağı	Rhizomes	-	Diuretic	[45]
			-	Antiuro lithiatic	[45]
<i>Iris reticulata</i> M.Bieb.	Karakörpeze	Aerial parts	Infusion	Asthma	[48]
			Infusion	Shortness of breath	[48]
** <i>Iris sari</i> Schott ex Baker	Anakurtkulağı	Aerial parts	Infusion	Antipyretic	[47]
		Flowers	Infusion	Cold	[52]
		Whole plant	Infusion	Cold	[53]
<i>Iris x germanica</i> L.	Göksüsen	Rhizomes	-	Diuretic	[45]
			-	Antiuro lithiatic	[45]
		Leaves	Wrapped in a cloth	Astringent	[49]
		Flowers	Decoction	Painkiller	[54]

* [6]; ** Endemic taxon; “-”: No information

3. CONCLUSION

This review includes six *Crocus*, three *Gladiolus*, and seven *Iris* taxa. It has been determined that taxa of the family

are mostly used by local people for cold, diuretic, antiuro lithiatic, and menstrual irregularity. The *Iris* genus has the most medicinal uses. Herbal medicine preparation

techniques that are mostly used by local people are infusion and decoction. The most used plant parts are flowers and aerial parts. Besides, local people use the other parts such as whole plants, rhizomes, roots, and stigmas.

In both developed and developing countries, medicinal plants are used for therapeutic purposes. In many countries, traditional herbal medicines are used to control and treat various diseases, along with chemical drugs. Also, some researchers have clinically confirmed some of these herbal remedies to treat many other diseases. This review can help other researchers to become more familiar with plants and explore their use in other diseases.

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