Trifolium hatschbachii (Fabaceae, Papilionoideae), a new species from Argentina, Brazil, and Paraguay

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ABSTRACT

Trifolium hatschbachii, which is similar to *Trifolium polymorphum* and *T. riograndense*, is described as a new species. The new species differs from these in its glabrous foliage, from the former by its lack of cleistogamous flowers, and from the latter by its lack of bracts subtending the inflorescences. It is known from several populations in Argentina, Brazil, and Paraguay. *Trifolium hatschbachii* is named for the late Brazilian botanist Gerdt Guenther Hatschbach. Published on-line www.phytologia.org *Phytologia 99(2): 111-115 (May 9, 2017).* ISSN 030319430.

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Species of the genus *Trifolium*, commonly known as clovers, are annual, biennial, or perennial herbs with alternate, palmately (rarely pinnately) compound leaves, most commonly with 3 leaflets. The genus encompasses approximately 240 species (Zohary & Heller 1984), though recent studies by the senior author in New World clovers indicate that there may actually be many more species. Clovers are found in warm to cold temperate environments in both hemispheres, with centers of endemism in Mediterranean habitats (Zohary & Heller 1984). In the flora of South America, there are at least 12 native and 20 introduced species of *Trifolium* (Brako & Zarucchi 1993, Zohary & Heller 1984, Zuloaga et al. 2008).

In the course of reexamination of specimens of the *Trifolium polymorphum* Poir. species complex, several specimens were found from the states of southern Brazil, northeastern Argentina, and southeastern Paraguay which differ markedly from specimens of *T. polymorphum* and *T. riograndense* Burkart, both of which are also native to the region. These differences are spelled out in Table 1. The specimens represent a previously unnamed species, which is described below.

Trifolium hatschbachii Vincent & Butterworth, **sp. nov.** Figures 1, 2. **TYPE**: **BRAZIL**. **Paraná**. mun. Palmas, Horizonte, 3 Dec 1971, *G. Hatschbach 28139* (holotype: C; isotype: MBM).

Similar to *Trifolium polymorphum* Poir. and *T. riograndense* Burkart in their perennial life cycle, stoloniferous growth habit, but differing from them in the following characters: thin, delicate stolons, glabrous leaves; differing from *T. polymorphum* in the absence of cleistogamous flowers and subterranean fruits; differing from *T. riograndense* in the absence of an involucre of bracts below the inflorescence.

Plants perennial; stems branched, prostrate, to at least 50 cm long, glabrous, rooting at the nodes. **Stipules** persistent, 4–12 X 2–5 mm, broadest near the middle, acute or acuminate at the apex, adnate to

petioles for half their length. **Leaves** trifoliate; petioles 0.5–4.5 cm, glabrous or with an occasional trichome; leaflets short-petiolulate; petiolules glabrous; leaflets glabrous, sometimes with sparse to dense sessile or stalked golden glands, obcordate, 3.2–8.2 X 4.4–13 mm, margins dentate, base broadly cuneate, apex emarginate, apiculate by the excurrent midvein. **Peduncles** 3.5–11 cm, pubescent or nearly glabrous. **Inflorescences** globose, 1–1.8 cm, 15–25-flowered; bracts lanceolate, 1.5–2 X 0.3–0.5 mm; pedicels 2–3 mm, soon reflexing. **Calyces** five-lobed; tubes 1–2 mm; lobes 1.2–3.1 mm, narrowly triangular, mostly longer than the tubes. **Corollas** pink; banners 4.6–11.3 X 3–7.7, ovate-obovate, apices rounded, emarginate or rarely erose, upcurved from middle when fully expanded; wings spatulate to ovoid, clawed, 3.4–9.3 X 1–3.7 mm, auriculate, apices rounded, smooth or rarely erose, somewhat inflated and convex at maturity; keel petals clawed, 3.4–8.9 X 2.3–4.8 mm, spatulate-elliptic, apices broadly acute or rounded, rarely erose. **Stamens** diadelphous (9+1), 3–7.4 mm, free stamen shorter. **Ovaries** glabrous; ovules 2. **Fruits** not seen. **Seeds** not seen. Flowering at least October to January.

PARATYPES. **ARGENTINA**. Corrientes: Dep. Santo Tome, Estancia "Garruchos", swamp, 22 Oct 1954, *T.M. Pedersen 2937* (C). **BRAZIL.** Paraná: Mun. Campina Grande do Sul, Rio Canguiri, 30 Dec 1969, *G. Hatschbach 23283* (MBM), Mun. Guarapuava, Estrada para Palmairinha, 20 Oct 1960, *G. Hatschbach 7381* (MBM, US); Santa Catarina: Mun. Agua Doce, 28.5 km SE of Horizonte, Parana, Campo de Palmas, *L.B. Smith & R.M. Klein 13455* (NY, R, US), Mun. Bom Retiro, between Fazenda Campo dos Padres and Fazenda Santo Antonio, Campo dos Padres, 21 Nov 1956, *L.B. Smith & R. Klein 7813* (US), *ibid.*, 24 Jan 1957, *L.B. Smith & P.R. Reitz 10405* (R, US); São Paulo: "Bariguey" [Birigui], 29 Oct 1914, *P. Dusen 15773* (GH). **PARAGUAY.** Caaguazu: in region fluminis Yhu, Sep 1905, *E. Hassler 9423* (NY); Guaira: Villa-Rica, 20 Oct 1874, *B. Balansa 1518* (K), Villarrica, *P. Jorgensen 4562* (F, MO, MU).

