



## ***Piriqueta crenata*, a new species of Turneraceae (Passifloraceae s.l.) from the Chapada Diamantina, Bahia, Brazil**

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### **Abstract**

In this study, we describe and illustrate *Piriqueta crenata*, a new species from the Chapada Diamantina region, Bahia, Brazil. It is similar to and was initially identified as *P. flammea* from which it can be distinguished by the cuneate leaf blade bases (vs. rounded), slightly discoloured leaves (vs. strongly discoloured), inflorescences of fewer flowers (1–3 vs. 3–6), olive-green calyx when dry (vs. blackened), and yellow corolla (vs. orange red). *Piriqueta crenata* is only known from a single small savanna nested in the semiarid Chapada Diamantina region, close to areas under anthropogenic influence. Therefore, we evaluate the species as Critically Endangered.

**Key words:** floristics, Neotropics, savanna, taxonomy.

### **Resumo**

**(*Piriqueta crenata*, uma nova espécie de Turneraceae (Passifloraceae s.l.) da Chapada Diamantina, Bahia, Brasil)**

Neste estudo, descrevemos e ilustramos *Piriqueta crenata*, uma nova espécie da Chapada Diamantina, Bahia, Brasil. Ela se assemelha e foi inicialmente confundida com *P. flammea*, mas pode ser distinguida daquela espécie pelas folhas cuneadas na base (vs. arredondadas) e levemente discoloradas (vs. fortemente discoloradas), inflorescências geralmente com menos flores (1–3 vs. 3–6), cálice verde-oliva quando seco (vs. enegrescido) e corola amarela (vs. vermelho-alaranjada). *Piriqueta crenata* é conhecida apenas de uma pequena localidade de cerrado, inserida na região semiárida da Chapada Diamantina, próxima a áreas sob influência antrópica. Portanto, consideramos a espécie Criticamente Ameaçada.

### **Introduction**

The Turneraceae comprise 12 genera and 226 species, being widely distributed in the Americas and Africa (Arbo 2007, Thulin *et al.* 2012). Two genera and 156 species occur in Brazil (Arbo 2013), with centers of diversity in the Cerrado and Caatinga domains. The family is closely related to Passifloraceae and Malesherbiaceae (Soltis *et al.* 2000, Davis & Chase 2004, Korotkova *et al.* 2009, Thulin *et al.* 2012, Tokuoka 2012), and together, they are treated in Passifloraceae s.l. by APG III (2009). Traditional classifications, considering three independent families, however, are morphologically conceivable and do not contradict any principle of phylogenetic systematics. The monophyly of the three families is strongly supported, as well as the relationship among them: Malesherbiaceae emerges as sister to the clade formed by Turneraceae and Passifloraceae s.s. (Tokuoka 2012).

The genus *Piriqueta* Aublet (1775: 298) comprises 44 species and is an American endemic clade. It is mainly characterized by the corona emerging from the petals and sepals and the porrect-stellate trichomes (Thulin *et al.* 2012, Tokuoka 2012). The Chapada Diamantina, within the Caatinga domain, in the state of Bahia, Brazil, is the centre of diversity of *Piriqueta* (Arbo & Mazza 2011). During the preparation of Turneraceae for the Flora da Bahia project, we realized that the specimens formerly identified as *P. flammea* (Suessenguth 1942: 206) Arbo

(1981: 121) in the flora of Morro do Chapéu (Souza *et al.* 2013) should be recognized as a new species, which is described and illustrated here as *P. crenata*.

***Piriqueta crenata*** L. Rocha, I.M. Souza & Arbo, *sp. nov.* (Fig. 1)

*Piriqueta flammea* auct. non (Suessenguth 1942: 206) Arbo (1981: 121) (Souza *et al.* 2013: 225).

