SciELO Preprints

Publication status: This preprint has been published elsewhere.
DOI of the published preprint: https://doi.org/10.1590/1677-941X-ABB-2026-0012

Helminthotheca echioides (L.) Holub (Asteraceae, Cichorieae), a new record for an alien species in the Brazilian Pampa

Bruno de Souza Souza, Mateus Henrique Schenkel

https://doi.org/10.1590/SciELOPreprints.18751

Submitted on: 2026-11-04
Posted on: 2026-11-04 (version 1)
(YYYY-MM-DD)

SciELO Preprints - This document is a preprint and its current status is available at: https://doi.org/10.1590/SciELOPreprints.18751

Acta Botanica Brasilica

www.acta.botanica.org.br

Helminthotheca echioides (L.) Holub (Asteraceae, Cichorieae), a new record for an alien species in the Brazilian Pampa

Bruno de Souza

Universidade Federal do Rio Grande do Sul, Departamento de Botânica, Porto Alegre, RS, Brazil.

ORCID: https://orcid.org/0009-0001-8823-958X

Mateus Henrique Schenkel

Universidade Federal do Rio Grande do Sul, Programa de Pós-Graduação em Botânica, Porto Alegre, RS, Brazil.

ORCID: https://orcid.org/0009-0000-4559-2722

Abstract

Helminthotheca echioides is a widespread alien species native to the Mediterranean region and present in the Uruguayan Pampa, with its occurrence in Brazil remaining uncertain. Here, we report, for the first time, its occurrence in the Brazilian Pampa based on a population found in this biome. We also provide an identification key to the Brazilian Cichorieae genera, as well as the geographic distribution of *H. echioides*, photographs, and a brief description of the species.

Keywords: Compositae, exotic flora, first record, Picris, Southern Brazil

Helminthotheca Zinn is native to the Mediterranean region and comprises seven species (POWO, 2026). It belongs to Asteraceae, the most species-rich plant family in the Pampa biome (Andrade *et al.*, 2023), and is classified within the Cichorieae Lam. & DC., which is easily recognized by the presence of latex and by solitary, homogamous capitula with

SciELO Preprints - This document is a preprint and its current status is available at: https://doi.org/10.1590/SciELOPreprints.18751

ligulate florets (Funk *et al.*, 2009). In addition, the tribe includes numerous ruderal and spontaneous plant species in the Brazilian and Uruguayan floras, such as those belonging to the genera *Crepis* L., *Hypochaeris* L., *Sonchus* L., *Taraxacum* F.H. Wigg., and *Youngia* Cass. (Roque *et al.*, 2017). A total of 30 species of Cichorieae are reported for Brazil (Flora e Funga do Brasil, 2026).

Among these large genera, *Helminthotheca* is uniquely distinguished by the presence of approximately five ovate outer phyllaries arranged in a single series, equal in length to the inner phyllaries, which are lanceolate, with a small additional series of small phyllaries between them (Holzapfel, 1994). The taxonomic revision of *Picris* s.l. from Australasia (Holzapfel, 1994) clarified the formal separation between *Picris* s.s. and *Helminthotheca*, thus reinforcing the segregation originally proposed by Lack (1973).

Helminthotheca echioides (L.) Holub is the only species of the genus with a distribution extending beyond the Mediterranean region, having been introduced to South America in Argentina, Chile, and Uruguay (Urtubey, 2014; Mailhos *et al*. 2026). It is considered a ruderal plant, commonly occurring in vacant lots and along roadsides.

During a field expedition, we found a population of plants from the Cichorieae (Asteraceae) along a roadside near the municipality of Aceguá, Rio Grande do Sul state, Brazil, which borders the department of Cerro Largo, Uruguay. The population was photographed, briefly described, georeferenced, and a single specimen was collected and herborized. It is currently deposited in the Herbário ICN (Thiers, 2026) of the Federal University of Rio Grande do Sul under the accession number 215752. We later identified the specimen as *H. echioides*, an alien species known to occur in Uruguay (Mailhos *et al.* 2026).

Thus, in this study, we report the discovery of the occurrence of *Helminthotheca echioides*, an alien species to Brazil. We provide an updated identification key to the species of the Cichorieae occurring in Brazil, a geographic distribution map of the species, and images of its habit, morphology, and the environment in which the species was found.