Trifolium hatschbachii appears to grow in moist sites, since labels describe habitats as swamps, river beds, bogs, but some labels describe the habitat as a field or meadow. Plants of the new species appear delicate in comparison with *T. polymorphum* and *T. riograndense*, which are much stouter overall. The stems are very thin and break easily, as is indicated by the fragmentary nature of most specimens. Leaves of the new species are thin and lack hairs, as opposed to the thicker and very hairy leaves of the other two species. No cleistogamous flowers have been observed on either *T. hatschbachii* or *T. riograndense*, while most specimens of *T. polymorphum* have cleistgamous flowers and fruits that become subterranean at maturity.

The new species is named in honor of Dr. Gerdt Guenther Hatschbach (1923-2013), Brazilian botanist and avid plant collector, who founded the herbarium at the Museo Botánico Municipal (MBM), Curitiba, Brazil (Krapovickas 2013).

Table 1. Differentiating characters of *Trifolium hatschbachii, T. polymorphum,*and *T. riograndense.*

	T. hatschbachii	*T. polymorphum*	*T. riograndense*
Pubescence on leaves	glabrous	pubescent	pubescent
Cleistogamy	absent	present	absent
Involucral bracts	absent	absent	present
Ovule number	2	4	2-4
Midvein excurrent	Yes	No	No

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Figure 1. Holotype of *Trifolium hatschbachii*, *Hatschbach 28139* (C).

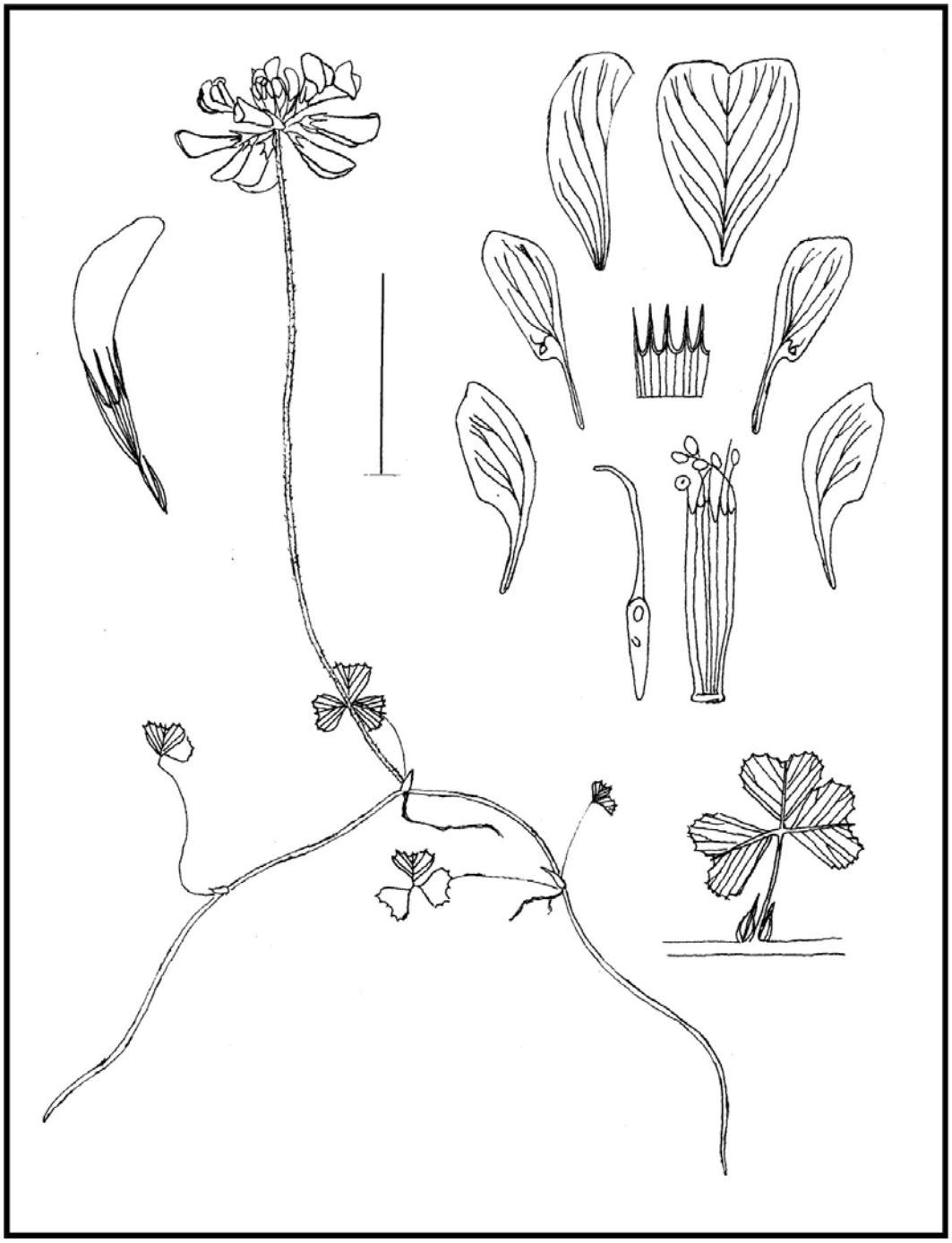

Figure 2. *Trifolium hatschbachii*, line drawing based on the holotype (*Hatschbach 28139*, C). Scale bar: for whole = 3.5 cm; for separate leaf = 18 mm; for whole flower = 6.4 mm; for perianth parts = 10 mm; for staminal column, pistil = 5 mm. Illustration by Katy Levings.