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A new species of *Goeppertia* (Marantaceae) from the northeast Brazil and an identification key for species from the state of Sergipe

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Introduction

Marantaceae is a family with approximately 550 species distributed throughout the tropics, with the exception of Australia (Andersson 2003). *Calathea* Meyer (1818: 6) used to be the largest genus in the family, previously including ca. 300 species. After the molecular study on the genus by Borchsenius *et al*. (2012), which confirmed the genus as polyphyletic, *Goeppertia* Nees (1831: 337) was resurrected to include all the species (approximately 245) that were not in the former subgenus *Calathea* Körnicke (1862: 112), the *Calathea lanicaulis* group (Kennedy *et al.* 1988) and the synonymized genus *Sanblasia* Andersson (1984: 21). *Goeppertia* thus became the most representative genus of Marantaceae, in Brazil represented by ca. 100 species (Braga 2013). It is found chiefly in rainforest habitats at elevations, below 1500m (Kennedy *et al.* 1988). However, the number of species may yet be underestimated due to unknown diversity of Brazilian species occurring in drier areas.

While working in the Marantaceae for the 'Flora of Sergipe project', we found a species already annotated by Loesener on herbarium sheets as a new species, but it was never validly published. The species is similar to *Goeppertia crocata* (Morren & Jorissene 1875: 141) Borchs. & S.Suárez (in Borchsenius *et al.* 2012: 630) and is here described and illustrated. Additionally, an identification key for the species of *Goeppertia* in the state of Sergipe is provided.

Goeppertia effusa Saka & Lombardi, *sp. nov.,* Fig. 1

Type:—BRAZIL**.** Sergipe: Nossa Senhora da Glória, Fazenda Olhos D'Água, caatinga hipoxerófila, 13 May 1982, *Viana 465* (holotype IPA!, isotype ASE!).

Affinis Goeppertia crocata vaginis et cataphyllis puberilis, et bracteis apice acuto ad acuminatum, sed foliis ellipticis ad obovatas, papyraceis, bracteis puberilis et viridibus, apici effusis, et tubo corollae longior quam bracteae differt.

Herb 0.2–0.7 m tall. New shoots arising directly from the rhizome, 1–4(–5) leaves per shoot. Cataphylls membranaceous, green, ovate, the apices obtuse, slightly tomentose, 3.1–7.2(–11.4) cm. Leaf sheaths membranaceous, green, narrowly elliptic, apices acuminate, not auriculate, slightly tomentose, 8–15.5(–23.4) cm. Petioles absent or present; when present, green, glabrous, (0.3–)0.7–4.5(–10.0) cm. Pulvinus green, circular in cross section, 0.4–0.9(–1.6) cm, adaxially puberulent. Rosulate leaves, not persistent in the dry season; leaf blades (7.5–)9.1–24.5(–38.1) × (2.4–)4.3–10.2(–16.4) cm, papery, elliptic to widely obovate, unequal-sided, apex displacement to 0.8 cm wide, bases reniform to cuneate, apices acute or rounded with acumen. Leaf blade adaxially green, frequently with a purple spot in the middle, slightly pubescent, midrib sparsely pilose toward the base; abaxially green, pubescent, midrib pubescent. Inflorescences 3.4–4.9 cm × 2.3–4.4 cm, terminal, not subtended by a cauline leaf, one per shoot, borne above the leaf blades, obovate to widely obovate. Peduncles green, 18–42 cm, pubescent near the apices. Bracts 7–15, (1.5–)2.4–3.7(–5.1) × (0.6–)1.2–1.4(–1.8) cm, spirally arranged in 3–4 horizontal series, all fertile, membranaceous, green, widely ovate to lanceolate, apex acute to long acuminate, spreading, outer and inner surface of bracts pubescent. Each bract subtending 2–4 inflorescence components, inflorescence components a 2-flowered cymule; cymules brachyblastic. Bicarinate prophyll membranaceous, 0.9–1.3 × 0.4–0.7 cm, translucent green, ovate, apex acute to rounded, slightly tomentose. Interphyll membranaceous, translucent green, ovate, 1.0–1.2 × 0.5–0.6 cm, slightly pubescent. Bracteoles 1.2–1.5 cm, one per cymule, medial, membranceous, keeled and channeled, glabrous. Sepals membranaceous, 13–15 × 2–3 mm, green,

