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REVISION OF THE COLLECTION OF THE GENUS *Dipsacus* L. IN THE HERBARIUM OF THE INSTITUTE OF BOTANY OF THE REPUBLIC OF AZERBAIJAN

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РЕВИЗИЯ КОЛЛЕКЦИИ РОДА *Dipsacus* L. ГЕРБАРНОГО ФОНДА ИНСТИТУТА БОТАНИКИ АЗЕРБАЙДЖАНСКОЙ РЕСПУБЛИКИ

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Abstract. This article presents the results of a revision of the collection of the genus *Dipsacus* L., dating from 1900 to 2005, stored in the Herbarium of the Institute of Botany (BAK). The Herbarium of the Institute of Botany contains 43 specimens of the genus *Dipsacus* L., representing three species. The collection was analyzed by year of collection, botanical and geographical regions, and collectors. Based on the analysis of the genus collection, it was found that *Dipsacus laciniatus* L. (23 specimens) and *Dipsacus strigosus* Willd. ex Roem. & Schult. (15 specimens) are represented by the largest number of specimens, while *Dipsacus pilosus* L. (5 specimens) is represented by the minimum number of specimens. The analysis of the herbarium collection established that the species of the genus are found in almost all botanical and geographical regions of Azerbaijan. The analysis of the distribution of herbarium specimens by botanical-geographical district revealed that the collection is most fully represented by specimens from the following botanical-geographical regions: the Greater Caucasus (Guba Mountain range), the eastern Greater Caucasus, and the Nakhchivan Mountains, while the least represented specimens are from the northern, central, and southern Lesser Caucasus, and the western Greater Caucasus.

Аннотация. Представлены результаты ревизии коллекции рода *Dipsacus* L., датируемой 1900–2005 годами и хранящейся в Гербарном фонде Института ботаники (ВАК). Установлено, что в настоящее время в Гербарном фонде Института ботаники хранится 43 образца рода *Dipsacus* L., представляющих 3 вида. Коллекция проанализирована по годам сбора, ботанико-географическим районам и коллекторам. По результатам анализа коллекции рода было установлено, что наибольшим числом образцов представлены виды *Dipsacus laciniatus* L. (23 образца) и *Dipsacus strigosus* Willd. ex Roem. & Schult. (15 образцов), а минимальным числом образцов (5 образцов) – *Dipsacus pilosus* L. В ходе анализа гербарной коллекции установлено, что виды рода встречаются практически во всех ботанико-географических районах Азербайджана. При анализе распределения гербарных образцов по ботанико-географическим округам было установлено, что наиболее полно представлена коллекция сборами из следующих ботанико-географических районов: Большой Кавказ (Губинский горный массив), Восточный Большой Кавказ и Нахчыванский горный, а меньше всего образцов – Северный Малый Кавказ, Центральный Малый Кавказ, Южный Малый Кавказ, Западный Большой Кавказ.

Keywords: *Dipsacus*, herbarium specimen, collection, revision.

Ключевые слова: *Dipsacus*, гербарный образец, коллекция, ревизия.

The family Dipsacaceae Juss. is represented by 15 genera and 150 species, distributed worldwide [1].

One of the significant genera of this family, *Dipsacus* L., is considered native to Europe, Asia, and North Africa [2].

The name of the genus (*Dipsacus*) is derived from the Greek word for thirst (dipsa) and refers to the cup-like formation created where sessile leaves merge at the stem [3].

The genus *Dipsacus* L. includes 19 species distributed globally. Nine are found in Eurasia, including *Dipsacus fullonum*, *D. laciniatus*, *D. comosus*, *D. ferox*, *D. bulgaricus*, and *D. gmelini*; eight are distributed in Asia, and two in Africa [4].

According to A. Askerov, this genus includes 15 species in the Mediterranean, 4–5 in North Africa, Europe, South and East Asia, and the Caucasus, and 3 in Azerbaijan. Species common in Azerbaijan include *D. pilosus* L., *D. laciniatus*, and *D. strigosus* [5].