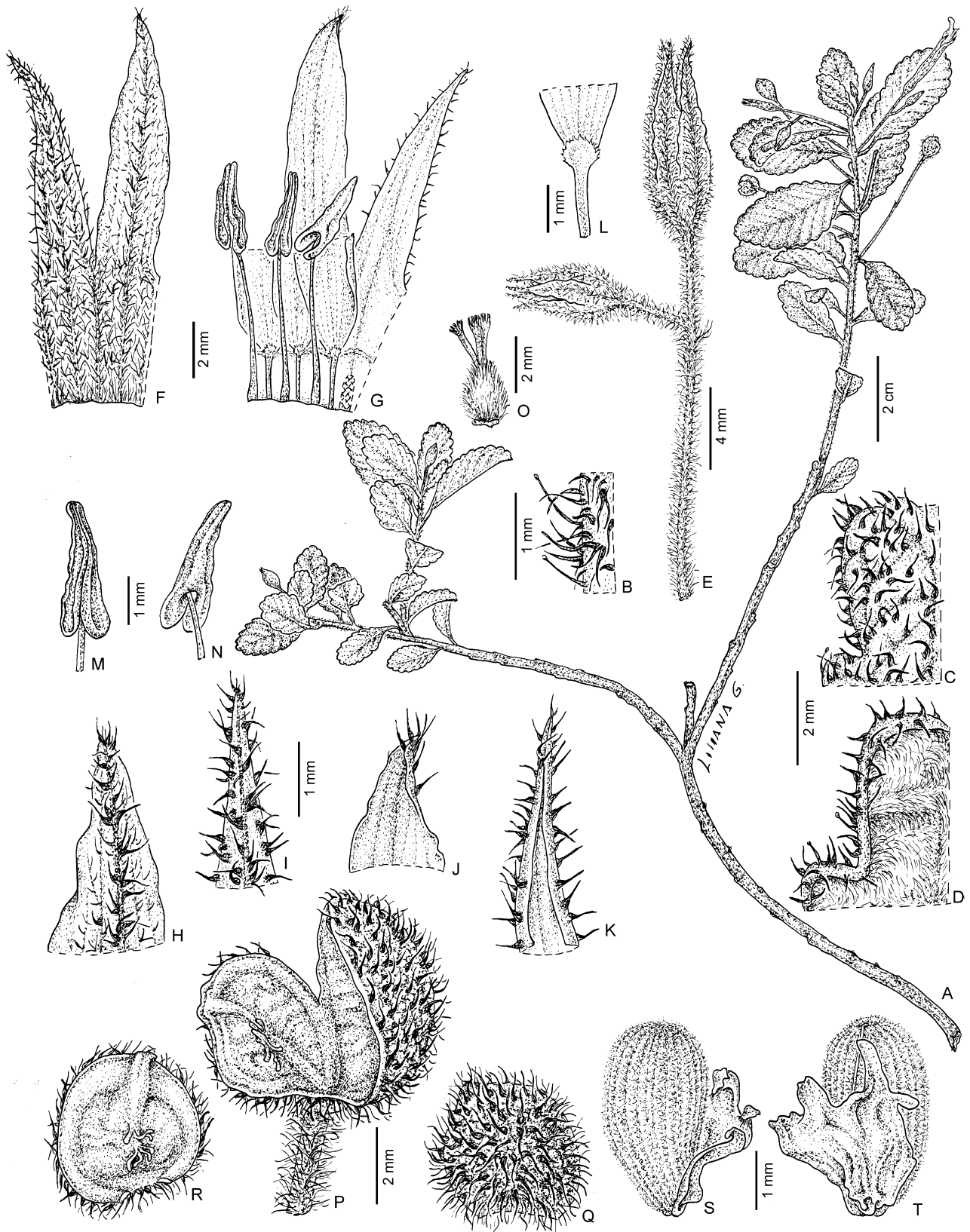
*Piriqueta crenata* resembles *P. flammea* (Suess.) Arbo, but differs by its cuneate to attenuate leaf blade bases (vs. rounded), slightly discolored (vs. conspicuously discolored), inflorescences with fewer flowers (1–3 vs. 3–6), calyx olive-green after drying (vs. blackened) and corolla yellow (vs. orange red).

Type:—BRAZIL. Morro do Chapéu, fazenda Guariba, nascentes do rio Salitre, 11°26'08"S, 41°11'34"W, 1065 m, 1 July 2007 (fl., fr.), E. Melo, F. França, J.M. Gonçalves, A.O. Moraes & D. Rocha 4941 (holotype HUEFS!, isotypes BRBA!, CTES!).