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narrowly elliptic, apices acute, abaxially puberulent, adaxially glabrous. Corolla tubes yellow, 1.5–2.6 cm, glabrous, the lobes equal, 7 × 1–2 mm, yellow, narrowly elliptic, apices acute, glabrescent. Outer staminodes petaloid, 0.8–1.2 × 0.6–0.8 cm, obovate, yellow. Callose staminodes 0.8–1.6 × 0.3–0.4 cm, sphatulate with reflexed lateral margins, yellow, apices rounded. Cucullate staminodes 4 × 1–2 mm, yellow. Anthers 1–2 mm, lateral petaloid appendages to 1–2 mm wide. Style 5–7 mm. Ovary 1.0 × 0.8 mm, smooth to papillose, pubescent at apex. Capsules 8–9 × 7–8 mm, smooth, rounded, glabrous, the calyces persistent. Seeds two per capsule, 3–4 mm, obtrullate.

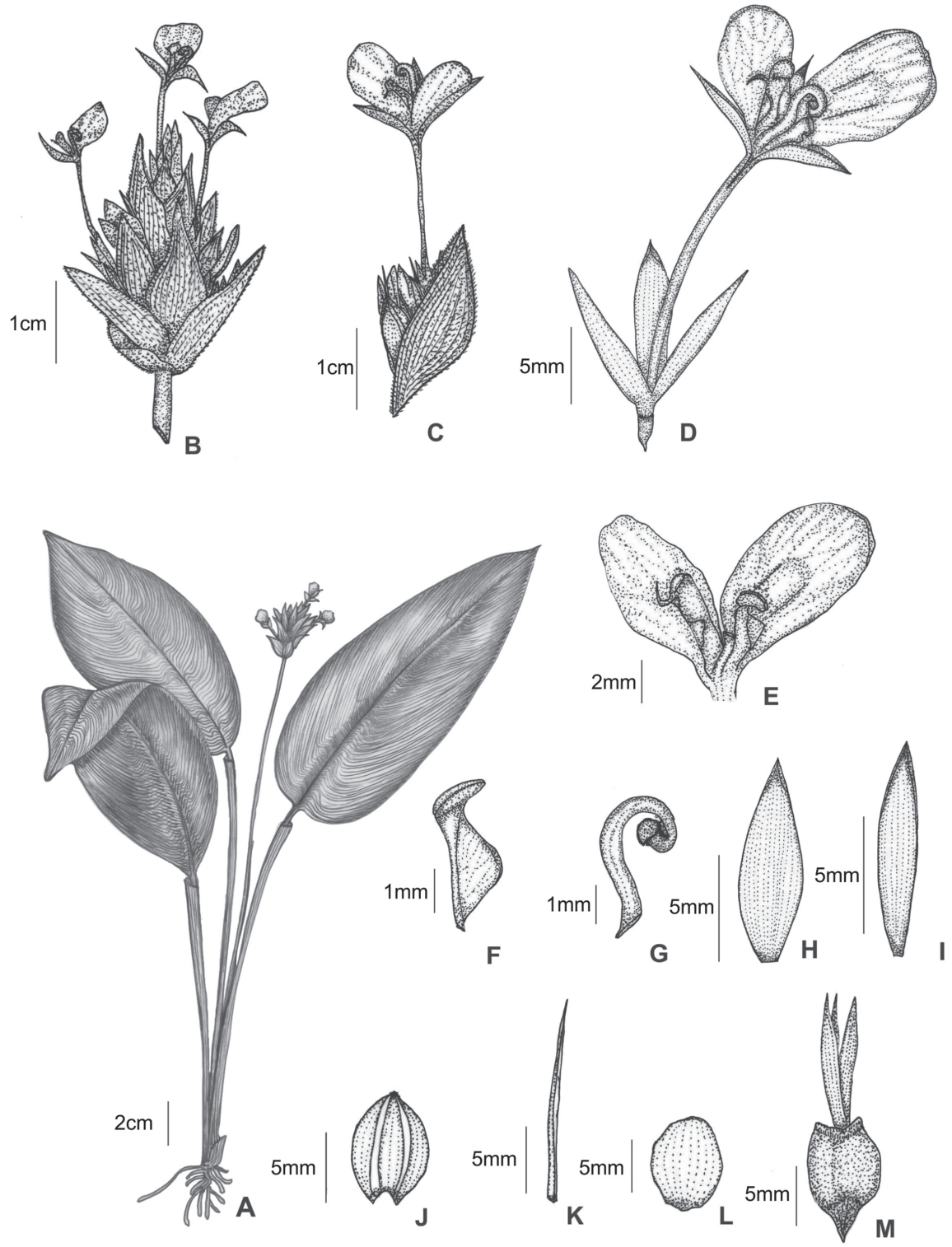

Figure 1. A–M. *Goeppertia effusa* (from *Viana 760*, except habit, from *Prata et al. 2478*). A. Habit. B. Inflorescence. C. Flower subtended by bract and bicarinate prophyll. D. Flower. E. Stamen with outer, callose and cucullate staminodes. F. Stamen. G. Circinate style and stigma. H. Sepal. I. Petal. J. Bicarinate prophyll. K. Bracteole. L. Interphyll. M. Fruit. (Illustration drawn by M.N.Saka, except the habit drawn, by R.M.A. Carvalho).

Distribution and habitat:—*Goeppertia effusa* occurs both in Atlantic rainforest and Brazilian thorny shrubby dry savannah (caatinga) regions, respectively in the Pernambuco and Sergipe States. When in the caatingas, the plants lose all leaves in the dry season, resprouting from the roots during the wet season. The plants can flower when the leaves are present or after leaves have shed.

Etymology:—The epithet '*effusa*' refers to the always spreading bracts with their acute to long acuminate apices.

