

***GORCEIXIA DECURRENS* (COMPOSITAE: VERNONIEAE): NEW FOR BAHIA STATE, BRAZIL**

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(*Gorceixia decurrens* (Compositae: Vernonieae): new for Bahia State, Brazil) – Recent fieldwork and collections have added a new genus to the *Compositae* flora of Bahia State, Brazil. *Gorceixia decurrens* is newly recorded for the State from Caatinga woodland along the lower part of the Estrada Real, in the municipality of Rio de Contas. A full description is provided, its distribution and conservation status discussed; likely affinities in the Vernonieae are discussed with the conclusion that it belongs to the subtribe Piptocarphinae.

Key words: *Gorceixia*, Vernonieae, Piptocarphinae, Compositae, Caatinga, conservation.

(*Gorceixia decurrens* (Compositae: Vernonieae): nova espécie para o estado da Bahia, Brasil) – Trabalhos de campo e coletas recentes na Bahia, Brasil, permitiram adicionar mais um gênero para a flora do Estado. *Gorceixia decurrens* foi coletada em 2001, em área de Caatinga Arbórea, na base da Estrada Real no município a Rio de Contas. É fornecida uma completa descrição da espécie e discussão sobre sua distribuição e estado de conservação. Também, é apresentada discussão do posicionamento do gênero monotípico nas Vernonieae concluindo-se que o mesmo pertence à subtribo Piptocarphinae.

Palavras-chave: *Gorceixia*, Vernonieae, Piptocarphinae, Compositae, Caatinga, conservação.

INTRODUCTION

The Estrada Real is an early to mid 18th Century pavement road between the Municípios of Livramento de Nossa Senhora and Rio de Contas in Bahia State, Brazil. It winds up the face of the escarpment, on the edge of the Serra das Almas, almost adjacent to the Cachoeira do Brumado, one of the highest and most spectacular waterfall in the region. At the base of the escarpment the vegetation is of *Caatinga* and by the top of the ridge dry *Cerrado* and *Cerrado de altitude* (for definitions of vegetation types see HIND, 1993), with small areas of gallery forest along the course of the Rio Brumado adjacent to, and above, the waterfall. The Estrada Real passes through the boundary zone between *Caatinga* and *Cerrado*, and it was in this area, while carrying out fieldwork for a popular book on the Flowers of the Chapada (HARLEY & GIULIETTI, 2004) where a new addition to the Bahian flora was discovered.

METHODOLOGY

A tree of some five to six metres height, with distinctive discoloured leaves and winged upper stems, had been highlighted by one of us (RMH) in 1999, followed by collections in 2000 and 2001. It is a species conspicuous in the dry season, between June and November or December. In 2000 a series of field notes was made, but these were only of the vegetative plant, with old capitula and the few remaining achenes and fragmentary corollas present. In 2001 flowering material, with white flowers, was collected. Recent work at Kew (by DJNH) in assessing the acceptability of new genera for a new edition of Brummitt's *Vascular plant families and genera* helped towards the final

determination of this tree's identity.

RESULTS

A comparison of the collections from Bahia with type material available in the Kew Herbarium (K) enabled it to be identified as *Gorceixia decurrens* Baker, though a close examination of the protologue, and subsequent research, has highlighted a number of problems. BAKER (1882), obviously unaware of the potential problems with Glaziou's collections, relied on the very limited label information for the locality of the material and on his experience to determine the habit and corolla colour. An explanation of these is provided, following the description below:

Description

Gorceixia decurrens Baker, J. Bot. 20: 225, tab. 232 (1882). Type: 'Rio de Janeiro, Glaziou 12803!'. [Minas Gerais: Antonio Seriera [sic!], dans les bois – GLAZIOU 1910]. (Holotype K, isotype C, K, P photograph US).