Helminthotheca echioides **(L.) Holub**, Folia Geobot. Phytotax. 8(2): 176. 1973. *Picris echioides* L., Sp. Pl. 2: 792. 1753. *Helminthia echioides* (L.) Gaertn., Fruct. Sem. Pl. 2(3): 368. 1791. TYPE: Habitat in Angliea, Galliea sylvis caeduis, aggeribus (lectotype, LINN-HL948-1, designated by H. W. Lack, Taxon 24: 113. 1975. (Figure 1A-D)

SciELO Preprints - This document is a preprint and its current status is available at: https://doi.org/10.1590/SciELOPreprints.18751

Specimen examined: BRASIL: Rio Grande do Sul: Aceguá, BR-153, localidade de Rio Negro, 31°34'34"S, 54°08'22"W, 167 m, 21 Nov. 2025, fl., fr., Schenkel, MH & de Souza, B. 275 (ICN).
Additional specimen examined: BRASIL: *Picris echioides* L. (RFA590).

The species is distinguished from other genera of Cichorieae mainly by the presence of the foliaceous outer phyllaries, much larger than the inner phyllaries (Fig. 1A, C).

Schneider (2013) reported *Picris* L., under which *P. echioides* L. was treated, for Brazil. He did not cite any specimens and considered the species adventitious along the border between Rio Grande do Sul and Uruguay (Fig. 2). Currently, *P. echioides* is treated as *Helminthotheca echioides*, and *Helminthotheca* (nor *Picris*) is not recognized as occurring in Brazil (Flora e Funga do Brasil, 2026). The only specimen found during the herbarium survey (cited here as additional material) is a specimen probably dating from the 20th century, lacking any associated data on the catalog label of the RFA Herbarium. However, analysis of the specimen photograph indicates that it was initially identified as *Helminthia echioides* (L.) Gaertn., and later redetermined as *Picris echioides* L.
This species is exotic to Brazil, probably originating from northern Uruguay through dispersal by wind, animals, or vehicles. *Helminthotheca echioides* also behaves as an invasive plant in North America and Australia, where it competes with other plants in both small gardens and large-scale plantations (Kilian et al., 2009).
Studies on species of Cichorieae are still very scarce in Brazil, especially in the state of Rio Grande do Sul. This is probably due to the exotic and ruderal nature of many species, which are commonly neglected and recognized only as weeds or garden weeds.

Identification key to the genera of Cichorieae (Asteraceae) occurring in Brazil (adapted from Schneider 2013)

1. Pappus absent or scale-like …..……..……. 2
1’. Pappus present ……..…… 3
2. Florets with blue corolla, pappus scale-like ……..……..… *Cichorium*
2’. Florets with yellow corolla, pappus absent ……..…….. *Lapsana*

SciELO Preprints - This document is a preprint and its current status is available at: https://doi.org/10.1590/SciELOPreprints.18751

3. Receptacle paleate …….. *Hypochaeris*

3’. Receptacle epaleate ……..… 4

4. Phyllaries dimorphic…….…….. *Helminthotheca*

4’. Phyllaries isomorphic ……..…… 5

5. Florets with white or lilac corolla, involucre uniseriate ….....……... *Picrosia*

5’. Florets with yellow corolla, involucre biseriate or multiseriate ……....….. 6

6. Cypselae beaked ……... 7

6’. Cypselae unbeaked ……....…….. 8

7. Outer series of phyllaries reflexed ……....…… *Taraxacum*

7’. Outer series of phyllaries erect ……..…….. *Lactuca*

8. Leaves with spinulose margins ……..…….. *Sonchus*

8’. Leaves without spinulose margins ……....……... 9

9. Involucre densely woolly, pappus yellow …..…….. *Hieracium*

9’. Involucre glabrous or with few trichomes, pappus white ……..… 10

10. Leaves along the stems present, sessile, cypselae compressed ……..…… *Crepis*

10’. Leaves along the stems absent, petiolate, cypselae not compressed …..…..… *Youngia*

Acknowledgments

We thank Professors Silvia Teresinha Sfoggia Miotto and Ilsi Iob Boldrini, as well as Dr. Graziela Har Minervini Silva, for allowing our participation in their course's fieldwork expedition, during which the new record was discovered. We also thank Ary Mailhos, who confirmed the identification of the species on the iNaturalist platform and shared information on its occurrence in Argentina and Uruguay.