D. fullonum and *D. laciniatus* were first introduced from Europe to North America around 1700 [6].

According to various sources, *Dipsacus* species are distributed from southern Spain to southeastern Russia. In western and central Ukraine, they are rare, with main populations located near the Carpathian Mountains and in southeastern Crimea. *Dipsacus* species are widespread in northern Turkey, from Ankara to the Black Sea, but are rare or absent elsewhere in the country. Generally, the largest populations are found along rivers and in areas with relatively high air humidity [7].

Currently, the genus *Dipsacus* L. is classified within the family Caprifoliaceae Juss. (<http://www.worldfloraonline.org>).

This family comprises 9 genera and 250 species. In Azerbaijan, 5 genera with about 30 species are found, occurring from the lower mountain belt to the subalpine belt, in forests, shrub thickets, disturbed areas, along roads and rivers, and among weeds, either singly or in groups [8].

The aim of this study was to taxonomically analyze a collection of the genus *Dipsacus* L. stored in the Herbarium Foundation of the Institute of Botany (BAK), collected from various botanical and geographical regions of Azerbaijan.

Results and discussion

As a result of the analysis of specimens stored in the Herbarium of the Institute of Botany, it was revealed that three species of the genus *Dipsacus* L. are found in the flora of Azerbaijan. 43 specimens belonging to the genus *Dipsacus* L. stored in the BAK were analysed (Table 1).

Table 1

NUMBER OF SPECIMENS OF THE GENUS *Dipsacus* L. STORED
IN THE HERBARIUM FOUNDATION OF THE INSTITUTE OF BOTANY

Species	Number of specimens
<i>Dipsacus laciniatus</i> L.	23
<i>Dipsacus strigosus</i> Willd. ex Roem. & Schult.	15
<i>Dipsacus pilosus</i> L.	5

As a result of the analysis of the available herbarium specimens, it was possible to study the distribution areas of representatives of the genus *Dipsacus* L. During the analysis of the herbarium collection, it was determined that the species of the genus are found in almost all regions of

Azerbaijan: the Caspian coastal plain, the Lesser Caucasus (northern), the Greater Caucasus (Guba Mountain range), the Nakhchivan Mountains, the Greater Caucasus (eastern), the Lesser Caucasus (central), the Lesser Caucasus (southern), the Lankaran plain, Absheron, the Kura plain, and the Greater Caucasus (western). The taxonomic composition of the genus *Dipsacus* L., obtained from the herbarium specimens, is presented below (Figure 1).

