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Hierobotana Briq., an intriguing monotypic genus of tribe Verbeneae (Verbenaceae)

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Abstract

Hierobotana is a monotypic genus that belongs to tribe Verbeneae and is endemic to Ecuador. It is morphologically distinct from the other genera of Verbeneae in having only two functional stamens instead of four, as occur in most Verbenaceae. In the present work the relationship between *Hierobotana* and the other genera of Verbeneae is examined for the first time. Its single species, *Hierobotana inflata,* is described and illustrated and a key to the genera of tribe Verbeneae is provided.

Key words: *Hierobotana*, South America**,** systematics, taxonomy, Verbenaceae

Introduction

Verbenaceae is represented by 34 genera, assembled in 8 tribes (Atkins 2004, Marx *et al.* 2010). Tribe Lantaneae, followed by tribe Verbeneae, are the two biggest tribes in the family in regard to the number of species (Lu-Irving 2013). Tribe Verbeneae includes five genera: *Glandularia* Gmelin (1791[1792]: 886, 920), *Hierobotana* Briquet (1895: 148), *Junellia* Moldenke (1940: 392), *Mulguraea* O'Leary & Peralta (2009: 782) and *Verbena* Linnaeus (1753: 18). These genera all share the presence of fruit divided into 4 units, called cluses, as a consequence of the separation of the fruit longitudinally along the transverse plane of the ovary. This constitutes a nonhomoplasious synapomorphy of tribe Verbeneae (O'Leary *et al.* 2012). The "Verbena complex", as genera from tribe Verbeneae have been referred (Yuan & Olmstead 2008a), is a rapidly diversifying group.

Junellia and *Mulguraea*, as recently circumscribed, are both monophyletic genera (O'Leary *et al.* 2009, 2011); *Junellia* is morphologically supported by a narrowed cluse base, *Mulguraea* is supported by connective tissue surpassing the thecae and monobotrya inflorescences (absence of axillary florescences) (O'Leary *et al.* 2012).

Verbena and *Glandularia* are strongly supported as monophyletic by several genes, though several other genes provide evidence of introgression and chloroplast transfers (Yuan & Olmstead 2008 a, b; Yuan *et al.* 2010), which is not surprising given the close relationship between these genera. Furthermore, morphological features, in addition to chromosome counts, strongly differentiate these two genera (O'Leary *et al.* 2012). *Verbena* is supported by the presence of a short style and basic chromosome number x=7, while *Glandularia* is supported by the presence of divided leaf blades, glandular anther appendices and basic chromosome number x=5.

Hierobotana was first described by Kunth (1818) as *Verbena inflata*, and in spite of the presence of only two stamens, the author placed it under *Verbena*. Later on, Briquet (1895) transferred it to a new genus, *Hierobotana*, arguing that the composition of the androecium was different enough to establish the new genus. Since then, no further studies have been done, nonetheless based on the fruit morphology (4 cluses) subsequent authors place this genus in the tribe Verbeneae (Troncoso 1974, Atkins 2004). This inclusion within tribe Verbeneae has been recently confirmed by molecular phylogenetic studies (Marx *et al.* 2010).

Hierobotana is a monotypic genus, present in the central Andean region of Ecuador, distinguished because it has only two stamens and no staminodes. Two stamens are also present in *Stachytarpheta* Vahl (1804: 205) (tribe Duranteate), a genus with ca. 90 species, widely distributed along tropical and subtropical America with some

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NNE Quito, 2640 m, 17 January 1945, *Fosberg 22537* (COL, US); Near Mariscal Sucre Airport, 15 July 1979, *Løjtnant 15983* (AAU); Quito, around Universidad Católica, 14 July 1979, *Løjtnant 15924* (AAU); Vía Mitad del Mundo, Calacalí, 7 April 1979, *Jaramillo 931* (AAU); Panamerican HWY, 1 km N Equator, 2636 m, 24 July 1955, *Asplund 17069* (K, TEX, US); 2 km N san Antonio, 2450 m, 11 April 1973, *Humbles 6199* (AAU, TEX); Quito, 10 km N town, 2750 m, 1 May 1955, *Asplund 16145* (K, TEX); Quito, 5 March 1930, *Benoist 2091* (P, SI); Andes Quitensis, December 1858, *Sparew 5891* (K). Tungurahua: Sine loc., Octubre 1836, sine legit "det Botta 1985" (P, SI); Ambato, 31 March 1931, *Benoist 4122* (P, SI), Ambato, Mocha, July 1939, *Sandeman* s.n. (K); Along FFCC, near Cevallos, 15 April 1945, *Camp E-2427* (US); Hill above Laguna de Yambo, 9 N Ambato, 2860 m, 26 January 1945, *Fosberg 22551* (US); Ambato, 2600m, 21 September 1923, *Hitchock 21737* (US); Ambato, Ficoa, February 1919, *Pachano 144* (US); idem, *Pachano 156* (US); Luisa, October 1918, *Rose 23906* (US).

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