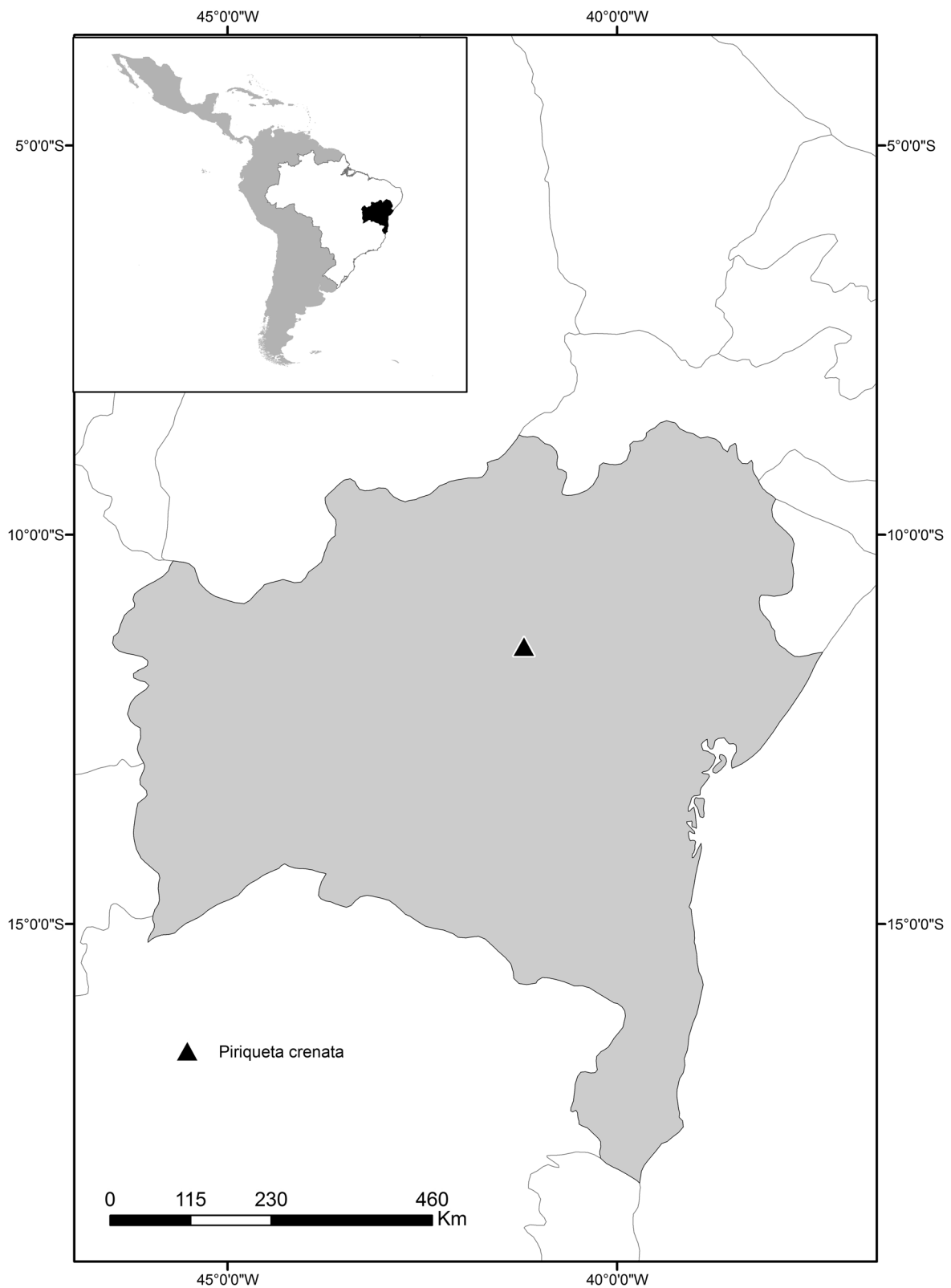
Shrub 30–40 cm high; old branches with reddish-brown to grayish-brown surface, discrete lenticels and longitudinal and transverse cracks showing the whitish inner cork; indumentum sparse; young stems viscous, with simple wavy trichomes c. 0.3 mm long, and setiform glandular trichomes with swollen bases c. 0.6 mm long. Buds axillary, 1 or 2, the basal one floriferous. Leaves papery, slightly discolored, bullate; colleters c. 0.3 mm long; petiole 2–5 mm long, indumentum like that of the stems; nectaries absent; blade 10–28 × 6–21 mm, (length : width = 1.4–1.9: 1), usually elliptic to elliptic-obovate, base cuneate to attenuate, apex obtuse, margins notably crenate, revolute; upper surface sparsely-hirsute, somewhat glossy when dry, setiform glandular trichomes with swollen bases sparsely distributed, and porrect-stellate tector trichomes concentrated on the main vein; lateral veins 5–8 pairs, slightly sunken, 35–50° divergent from the main vein; lower surface dark-golden to whitish olive-green, densely covered with stellate tector trichomes, veins prominent, with porrect-stellate tector and setiform glandular trichomes, concentrated on the main vein. Axillary cincinnus inflorescence 1–3-flowered; peduncle 1–1.3 cm long, with simple tector and setiform glandular trichomes; successive branches 3–4 mm long. Flowers heterostylous; pedicel 4–10 mm long, somewhat thicker and more densely tomentose than the peduncle; bracts absent; bracteoles (prophylls) 2, 0.4–1.5 mm long, subulate or colleters replacing them, hidden in a tuft of porrect-stellate trichomes near the peduncle-pedicel joint. Calyx olive-green when dry, 9–12 mm long, campanulate, sparse-hirsute outside, with golden-brown setiform glandular trichomes with swollen bases concentrated on the veins, and porrect-stellate trichomes all over, tube 2–2.5 mm long, lobes 7–9.5 × c. 2 mm, narrow-triangular, olive-green when dry, 3–5 darker veins, apex mucronate, mucron c. 0.5 mm long, inner sepals with sparse simple appressed trichomes, near the membranaceous margins. Corolla 1.5–1.6 cm long, petals obovate, yellow, claw c. 2 mm long, glabrous or pubescent, connate to the floral tube. Corona lobed, c. 0.5 mm long, lacerate, whitish when dry. Staminal filaments subulate, 4–5 mm long in short-styled flowers, c. 2.5 mm long in long-styled flowers, glabrous, 0.5–1 mm fused at the base of floral tube; anthers 1–2.4 × 0.4–1 mm, dorsifixed, narrow-ovoid, glabrous, base emarginate, apex acute, curved or straight after dehiscence. Ovary 1–1.5 mm long, ovoid, tomentose; styles c. 2.5 mm long in short-styled flowers, c. 4 mm long in long-styled flowers, glabrous or with sparse trichomes on basal portion, stigmas brush-like. Fruit a loculicid capsule, c. 5 × 4 mm, subglobose, externally verrucose, with abundant setiform glandular trichomes with swollen bases and sparse simple tector trichomes; internal surface glabrous, glossy, whitish, wavy; placental vein not prominent. Seeds c. 3 × 1.6 mm, obovoid, straight; exostome c. 0.5 mm long, conical; raphe linear; chalaza rounded, not prominent; upper surface reticulate, reticulum hardly perceptible (seeds immature); areoles concave; epidermis densely papillose, digitiform papillae; aril c. 2.6 mm long, lobed, membranous when dry, cells papillose.

