

ANALYSIS OF STRIGOSELLA BOISS. SPECIMENS STORED IN THE COLLECTION OF THE NATIONAL HERBARIUM OF UZBEKISTAN (TASH)

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Abstract.

This article presents the results of an inventory analysis of the herbarium specimens belonging to the genus *Strigosella* Boiss. preserved in the collection of the National Herbarium of Uzbekistan (TASH). During the study, it was determined that a total of 1109 herbarium specimens of the genus *Strigosella* collected by botanists over various years are stored in the TASH collection. Analysis of the specimens by geographical origin showed that they were collected from Kazakhstan (141 specimens), Kyrgyzstan (29), Tajikistan (61), Turkmenistan (158), and Afghanistan (1), while 668 specimens originate from the territory of Uzbekistan.

Keywords

National Herbarium of Uzbekistan (TASH), herbarium, *Strigosella*, flora, inventory.

Introduction

At present, the plant specimens preserved in the National Herbarium of Uzbekistan (TASH) play an essential role in studying the flora of Central Asia and serve as an important source for modern botanical research [9].

Since 2016, systematic inventory work has been carried out on the herbarium specimens preserved in TASH, with the aim of creating an electronic catalog, developing GIS-based maps reflecting species distribution, analyzing their distribution by botanical-geographical regions, and assessing the activity of the main collectors and previous expeditions. This work forms a foundation for future large-scale scientific research.

In recent years, analyses at the family, genus, and species levels have been conducted for several taxa in the TASH collection, including *Parrya* R.Br. (Madaminov, 2021) [24], *Lonicera* L. (Olimjonova, 2022) [27], *Elymus* L. (Alieva, 2023) [18], *Dorema* Don (Mirzaolimova, 2023) [26], *Ziziphora* L. (Mirzaeva, 2024) [25], and *Rosa* L. (Ismanova, 2024) [22]. For these genera, comprehensive electronic databases, GIS maps, and molecular analyses have been completed.

Materials and Methods

The research object consists of herbarium specimens of the genus *Strigosella* preserved in the National Herbarium of Uzbekistan (TASH), collected between 1900 and 2007. Scientific names of taxa were verified using online resources POWO [16], GBIF [15], and Plantarium [17], while identification of specimens relied on Flora of Uzbekistan [12] and Key to the Plants of Middle Asia [9].

Results and Discussion

The genus *Strigosella* Boiss., belonging to the family Brassicaceae, represents one of the significant taxonomic groups of the Central Asian floristic region [13]. Data on the morphological differentiation and geographic distribution of *Strigosella* species remain insufficiently studied [6]. The herbarium collections preserved in TASH serve as a unique scientific resource for studying the taxonomic diversity of this genus [5, 6].

Currently, over 1109 herbarium specimens representing 18 species of *Strigosella* are stored in the TASH collection (Table 1). Of these, 60.2% were collected in Uzbekistan, 12.7% in Kazakhstan, 2.6% in Kyrgyzstan, 5.5% in Tajikistan, and 14.2% in Turkmenistan. The earliest specimen of *Strigosella* preserved in TASH belongs to *Strigosella africana* (L.) Botsch., collected by N.B. Androsov on 20 March 1900 in the Bukhara region. This specimen holds historical significance as the first documented record of the genus in Central Asia and represents an important milestone in the study of the regional flora.

Table 1.

Distribution areas and the number of herbarium specimens of *Strigosella* Boiss. species preserved in the collection of the National Herbarium of Uzbekistan (TASH).

No	Species name	Uzbeki	Kazakh	Turkme n	Tajikist	Kyrgyzs	Afghanis	Number herbarium mens(total
1	<i>Strigosella africana</i> (L.) Botsch.	122	27	18	10	10	0	187
2	<i>Strigosella peschica</i> (Bunge) Botsch.	47	15	19	4	1	0	86
3	<i>Strigosella mamata</i> (Bunge) Botsch.	2	0	4	0	0	0	6
4	<i>Strigosella biflora</i>	41	0	63	2	0	0	106