Authors’ Contributions

BS: Conceptualization, writing, elaboration of the taxonomic key, specimen description, field collection, and photography; MHS: Conceptualization, writing, preparation of the distribution map, photo plate layout, and field collection. All authors read and approved the final version of the manuscript.

Conflict of Interest

The authors have no conflict of interest.

SciELO Preprints - This document is a preprint and its current status is available at: https://doi.org/10.1590/SciELOPreprints.18751

Data Availability Statement

All data supporting the findings of this study are included in the article.

AI Usage Statement

The artificial intelligence tool ChatGPT was used to assist in standardization of references.

References

Andrade BO, Dröse W, Aguiar CA, Aires ET, Alvares DJ, Barbieri RL, et al. 2023. 12,500+ and counting: biodiversity of the Brazilian Pampa. *Frontiers of Biogeography* 15(2): e59288. https://doi.org/10.21425/F5FBG59288.

Flora e Funga do Brasil. 2026. Cichorieae in Flora e Funga do Brasil. Jardim Botânico do Rio de Janeiro. Available at:<https://floradobrasil.jbrj.gov.br/FB101559>. (Accessed 02 jan 2026).

Funk VA, Susanna A, Stuessy TF, Robinson H. 2009. Systematics, Evolution and Biogeography of Compositae. Vienna, International Association for Plant Taxonomy. 1001 p.

Holzapfel, S. 1994. A revision of the genus *Picris* s.l. (Asteraceae, Lactuceae) in Australasia. *Willdenowia* 24: 97–218.

Killian N, Gemeinholzer B, Lack W. 2009. Cichorieae. In: Funk VA, Susanna A, Stuessy TF, Robinson H. (eds.) Systematics, Evolution and Biogeography of Compositae. Vienna, International Association for Plant Taxonomy. Pp. 343–385.

Lack, HW. 1973. Die Gattung *Picris* L., sensu lato, im ostmediterran-westasiatischen Raum. - Diss. Univ. Wien 116.

Mailhos A, Bonifacino JM, Valtierra MV, Marchesi E. 2026. *Helminthotheca echioides* (L.) Holub. In: Marchesi E, Mailhos A, Bonifacino JM. (eds.) Flora Uruguaya: Flora Vascular del Uruguay. Zenodo, V1.0. [dataset]. https://doi.org/10.5281/zenodo.18281082

POWO. 2026. Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Available at: http://www.plantsoftheworldonline.org. Accessed on 19 Dec 2025.

SciELO Preprints - This document is a preprint and its current status is available at: https://doi.org/10.1590/SciELOPreprints.18751

Roque N, Teles AM, Nakajima JN. (eds.) 2017. A família Asteraceae no Brasil: classificação e diversidade. Salvador, SciELO-EDUFBA.

Schneider AA. 2013. Tribo Cichorieae. In: Roque N, Teles AM, Nakajima JN. (eds.) A família Asteraceae no Brasil: classificação e diversidade. Salvador, SciELO-EDUFBA.

Thiers B. 2026. Index Herbariorum: A global directory of public herbaria and associated staff. New York Botanical Garden's Virtual Herbarium. Available at: http://sweetgum.nybg.org/science/ih/. Accessed on 24 Aug 2026.

Urtubey E. 2014. Tribu Cichorieae. In: Zuloaga FO, Belgrano MJ, Anton AM. (eds.) Flora Argentina. Vol. 7(2). IBODA CONICET. Pp. 6–83.