**Paratype:**—BRAZIL. Bahia: Morro do Chapéu, fazenda Guariba, 11°26'24"S, 41°11'39"W, 1071 m, 20 May 2007 (fl.), J.F.B. Pastore, C.A. Bastos, A.O. Moraes, F. França & D. Rocha 2082 (HUEFS!).

**Distribution and habitat:**—*Piriqueta crenata* is known from only two collections from Morro do Chapéu, eastern Chapada Diamantina, state of Bahia, Brazil (Fig. 2). The specimens were collected at the same locality and probably belong to a single population, in a small savanna fragment, within the caatinga vegetation, at the sources of Salitre river, approximately 1,070 m a.s.l., on wet or organic soils.



**FIGURE 1.** *Piriqueta crenata* (from the isotype in CTES by Liliana Gómez). **A.** habit; **B.** indumentum of a young branch, showing setiform glandular trichomes; **C–D.** indumentum of leaves: upper (C) and lower (D) surfaces; **E.** inflorescence; **F.** part of the calyx showing inner and outer sepals; **G.** part of a short-styled flower, showing the inner face of the floral tube, with 2 sepals, 3 sectioned petals, corona and 3 stamens; **H–I.** outside surface of sepal apex: inner (H) and outer (I) sepal; **J–K.** inside surface of sepal apex: inner (J) and outer (K) sepal; **L.** corona lobe at the base of petal; **M–N.** anthers, showing insertion of filament; **O.** pistil of a short-styled flower; **P–R.** fruit, showing inner and outer surfaces; **S–T.** immature seed with aril, lateral and rapheal views.



**FIGURE 2.** Map of Bahia, Brazil, showing the distribution of *Piriqueta crenata*.

**Conservation status:**—*Piriqueta crenata* is only known from a single location within the limits of a private farm (c. 14 km<sup>2</sup>) and therefore is subject to disturbances caused by livestock and deforestation of the natural vegetation. It is in addition growing in a naturally dynamic environment that experiences droughts, and intermittent flooding by the Salitre river, resulting both in erosion and deposits of materials. Thus, the maintenance of species

habitat may be compromised and it should be considered critically endangered according to the IUCN (2001) criteria B1ab(iii) + B2 ab(iii).

**Etymology:**—The epithet "crenata" refers to the division of leaf margins, which are conspicuously crenate.

**Additional comments:**—*Piriqueta crenata* can be recognized by the leaves with upper surface notably bullate, base cuneate and margins conspicuously crenate, inflorescences 1–3-flowered and flowers with green calyx and yellow corolla. It resembles *P. flammea*, which usually has distinctly discoloured leaves, more flowers (3–6) per inflorescence, and flowers with darker calyx when dry and an orange red corolla. To some extent, the new species also resembles *P. sidifolia* (Cambessèdes 1830: 227) Urban (1883: 61), a species widely distributed in Brazil, but whose leaves are not bullate and are rarely cuneate at the base, being usually rounded to cordate, and whose inflorescences usually bear more flowers (up to 12) than *P. crenata*. The BRBA Herbarium belongs to the Instituto de Ciências Ambientais e Desenvolvimento Sustentável, Bahia, Brazil (ICADS), not yet indexed.

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