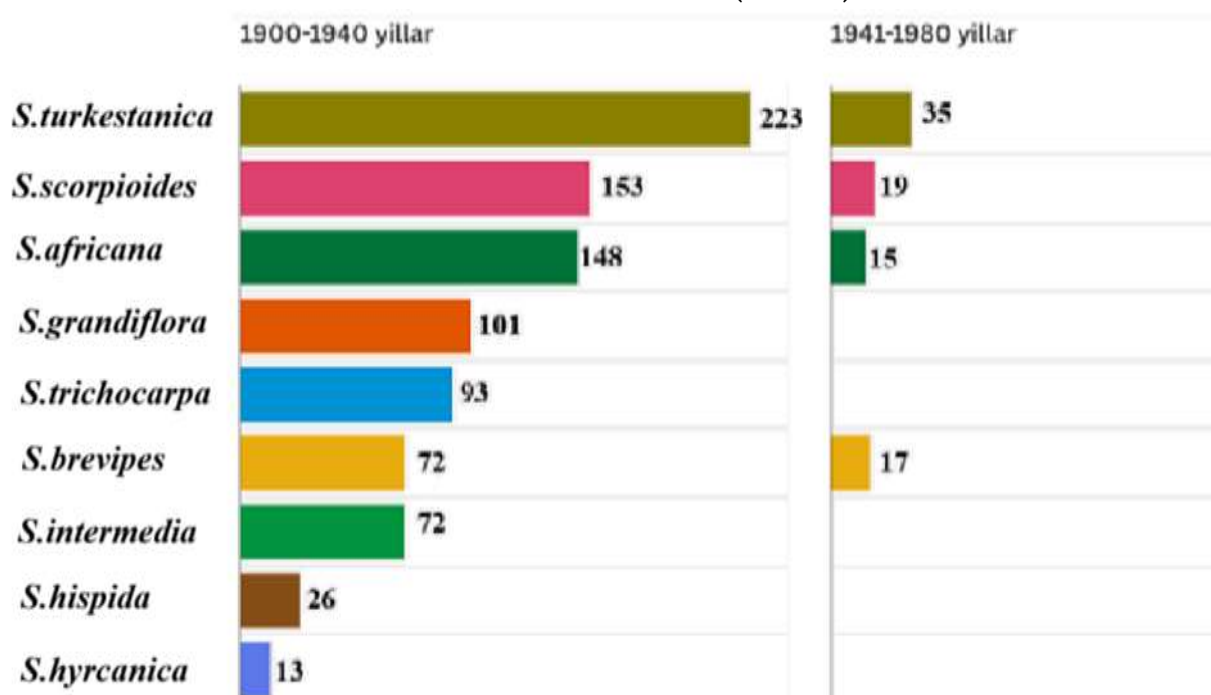
	ge) Botsch.							
5	<i>Strigosella</i> <i>da</i> (Litv.) <i>h.</i>	16	11	3	0	0	0	30
6	<i>Strigosella</i> <i>mica</i> (Freyn et) Botsch.	6	0	8	0	0	0	14
7	<i>Strigosella</i> <i>media</i> Mey) Botsch.	40	19	13	2	0	0	74
8	<i>Strigosella</i> <i>cotricha</i> <i>ch. & Vved.)</i> <i>ch.</i>	3	0	0	0	0	0	3
9	<i>Strigosella</i> <i>ioides</i> ge) Botsch.	127	17	11	3	2	0	160
10	<i>Strigosella</i> <i>inioides</i> <i>ch. & Vved.)</i> <i>ch.</i>	2	0	0	0	0	0	2
11	<i>Strigosella</i> <i>petala</i> (Fisch. C.A.Mey.) <i>ch.</i>	3	0	1	1	0	0	5
12	<i>Strigosella</i> <i>stanica</i> (Litv.) <i>h.</i>	179	43	14	10	6	1	253
13	<i>Strigosella</i> <i>enskyi</i> <i>arenko &</i> <i>ch.</i>	13	0	0	0	0	0	13
14	<i>Strigosella</i> <i>ocarpa</i> <i>s.et Buhse)</i> <i>h.</i>	65	9	4	16	10	0	104
15.	<i>Strigosella</i> <i>olia</i> Bond.et <i>h.</i>	1	0	0	2	0	0	3

Analysis of the temporal distribution of *Strigosella* specimens in the TASH collection revealed that the most active period of collection occurred between 1900

and 1940. During this time, 970 specimens were gathered, including *S. turkestanica* (223 specimens), *S. scorpioides* (153), *S. africana* (148), *S. grandiflora* (101), *S. trichocarpa* (93), *S. brevipes* (72), and *S. intermedia* (72). This period accounts for 87.5% of the total collection, reflecting the intensity of field research carried out during those decades.

In the subsequent period (1941–1980), herbarium collecting activity slowed considerably, with only 126 specimens added, mostly of *S. africana* (15), *S. brevipes* (17), *S. scorpioides* (19), and *S. turkestanica* (35), representing 11.4% of the total.

Figure 1. Number of *Strigosella* species specimens preserved in the collection of the National Herbarium of Uzbekistan (TASH).



Between 1981 and 2007, collection activity declined further, with only 13 specimens added (1.1%), indicating a marked reduction in field expeditions in recent decades.

Analysis of the 1109 specimens showed that *Strigosella turkestanica* (Litv.) Botsch. is the most represented species (263 specimens). In contrast, species such as *S. stenopetala*, *S. malacotricha*, *S. latifolia*, *S. spryginoides*, and *S. tenuissima* are represented by only 3–5 specimens. These rare taxa mainly occur in transboundary landscapes shared by Uzbekistan, Tajikistan, and Turkmenistan [24, 29]. Their restricted distribution is likely associated with specific ecological requirements and adaptation to particular climatic conditions [30, 23].

The analysis demonstrates that the consistent accumulation of *Strigosella* herbarium material and the steady enrichment of the TASH collection occurred primarily between 1900 and 1980. In the past 20–25 years, several floristic studies

have been conducted in Uzbekistan, including works by N.Yu. Beshko (2000) [4], K.Sh. Tojibaev (2010) [11], A.J. Ibragimov (2010) [7], G.A. Serekeyeva (2012) [10], A.S. Esanqulov (2012) [14], F.I. Karimov (2016) [8], A.R. Batoshov (2016) [3], O.T. Turg'inov (2017) [29], H.Q. Esanov (2017, 2023) [20, 21], H.F. Shomurodov (2018) [31], D.E. Azimov (2018) [1], U.H. Qodirov (2020) [28], and R.X. Esemuratova (2022) [19]. Specimens of *Strigosella* have also been collected during these studies, and their data are currently being incorporated into electronic databases.

Conclusion

The analysis of *Strigosella* Boiss. specimens preserved in the National Herbarium of Uzbekistan (TASH) provides valuable insights into the diversity, distribution limits, and historical collection dynamics of this genus within the flora of Central Asia. According to the results, a total of 1109 herbarium specimens are stored in the TASH collection, of which 668 (60.2%) were collected from Uzbekistan, while the remainder originate from Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Afghanistan. Strengthening research on *Strigosella* species and clarifying their current distribution remain important tasks for future botanical studies.

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