

## *Dyckia inflexifolia* (Bromeliaceae), a new species from Brazil

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A new species, *Dyckia inflexifolia* Guarçoni & M.A. Sartori (Bromeliaceae), is described and illustrated as a species restricted in the ferruginous rocky soils vegetation in the municipality of Sêro, Minas Gerais, Brazil. The new species forms a complex with *D. ursina* and *D. sordida*, being compared to the latter, to which it appears most closely related.

*Dyckia* is a large genus of the subfamily Pitcairnioideae (Bromeliaceae), comprising around 130 species and seven varieties (Luther 2008). It occurs in all regions of Brazil and in the neighboring countries Argentina, Bolivia, Paraguay, and Uruguay (Smith & Downs 1974). A total of 115 species and four varieties occur in Brazil, with 99 species being considered endemic to the country (Forzza *et al.* 2010).

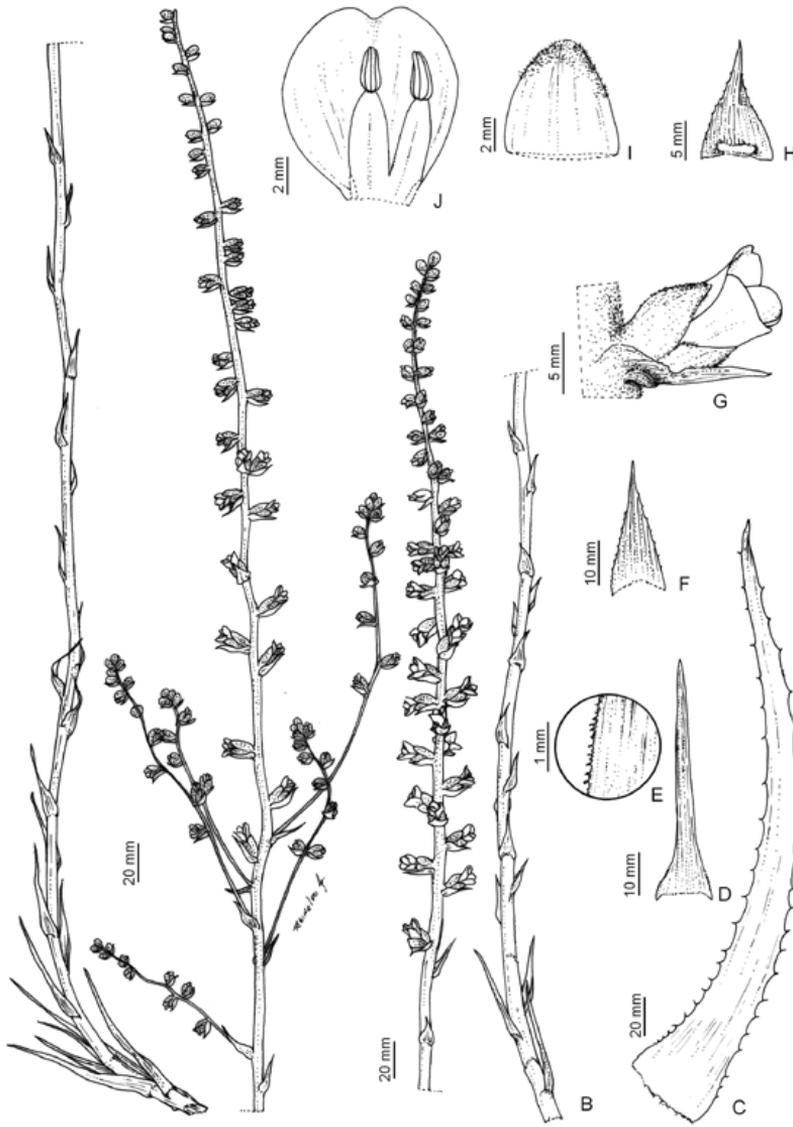
The genus has its greatest diversity in southeastern Brazil with 37 spp., 32 spp. occurring in Minas Gerais, of which 26 spp. are endemic to the state. Geographically it is distributed in the Cerrado Domain (22 spp.), and in the Cerrado and Atlantic Domain (10 spp.) (Forzza *et al.* 2010).