Trees to 5 or 7 m tall; trunk to 10–15 cm diam., bark and older stems fissured, young stems and inflorescence branches conspicuously winged, wings 6 mm wide, stems and wings at first densely pubescent, stem-hairs stellate (with short branches) and densely matted, stems glabrescent with age, usually poorly branched, wings bearing similar, but denser, pubescence to respective leaf surfaces (wing side corresponding to upper leaf surface with stellate hairs with short branches, that of lower surface with long-branched stellate hairs). Leaves loosely spiralled to alternate, simple, pseudopetiolate, pseudopetioles 1.5–3 cm long, often with auriculate bases which on younger ste-

ms extend down stems forming distinctive wings, lamina 10 – 25 x 5 – 10 cm, oblong to ovate, discolorous, upper surface at first pubescent, rapidly glabrescent with age but retaining sparse stellate pubescence towards base of leaf, hairs 4–5-branched, branches short, surface also sparsely glandular-punctate, lighter beneath and densely pubescent, hairs stellate and remarkably long 4-branched, also sparsely glandular-punctate, midrib and secondary veins prominent beneath, margins flat, apparently entire but sparsely minutely apiculate denticulate, apices acute to acuminate or long-acuminate. Inflorescences of dense terminal panicles interspersed with reduced leaf-like bracts and capitula aggregated into pedicelled glomerules containing numerous capitula and subtended by a secondary involucre of reduced leaf-like bracts, glomerules also occasionally interspersed with few reduced leaf-like bracts; bracts densely pubescent and appearing white from stellate hairs; capitula homogamous, discoid; involucre cylindrical to narrowly campanulate; phyllaries c. 3-seriate (although stated to be uniseriate by Baker, 1882: 225), outermost short and densely pubescent, inner essentially glabrous, linear to narrowly oblanceolate or oblanceolate, margins lacinate, apices caudate or cuspidate sometimes with apical ‘spine’ irregularly lacinate; receptacle small, flat, epaleaceous, glabrous. Florets 5 per capitulum, hermaphrodite, all apparently fertile, faintly scented; corollas actinomorphic, whitish (although Baker stated ‘reddish’ in his protologue, as he was unaware of its natural colour), corollas variously spreading in living material, corolla tube c. 2.5–3 mm long x c. 0.4 mm diam., flared slightly at base, glabrous or sparsely to moderately glandular-punctate, expanding somewhat rapidly into upper throat, throat c. 2 mm long x 1 mm diam., glabrous or sparsely glandular-punctate, corolla lobes 5, 1.3 mm long x 0.5 mm wide, glabrous to sparsely glandular-punctate, markedly thickened at apices; anther cylinder partially exerted from throat, anther collars indistinguishable, apical anther appendages about twice as long as wide, apices acute, basal anther appendages very short, scarcely acute; style base lacking basal node and nectary, glabrous, style shaft c. 4 mm long, glabrous to just beneath branching of style arms and then long-papillose; style arms c. 1 mm long, long-papillose outside, papillae with acute apices. Achenes 3–4-angled, body glabrous, 2–2.5 mm long, light brown; carpodium indiscernible; pappus appearing as an irregular markedly lacinate crown, often somewhat zygomorphic, often divided into segments (each with lacinate upper margins), 0.5–1.1 mm tall, similar in colour to achene body, brown and only distinguished at base by constriction in position of apical callus. Pollen: *Vernonia* type A (PRUSKI, 1992) (Fig. 1 and 2).

Chromosome number: Unknown at present.

Representative material: BRAZIL, Bahia: Rio de Contas. Estrada Real, parte inferior. Caatinga arbórea. 13°36'46" S, 41°48'55" W, 03 Jan. 2000, *Giulietti & Harley* 1663 (HUEFS); 25 Jan. 2001, *Harley & Giulietti* 54071 (HUEFS). Minas Gerais: Near Rio de Janeiro 1878-79 [Antonio Sereira [sic!], dans les bois, ... – see following notes] *Glaziou* 12803 (K,