Table and Figure Captions

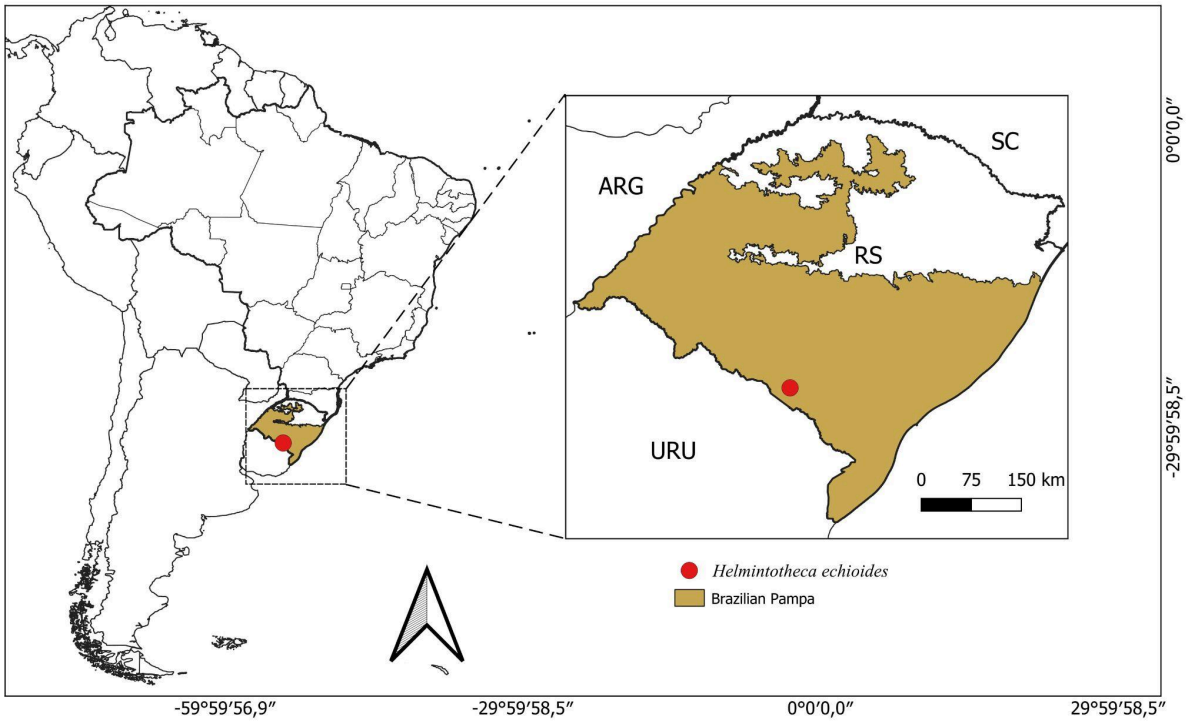
Figures:

Fig. 1. *Helminthotheca echioides* (L.) Holub. A: Capitulum, highlighting the ovate outer phyllaries. B: Leaf detail showing the presence of glands, giving the species its glutinous appearance. C: Details of the capitulescences. D: Habit of the species. (Images A–D: Bruno de Souza).



Fig. 2. Distribution map for occurrence of *Helminthotheca echioides* in Brazil. Federal Units of Brazil: RS—Rio Grande do Sul, SC—Santa Catarina. Countries: ARG—Argentina, URU—Uruguay.

SciELO Preprints - This document is a preprint and its current status is available at: https://doi.org/10.1590/SciELOPreprints.18751



This preprint was submitted under the following conditions:

- The authors declare that the necessary Terms of Free and Informed Consent of participants or patients in the research were obtained and are described in the manuscript, when applicable.
- The authors declare that the preparation of the manuscript followed the ethical norms of scientific communication.
- The authors declare that they are aware that they are solely responsible for the content of the preprint and that the deposit in SciELO Preprints does not mean any commitment on the part of SciELO, except its preservation and dissemination.
- The authors declare that the data, applications, and other content underlying the manuscript are referenced.
- The deposited manuscript is in PDF format.
- The authors declare that the research that originated the manuscript followed good ethical practices and that the necessary approvals from research ethics committees, when applicable, are described in the manuscript.
- The authors declare that once a manuscript is posted on the SciELO Preprints server, it can only be taken down on request to the SciELO Preprints server Editorial Secretariat, who will post a retraction notice in its place.
- The authors agree that the approved manuscript will be made available under a Creative Commons CC-BY license.
- The submitting author declares that the contributions of all authors and conflict of interest statement are included explicitly and in specific sections of the manuscript.
- The authors declare that the manuscript was not deposited and/or previously made available on another preprint server or published by a journal.
- If the manuscript is being reviewed or being prepared for publishing but not yet published by a journal, the authors declare that they have received authorization from the journal to make this deposit.
- The submitting author declares that all authors of the manuscript agree with the submission to SciELO Preprints.