In July 2007, after a botanical expedition through the rocky grasslands of the Espinhaço Range, the authors collected a species of *Dyckia* in the municipality of Sêro, Minas Gerais, Brazil. Due to a rust-coloured tomentose peduncle, a compound inflorescence and rust-coloured

tomentose floral bracts and sepals, the plant was initially thought to be *D. sordida*. However, our plant had a rosette with wide leaves, strongly succulent, with dense spines and spine apices inflexed in the young leaves. After a careful comparison with herbarium specimens of *D. sordida* type material (Baker 1889) and additional collections it was concluded that we had an undescribed species at hand.

***Dyckia inflexifolia* E.A.E. Guarçoni & M.A. Sartori, sp. nova** (Figs. 1–3)

TYPE: Brazil. Minas Gerais, Sêro, Ceu Aberto Farm, 18°32'41''S, 43°23'07''W, Ferruginous "campos rupestres", 1133 m, 16 June 2007, flor. cult. 30 July 2010, *E. Guarçoni 1474* & *M. A. Sartori* (holotype VIC; isotype R). — PARATYPES: Brazil. Minas Gerais, Sêro, Ceu Aberto Farm, 1133 m, 2007, *E. Guarçoni 1370* & *M.A. Sartori* (VIC); Brazil, Minas Gerais, Sêro, Ceu Aberto Farm, 1133 m, 2007, *E. Guarçoni 1371* & *M.A. Sartori* (VIC); Brazil, Minas Gerais, Sêro, Ceu Aberto Farm, 1133 m, 2007, *E. Guarçoni 1372* & *A. M. Sartori* (VIC); Brazil, Minas Gerais, Sêro, Ceu



**Fig. 1.** *Dyckia inflexifolia* (from the holotype and isotype, drawn by Reinaldo Monteiro). — **A:** Habit, compound inflorescence. — **B:** Habit, simple inflorescence. — **C:** Leaf. — **D:** Lower peduncle bract. — **E:** Detail of margin at bract base. — **F:** Upper peduncle bract. — **G:** Flower. — **H:** Lower floral bract. — **I:** Sepal. — **J:** Petal with free stamens above the fusion of petals and stamens. Gynoecium is lacking

Aberto Farm, 1133 m, 2007, *E. Guarçoni 1374* & *A. M. Sartori* (VIC); Brazil, Minas Gerais, Sêro, Ceu Aberto Farm, 1133 m, 2007, *E. Guarçoni 1375* & *A. M. Sartori* (VIC).

**ETYMOLOGY:** The specific epithet refers to the leaf apex which is inflexed in the young leaves (Fig. 2).

Plant rupicolous or terrestrial, flowering 95–145 cm tall, singular. Leaves ca. 40, forming a dense rosette ca. 40 cm tall and ca. 70 cm in diameter, strongly succulent, basal reflexed, median patent-prostrate to suberect-prostrate, apical suberect to erect. Leaf sheaths elliptic, 3–3.3 × 5.9–6.3 cm, white, adaxial surface with a yellowish cream apex, abaxially densely white-

lepidote at apex, margins apically flaky-white and dentate. Leaf blades narrowly triangular, green, indistinctly canaliculate, 27–32 × 2.4–3 cm, densely white-lepidote in the lower third of abaxial surface, upper two thirds pubescent, trichomes confined between veins, glabrous on adaxial surface, acute, ending with a pungent spine, inflexed in young leaves, margins rather densely spinose, spines amber with a brown apex, 2.4–3.5 mm long, 1.8–2.3 mm in diameter, 0.7–1.7 mm distant, irregularly curved. Peduncle erect, 25–67 cm long, 0.6–1.1 cm in diameter, red, densely rust-coloured tomentose. Peduncle-bracts: basal longer