holotype – this specimen bears two small illustrations, one of an achene, the other of a floret); Environs de Rio de Janeiro, 1882 [Antonio Sereira [sic!], dans les bois, ... – see following notes] *Glaziou* 12803 (K, isotype, C – photo US); Environs de Rio de Janeiro, 1882 [Antonio Sereira [sic!], dans les bois, ... – see following notes] *Glaziou* 14026 (K, RB); Francisco Sá, 15 km S, da cidade, 750 m alt., 20 Mar. 1980, *Hatschbach* 42825 (MBM, US); BR-116, 13 May 1983, *Hatschbach* 46336 (MBM, US); Itueta, 28 Oct. 1997, *Tameirão Neto* 2477 (US); Botumirim, 20 Feb. 1992, *MGC* 919 (US); Cristalia, Cabra, 19 Mar. 1992, *MGC* 935 (US). Mun. Itacambira (?). 51 km de Itacambira, próximo do ponte que atravessa o rio Jequitinhonha, na beira da estrada entre Itacambira e o entroncamento com a BR367, que vai para Diamantina. 17° 14' 41.1" S; 43° 04' 59.7" W. 589 m alt. Mata seca. 4 Apr. 2004, *Harley, Giulietti & Andrade* 55133 (HUEFS).



Fig. 1. *Gorceixia decurrens*. Illustration from *J. Bot.* 20: tab. 232.

Notes on the type specimens

BAKER (1882) cited just one collection, *Glaziou* 12803, merely paraphrasing what appeared on the pre-printed minimal label(s) of the collections he determined at Kew (which also included *Glaziou* 14026). These pre-printed labels are common amongst the *Glaziou* collections, often bear general (and wholly erroneous) localities and, apparently, ‘collecting’ dates. *Glaziou* collections are often difficult to localize and reference to the posthumous ‘Les Liste des Plantes’ (GLAZIOU, 1910) is needed for a more accurate guide to collecting localities. In the case of *Glaziou* 12803 and 14026 ‘Les Liste’ gives the locality as ‘Antonio Sereira’ [sic!], although this is more likely to be Antonio Pereira in the state of Minas Gerais. It is interesting to note that a specimen of *Glaziou* 14026 in R is localized, the label bearing the following: ‘Congonhas do Campo, no matto (Minas) 5 de Fevereiro de 1880. Arbusto flores alvacentes’.



Fig. 2. *Gorceixia decurrens* in habitat on the side of the Estrada Real, near Rio de Contas (Mun. Rio de Contas), Bahia, Brasil. Photograph by RM Harley.

Distribution

Brazil. Bahia: Rare, in a small but vulnerable population, on the steep slopes of the edge of the Serra das Almas near the Cachoeira do Brumado, Livramento de Nossa Senhora county; Minas Gerais: Serra do Espinhaço near Grão Mogol and apparently near Antonio Pereira (cf. GLAZIOU, 1910).

Habitat

Caatinga arbórea, on rock strewn slopes. A range of habitat types is listed on labels of collections from Minas Gerais including *Floresta estacional semidecídua*, *Floresta decidual* and *Cerrado das colinas*. All suggest low altitude woodland, at c. 750m, but not the really dry woodland found in Bahia.

Phenology

Flowering time: February-May.

Etymology

According to BAKER (1882) the genus was 'named after M. Henri Gorceix, the founder of the Brazilian School of Mines.' Dr Claude Henri Gorceix (1842–1919) – after whom Gorceixite was named – was a French mineralogist, geologist and physician.

Threats

The Bahian population of this species is particularly small, perhaps numbering only a few dozen plants in the only colony studied. Recently, the Estrada Real has been cleared and partially renovated. The increase in ecotourism and use by the local population has resulted in increasing clearance of the surrounding vegetation and amounts of litter; occasional fires in this area are not unknown. This species must therefore be considered under significant threat as most plants are within three or four metres of the Estrada Real. In Minas Gerais there appear to be several

populations within the Serra do Espinhaço in the north of the State.

Conservation status of *Gorceixia*

Using the '1994 Categories & Criteria' for assessing the status of 'threatened species' (IUCN, 2001), *Gorceixia decurrens* can only be assessed as Data Deficient (DD) at present. There is currently inadequate information to make a direct assessment of its risk of extinction based on its distribution and population status. Although there are clearly several populations in Minas Gerais, these have not been studied in detail. The single restricted population in Bahia is certainly under local threat (see above), but more thorough field work in the area, and in similar vegetation contact zones, is needed to determine if there are any other populations.