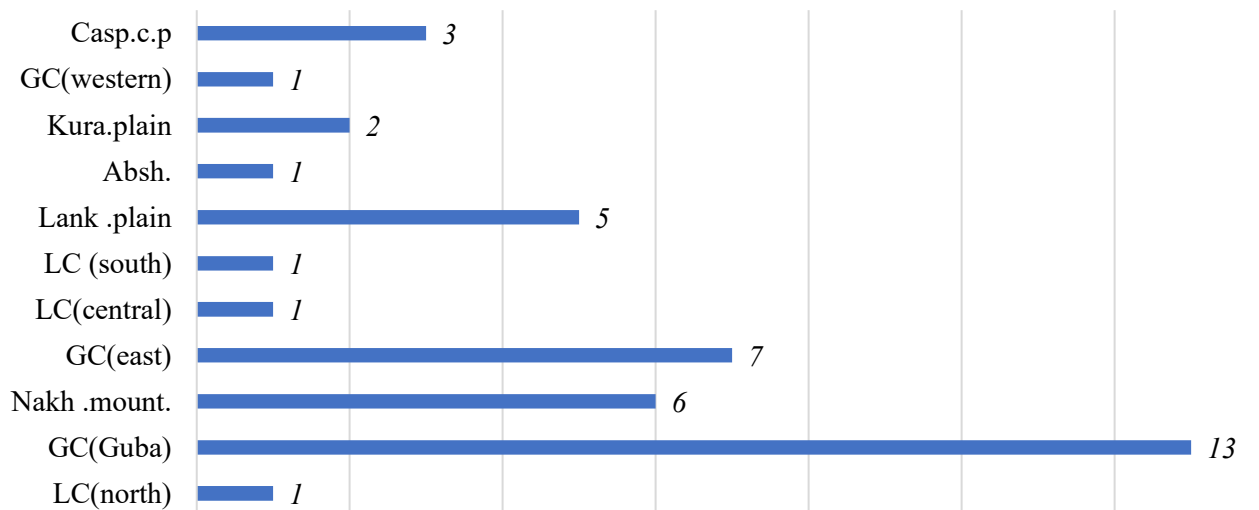


Figure 1. Distribution of herbarium specimens (number) of *Dipsacus* L. species stored in the BAK, by botanical-geographical regions. Note: Casp.c.p - Caspian coastal plain; LC (north) - Lesser Caucasus (northern); GC (Guba) - Greater Caucasus (Guba mountain range); Nakh.mount - Nakhchivan Mountains; GC (east) - Greater Caucasus (eastern); LC (central) - Lesser Caucasus (central); LC (south) - Lesser Caucasus (southern); Lank.plain - Lankaran plain; Absh. - Absheron; Kura plain - Kura plain; GC (western) - Greater Caucasus (western)



Figure 1. The specimens of *D. laciniatus*. A. Collected by Prilipko, 1930, Lankaran region, between the villages of Aleksevka and Zirik; B. Collected by Heidman, 1939, Nakhchivan, Bichenak



Figure 2. The specimens of *D. pilosus* L.
Collected by A.Grossheim, 1938, Qakh, Mukhakh



Figure 3. The specimens of *D. strigosus*.
Collected by Prilipko, 1928, Lankaran region, Apo
et Vyshiny-Kash

Table 2

MAJOR COLLECTORS OF HERBARIUM SPECIMENS OF THE GENUS *Dipsacus* L.

Collectors	Years of collection	Collectors	Years of collection
Gurvich C.	1936-1939	Tshilikin	1936
Karjagin I.	1926-1980	Mehdiyeva N.	2004-2005
Shevlyakov M.	1937	Alekseenko F.	1900
Grosheim A.	1928-1938	Ibadov O.	1972
Petrov V.	1938	Aliyev Ch.	1932
Prilipko L.	1928-1944	Kuliyev A.	1935
Kadyshev S.	1939	Tshilikin A.	1932
Efendiyeva Sh.	1939	Holakovski A.	1930
Yakovleva E.	1944	Sarovlu S.	1949
Kasumov M.	1930-1933	Sachukey	1928
Heidman B., Beidman C.	1932-1935	Boghdanov A.	1939
Vicert	1931	Kolokolnikov L.	1930

As a result of analyzing specimens stored in the BAK, collection sites for the genus *Dipsacus* L. were determined. It was found that the distribution areas of *Dipsacus* L. specimens collected between 1900 and 2005 coincide with the botanical-geographical regions indicated in the book “Flora of Azerbaijan” [9].

Additionally, collectors gathered species of the genus *Dipsacus* L. from the territory of the Botanical Garden located in Absheron. The analysis of the herbarium collection established that these species are found in almost all botanical and geographical regions of Azerbaijan. The distribution analysis by botanical-geographical district revealed that the collection is most fully represented by samples from the Greater Caucasus (Guba Mountain range), the eastern Greater Caucasus, and the

Nakhchivan Mountains, while the least represented regions are the northern, central, and southern Lesser Caucasus, and the western Greater Caucasus. The greatest contribution to the formation of the *Dipsacus* L. collection stored in the BAK of the Institute of Botany was made by 29 collectors (Table 2, Figure 2-4).

The earliest herbarium specimens of *Dipsacus* L. species date back to 1926, with the largest number of specimens collected between 1928 and 1939.

Conclusions

Thus, 43 specimens belonging to three species of the genus *Dipsacus* L., stored in the Herbarium Foundation of the Institute of Botany, were documented. The largest portion of the *Dipsacus* L. collection consisted of specimens of *D. laciniatus*. These specimens constitute more than 50% of the collection (23 specimens). The other two species, *D. strigosus* and *D. pilosus*, constitute 34% (15 specimens) and 11% (5 specimens) of the collection, respectively. The bulk of the collection was gathered between 1928 and 1939 (29 specimens). Analysis of the specimens stored in the herbarium of the Institute of Botany determined that only two species of the genus *Dipsacus* L. are present in the Lankaran region: *D. laciniatus* and *D. strigosus*. To obtain reliable information on the distribution and abundance of *Dipsacus* L. species in the modern flora of Azerbaijan, it is necessary to intensify the collection of herbarium specimens of these species.

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