**Fig. 2.** *Dyckia inflexifolia*, showing the apex inflexed in the young leaves.

than internodes, linear-triangular,  $3.6\text{--}6.5 \times 0.3\text{--}0.6$  cm, vinaceous abaxially, green with vinaceous margins adaxially, fimbriate at base, entire towards apex, margins densely rust-coloured lepidote on abaxial surface, carinate, succulent, upper ones smaller, triangular,  $1.4\text{--}2 \times 0.6\text{--}0.8$  cm, stramineous, fimbriate in lower half, carinate, erect, with a suborbicular base, acuminate, ending with a pungent spine, densely rust-coloured tomentose on abaxial surface. Inflorescence erect, 24–56 cm long, compound or simple, rachis red, 5.6–7.7 mm diam., densely rust-coloured tomentose. Primary bracts similar to upper peduncle bracts,  $1.3\text{--}1.5 \times 0.5\text{--}0.6$  cm, slightly smaller than upper peduncle bracts. Branches basal, delayed in development, up to six in number, 4.5–21 cm long, suberect, curved or not, slightly flexuose, rachis 4–5.1 mm diam. Floral bracts longer than or equaling sepals, stramineous, densely rust-coloured tomentose on abaxial surface, patent with flowers, carinate, triangular,  $1.1\text{--}1.8 \times 0.5\text{--}0.8$  cm, convex, acuminate, ending with an inconspicuous pungent spine, entire to inconspicuously fimbriate. Flowers subdense, 1.8–2 cm long, 0.7–1 cm in diameter, up to 45 in terminal branch, 8–10 in lateral branches, pedicels robust, 5 mm long, 5.2–6.8 mm in diameter, red, densely rust-coloured tomentose. Sepals symmetrical, half as long as petals, ovate to broadly triangular, obtuse, densely rust-coloured tomentose on abaxial sur-

face, red to orange, convex,  $7.2\text{--}11 \times 6.3\text{--}8.7$  mm, strongly succulent, fimbriate. Petals symmetrical,  $1.1\text{--}1.4 \times 0.8\text{--}1.1$  cm, rhombic to elliptic, obtuse to retuse, connate at base, 1.3–2.9 mm connate to a common tube with filaments, scarcely tomentose, strongly succulent, orange, margins in upper half fimbriate, undulate after anthesis. Stamens included. Filaments free above common tube of petals and stamens, 7.4–8.8 mm long, antipetalous ones triangular, 2–2.3 mm in diameter, antisepalous ones linear, 1.3–1.8 mm in diameter, yellowish-orange. Anthers slightly surpassing pistil, lanceolate to elliptic, dorsifixed near base, yellow, 3–3.4 mm long, base sagittate, apex obtusely apiculate. Stigma of conduplicate-spiral type, orange, 0.6–0.7 mm long. Style orange to brownish-orange toward apex, 0.7–0.8 mm. Ovary yellow to greenish-yellow, pyramidal, 4.9–5.2 mm long. Fruit ovoid, 1.4 cm long, 1 cm in diameter, dark brown. Seeds not observed.

**DISTRIBUTION AND HABITAT:** *Dyckia inflexifolia* is known to date to occur in the igneous rocky soil vegetation of the municipality of the Sêro, Minas Gerais state, at an altitude of about 1100 m a.s.l. It grows as a rupicole or terrestrially. The species is rare and has a small population restricted to Ceu Aberto Farm.

*Dyckia inflexifolia* flowers in June–August. In cultivation at the Bromeliaceae Research and Conservation Unit (UPCB-UFV), the trochilid