Relationships of *Gorceixia* within the Vernoniaeae

In the protologue of *Gorceixia* BAKER (1882) suggested it was perhaps nearest to *Oliganthes* Cass., although BENTHAM & HOOKER (1873) had considered *Oliganthes* included *Pollalesta* (a New World genus) in synonymy; PRUSKI (1996) has since sunk *Pollalesta* into *Piptocoma* Cass., recognizing *Oliganthes* as endemic to Madagascar. *Piptocoma*, like *Gorceixia*, has a stellate-tomentose pubescence. *Oliganthes* has since been placed in the paleotropical subtribe Gymnantheminae H. Rob. (ROBINSON, 1999b) where stellate hairs are lacking.

PRUSKI (1992) suggested that *Huberopappus* Pruski, *Ekmania* Gleason, and *Gorceixia* formed a 'tightly knit generic group' and that they 'appeared closest to *Pollalesta* Kunth of the Piptocarphinae'; he made no formal statement that they all belonged in that subtribe. All three genera are characterized by the unusual and strongly coroniform pappus. *Ekmania* and *Huberopappus* are narrow endemic genera, the former from Cuba and the latter from the Guayanian Venezuela. All three have been placed in the subtribe Piptocarphinae H. Rob., R. M. King & Bohlmann (BREMER, 1994; PRUSKI, 1992; ROBINSON, 1980, 1996, 1999a). BREMER (1994) left *Gorceixia* in the Piptocarphinae, in part because of the stellate indumentum, inflorescence type (generally of small few-flowered capitula) and rounded style-hairs. Indeed the indumentum appears to have been ignored by ROBINSON (1999a), who re-emphasized the deciduous inner phyllaries and noted the Piptocarphinae possess 'Vernonia type A' pollen. *Ekmania* possesses a deciduous inner pappus of setae with markedly dilated apices and a distinctive lepidote indumentum; the capitula are interspersed with reduced leaf-like bracts much as in *Gorceixia*. PRUSKI (1992) also provided a relatively extensive table of comparison of genera in the Vernoniaeae with 'coroniform or annular pappus', although *Pacourina* Aubl. and *Heterocoma* DC. also have an inner deciduous series of pappus setae. *Harleya* S. F. Blake, and *Rolandra* Rottb. have echinolphate pollen (*Vernonia* type D), and *Struchium* P. Br. has 'Vernonia type J' pollen. *Pacourina* has lophate ('Vernonia type E') pollen, and *Heterocoma* 'Vernonia type A' pollen in common with

Ekmania, *Gorceixia* and *Huberopappus*.

ROBINSON (1996, 1999a) placed *Huberopappus* and *Ekmania* formally in the Piptocarphinae leaving *Gorceixia* unassigned as to subtribe, but commented that in possessing 5-flowered capitula it showed some similarity with the Elephantopodinae Less. and the Rolandrinae Less. The Rolandrinae are perennial herbs or shrubs with single flowered capitula arranged in congested axillary secondary or tertiary heads, the phyllaries spine-tipped, the corollas 4-lobed, and the pappus reduced to a short corona or of 'short bristles'; pollen is of '*Vernonia* type D'. The Elephantopodinae are all perennial herbs with few-flowered capitula aggregated into secondary heads arranged in corymbs panicles or spikes, the phyllaries are in four decussate pairs, and the pappus of 'scabrid-barbellate bristles'; pollen is of '*Vernonia* type A'. In habit, pubescence, inflorescence

structure and pollen type it is unlikely that *Gorceixia* can be allied with either of these subtribes as suggested by ROBINSON (1999b).

The strange winged stems in *Gorceixia* are unique in the tribe Vernoniae but few of the other characters would suggest that it is markedly different from other members of the Piptocarphinae and we would include the genus in that subtribe rather than leaving it unassigned.

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