Comments:—*Goeppertia effusa* belongs to the *Breviscapus* clade (Borchsenius *et al.* 2012), because the species shares characteristics with species in the former *Calathea* sect. *Breviscapus* Bentham (1883: 654), such as new shoots not subtended by a cauline leaf, simple, spirally arranged and persistent inflorescences with all bracts bearing fertile peduncles. *Goeppertia effusa* is morphologically similar with *G. crocata,* both having puberulent leaf sheaths and cataphylls, adaxially puberulent pulvini and bracts with acute to long acuminate apices. The two species differ in the elliptic to obovate leaves (vs. narrowly elliptic leaves), papery leaves (vs. fleshy leaves), bracts green and puberulent (vs. orange/yellow and glabrescent), with spreading apex (vs. apex not spreading), fewer bracts (7–15 in 3–4 horizontal series vs. 15–27 in 5–7 horizontal series) and the corolla tube exceeding the bracts (vs. corolla tube smaller than the bracts).

Additional species examined (paratypes):—BRAZIL. Pernambuco: Taperá, pastos, July 1928, *Pickel s.n.* (IPA!). Sergipe: Nossa Senhora da Glória, Fazenda Olhos D'Água, caatinga hipoxerófila, 1 September 1983, *Viana 760* (ASE!, HRCB!). Simão Dias, Assentamento Maria Bonita, caatinga, 13 June 2010, *Prata et al. 2478* (ASE!).

Key for the species of *Goeppertia* in the Sergipe State

1. Green leaves with dark green or purple spots in adaxial side. Inflorescence bracts distichally arranged, deeply villous ..... ***Goeppertia villosa* (Lindl.) Borchs. & S.Suárez**
- Green leaves without spots of any colour or occasionally with one purple blotch on the adaxial side. Inflorescence bracts spirally arranged, puberulent 2
2. Inflorescence not subtendend by a cauline leaf. Bracts with straight apex, apices spreading, distributed in 3–4 series ..... ***Goeppertia effusa* Saka & Lombardi**
- Inflorescence subtended by a cauline leaf. Bracts with recurved apices, distributed in 7–10 series ..... ***Goeppertia cylindrica* (Roscoe) Borchs. & S.Suárez**

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