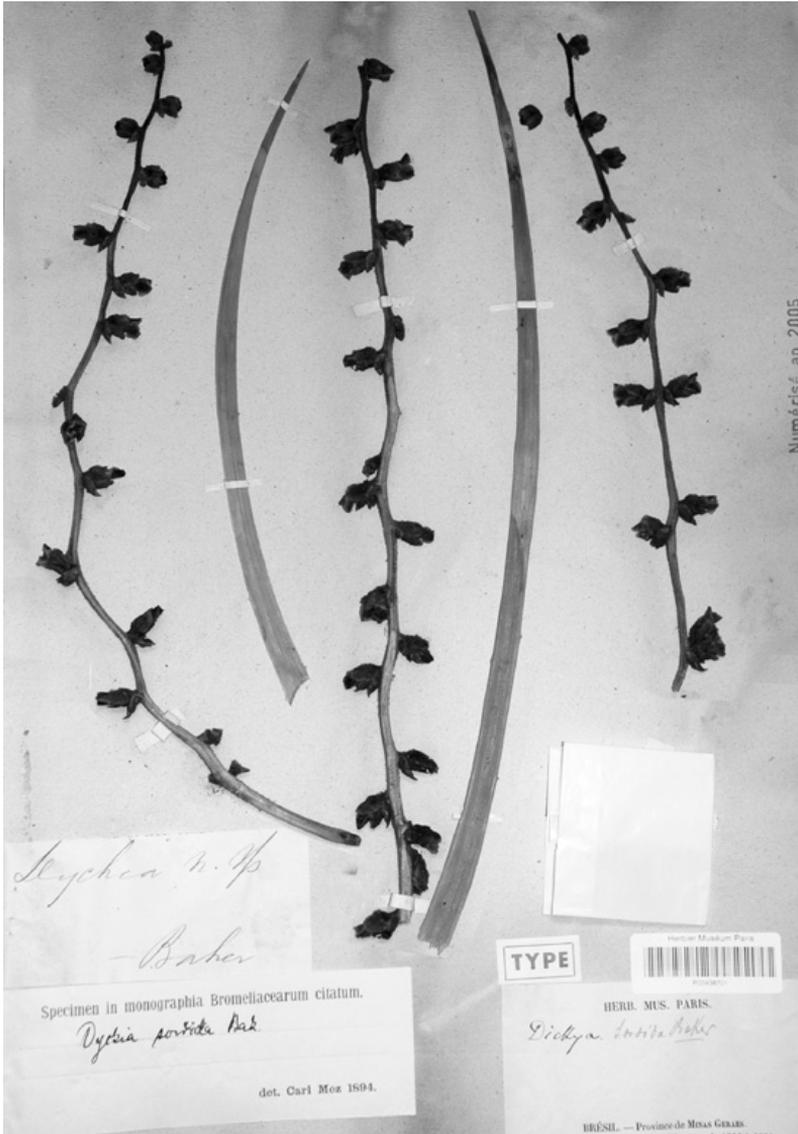


Fig. 3. *Dyckia sordida* (photo of type material in P).

*Eupetomena macroura* was observed to pollinate its flowers. Its leaf coloration varies in different habitats from green (terrestrial) to vinaceous (rupicolous). Plants with one to three inflorescences were observed in the field and cultivation.

*Dyckia inflexifolia* forms a complex with *D. sordida* and *D. ursina*, with the plants ca. 1 m tall when flowering; the peduncle, peduncle bracts, floral bracts, and sepals with rust-coloured indument; the filaments free above the petal-stamen fusion; and the distribution restricted to the igneous rocky grasslands between Serra do Cipó and Diamantina, in Minas Gerais, Brazil. A mor-

phological comparison of *D. inflexifolia* and *D. sordida* is given in Table 1 (see also Fig. 3). *Dyckia inflexifolia* differs from *D. ursina* by its polystichous leaves (vs. secund), pedicellate flowers (vs. sessile) and sepals of half the size of the petals (vs. sepals and petals nearly equaling in size). A key to the new species and the other two *Dyckia* species is given below.

**Key to the *Dyckia sordida* species complex**

- 1. Flowers sessile, sepals and petals nearly of same size ... *D. ursina*
- 1. Flowers pedicellate, sepals half the size of petals ..... 2

**Table 1.** Comparison of *Dyckia inflexifolia* and *D. sordida*. The measurements refer to the population mean with its respective standard deviation in parentheses. *Dyckia sordida* exsiccates analyzed: G 1691 (VIC), RB 68 413, RB 201 774, RB 201 937, RB 236 422, RB 443 014.

Characters	<i>D. inflexifolia</i>	<i>D. sordida</i>
Habitat	rocky grassland	igneous rocky soil vegetation
Leaf sheath	white with cream apex on the adaxial surface	brown
Leaf blade	strongly succulent	weakly succulent
Leaf blade diameter	1.3 (0.6) cm	1.9 (0.6) cm
Leaf apex	acute	acuminate
Apex of young leaf blade	inflexed	erect
Indument on foliar blade	glabrous on the adaxial surface	pubescent on both surfaces
Distance between spines in median region of foliar margins	dense, 1 (0.3) cm	lax, 2.4 (0.2) cm
Spine length	2.9 (0.7) mm	1 mm
Spine position	irregularly curved	antrorse
Indument on peduncle	dense	pubescent
Length of upper peduncle bracts	1.6 (0.2) cm	1.2 (0.2) cm
Shape of floral bracts	triangular	ovate
Floral bracts	patent	reflexed
Sepals	oblong to ovate	ovate to elliptic
Petals	ovate	rhombic to elliptic
Anthers	lanceolate to elliptic	oblong
Antesepalous filaments	triangular	linear

2. Young leaves with apical spine straight, spines laxly arranged (2.4 cm apart), floral bracts ovate, reflexed ..... *D. sordida*
2. Young leaves with apical spine inflexed, spines more densely arranged (1 cm apart), bracts floral, triangular, patent ..... *D. inflexifolia*

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