Reinstatement of *Phyllanthus retroflexus* Brade (Phyllanthaceae)

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*Phyllanthus retroflexus* Brade is reinstated. It and the very similar *P. subemarginatus* Müll. Arg. are described, illustrated, and their relationships are discussed, based on a morphological analysis of herbarium specimens. © 2008 The Linnean Society of London, *Botanical Journal of the Linnean Society*, 2008, 158, 78–81.

ADDITIONAL KEYWORDS: Brazil – *Phyllanthus subemarginatus* – subsection Clausseniani – taxonomy.

INTRODUCTION

During the elaboration of a monograph on the genus *Phyllanthus* (Phyllanthaceae) from Pernambuco State, Brazil, approximately 2000 specimens held by 30 herbaria were examined. Of these, the specimens deposited at the herbarium of the Universidade Federal de Feira de Santana (HUEFS), with specimen numbers 30570, 30610, 45309, 38690, 18779, 03367, and 48682, and identified as *Phyllanthus subemarginatus* Müll. Arg., drew our attention as being different from the remaining specimens of this species. After a detailed analysis of this material, and the protologue and type specimens of *Phyllanthus subemarginatus* and its synonyms, it was established that the above-mentioned specimens were in fact *P. retroflexus*. The latter taxon had been synonymized with *P. subemarginatus* by Webster (2002) in his review of the Brazilian species of *Phyllanthus* section *Phyllanthus*. Consequently, *P. retroflexus* is revalidated here. Its species status is supported principally by its distinctive morphological characteristics and geographical distribution.

*Phyllanthus retroflexus* Brade, Archivos Jardim Botânicos do Rio de Janeiro 15: 8. 1957

Type: Brazil. Espírito Santo: Município Cachoeiro do Itapemerim, Vargem Alta, Morro do Sal, 700 m, Brade 19768 (holotype: RB; isotype: NY). (Fig. 1A–K.)

Description: Subshrub or shrub 40–80 cm high, monoeccious, erect to decumbent, sometimes caespitose, generally densely branched. Branching nonphyllanthoid; branches 4.6–13.4 cm long, cylindrical, greyish to reddish, or brownish, flexuous to zig-zagged; internodes 2–4 mm long. Cataphylls absent. Stipules 1.4–1.6 mm long, narrowly triangular to oval-triangular, strongly acuminate, margin entire, scarious, brownish; petiole 1.1–2 mm long, cylindrical, glabrous, greenish to vinaceous; leaf blade 3–6 × 3–6 mm, chartaceous, ovate to orbicular; base rounded; apex rounded, sometimes slightly emarginated; margin strongly revolute; discoloured; upper surface dark green; lower surface glaucous; venation brochidodromous, veins on upper surface impressed, on lower surface prominent. Staminate cymes two- to three-flowered, opening from the base of cymule, or rarely cymes bisexual [one pistillate flower, and (1)–2 staminate flowers]; bracts c. 0.8 mm, ovate, acuminate. Staminate flowers with pedicel 1.9–2.2 mm long, angular, slender; sepals 5, 1.2–1.3 × 1.1–1.2 mm, obovate, ovate, acuminate. Staminate flowers with pedicel 1.9–2.2 mm long, angular, slender; sepals 5, 1.2–1.3 × 1.1–1.2 mm, otrullate to obovate, with...

Type: Brazil, Rio de Janeiro, Glaziou 1467 (holotype, G).

Description: Subshrub 48–80 cm high, monoecious, erect, caespitose, glabrous, sparsely to densely branched. Branching nonphyllanthoid; branches straight to sometimes zig-zagged, cylindrical, greyish to reddish or brownish; internodes 6–11 mm long. Cataphylls absent. Stipules 1–1.3 mm long, triangular-oval, acuminate, margin slightly dentate, scarious. Petiole 1.2–2 mm long, cylindrical, vinaceous; leaf blade 1.2–1.9 × 0.9–1.2 cm, membranaceous, widely elliptical; base obtuse; apex rounded and slightly mucronate; discoloured; upper surface dark green; lower surface glaucous; venation brochidodromous. Cymules bisexual with one pistillate flower and one to two staminate flowers distributed along the branch; bracts 0.4 mm, triangular, hyaline. Staminate flowers with pedicel 2.3–3.5 mm long, filiform; sepals 5, 1.2–1.4 × 1.0–1.1 mm, widely obovate, apex rounded, midvein evident, greenish; disc with five obtriangular segments, surface strongly verrucose; stamens 3, free; anther sacs ellipsoid, dehiscing horizontally, not deeply emarginated. Pistillate flowers with pedicel 4–10.5 mm long, filiform, whitish; sepals 5, 0.8–1.3 × 0.6 mm, obtrullate, elliptical central mark present; disc patelliform, margin entire; ovary c. 1 mm long, depressed-globose; styles 3, free, bifid, recurved; stigma capitate. Capsule 1.1 × 1.8–2 mm, depressed-globose, slightly veined; fruiting pedicle c. 10 mm long; sepal and styles persistent. Seeds 0.9–1 mm long, trigonous; hilum obtriangular; seed coat verrucose; embryo not seen.


Distribution: This species is restricted to the eastern Brazilian states of Bahia and Espírito Santo. It grows in campo rupestre vegetation in areas with granite outcrops at altitudes between 577 and 800 m in Bahia State, and in subalpine campos rupestres (700 m) in Espírito Santo State. Flowers and fruits in May to September, and December.


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Figure 1. A–K, *Phyllanthus retroflexus* Brade: A, habit; B, distance between adjacent nodes; C, representative flowering branch; D, mature leaf blade with a revolute margin; E, leaf blade variations; Ea, ovate, Eb, orbicular; F, staminate flower; G, stamen in frontal view; H, stamen in dorsal view; I, staminate disc gland (Noblick *et al.* 3211); J, pistillate flower; K, pistillate sepals (Queiroz *et al.* 6399); L–S. *Phyllanthus subemarginatus* Müll. Arg.: L, habit; M, distance between adjacent nodes; N, staminate flower; O, stamen in frontal view; P, stamen in dorsal view; Q, staminate disc gland; R, pistillate flower; S, pistillate sepals (Silva 188).
Distribution: Endemic to the eastern coast of Brazil (states of Bahia, Pernambuco, Rio de Janeiro, Santa Catarina, and São Paulo). It grows in the interior of the Atlantic Coastal Forest areas, in the coastal zone, although it reaches the montane forest of Pernambuco (altitude, 800 m) within the semiarid domain.

TAXONOMIC DISCUSSION
Phyllanthus retroflexus was described by Brade (1957) based on a plant collected in Espírito Santo, Brazil. In spite of being a well-defined species, this name was practically never used to identify local specimens. Webster (2002) considered this species as synonymous with P. subemarginatus after analysing the following collections: Noblick et al. 3211 (HUEFS), Heringer et al. 738 (PEUFR), Hatschbach 49959 (DAV, MBM), Porto & Fagundes 2186 (RB), Miranda & Araújo 364 (ESA), Martinelli & Simonis 9056 (US), Klein & Bresolin 9406 (US), and Luederwaldt & Fonseca 13816 (SP). However, the collection Noblick et al. 3211 (DAV, HUEFS) refers to P. retroflexus, which constitutes a well-defined species in terms of a suite of characteristics given in the key above. This species appears to grow only in campos rupestres vegetation of Bahia, and in subalpine campos rupestres of Espírito Santo State. By contrast, P. subemarginatus is a widely distributed species between the north-eastern and south-eastern coastal regions of Brazil, occurring in the Atlantic Coastal Forest.

Müller (1863) considered P. subemarginatus to be a dioecious species, but it is monoecious. His interpretation resulted from probably incomplete or fragment specimens, or he may not have found pistillate flowers. These flowers are produced in small numbers and are generally located in the median portions of a few branches, and may have been absent in the samples examined by him. The analysis of the collections cited above and field observations (Pernambuco State) clearly show that this species is monoecious. 

Phyllanthus subemarginatus and P. retroflexus belong to Phyllanthus section Phyllanthus subsection Clausseniani, which includes subshrubs or shrubs, rarely trees, branching usually not phyllanthoid, straight or rarely zig-zagged, leaves orbicular or widely elliptical, stamens 3, generally free, anther sacs with horizontal dehiscence, and connectives frequently thickened.

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