



Three new species of *Ficus* (Moraceae) from Central and northern-South America

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Abstract

Three new species of *Ficus* are described and illustrated. *F. nebulosilvana* which is restricted to the cloud forest of western Andes in Colombia and Ecuador, *F. palmarensis* which is restricted to the cloud forests of Chocó in Colombia, and *F. plectonervata* which is distributed from the central biogeographic region of Chocó in Colombia to Costa Rica. Species conservation assessments are presented and the taxonomic relationships of the new species and etymology are discussed.

Resumen

Se describen e ilustran tres nuevas especies de *Ficus*. *F. nebulosilvana* restringe su hábitat a bosques nublados en los Andes Occidentales en Colombia y Ecuador, *F. palmarensis* se conoce solamente de bosques nublados del departamento de Chocó en Colombia, y *F. plectonervata* se distribuye desde la zona central del Chocó biogeográfico en Colombia hasta Costa Rica. Se presenta una evaluación del estado de conservación de las nuevas especies y se discuten las relaciones taxonómicas de estas, así como la etimología de los nombres asignados.

Introduction

Ficus is the largest genus in the Moraceae (fig) family (Berg 2001b). It comprises approximately 800 species distributed Worldwide and classified in six subgenera of which *Pharmacosyce* and *Urostigma* are naturally distributed in the Americas (Harrison 2005).

Ficus are trees characterized by milky latex in every organ, glands on the base of the leaves, and inflorescences in urceolate capitula (syconia or figs). Subgenus *Pharmacosyce* trees are generally free-standing and bear only one fig per bud. Subgenus *Urostigma* are usually hemiepiphytes (stranglers) and bear two figs per bud. Both subgenera occupy a great diversity of habitats, from dry ecosystems to rain forests. The three new species here described correspond to subgenus *Urostigma* section *Americana* (Berg 2009) and are distributed from Ecuador to Costa Rica.

There is no taxonomic study available today that covers all neotropical *Ficus*. Some works have included a long number of species (e.g. Carauta, 1989, Berg *et al.*, 1986) but only consider Brazilian taxa. The only work that examines the entire range of the genus is focused on subgenus *Pharmacosyce* and comprises only nine species (DeWolf, 1965). The most complete and up to date works are Berg (2001a, 2009, 2013), Berg & Simonis (2000) and Berg & Villavicencio (2004), which correspond to regional treatments.

Ficus of Colombia, the country with the highest species richness (ca. 100) remain poorly studied. The most detailed works are Dugand's taxonomic studies (e.g. 1942, 1943, 1944, 1946), where he described numerous taxa. Pederneiras & Romaniuc-Neto (2012) recently described a new species of subgenus *Pharmacosyce* from South-west Colombia. It is likely that more studies and field trips in Colombia will lead to new scientific discoveries.

Methods

This study was based on observations of herbarium specimens at the herbaria COL, CHOCO, CUVC, PSO, HUA, JAUM, MEDEL, US, MO, F, and NY, where the shapes and sizes of the leaves, figs and stipules of the plants were

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References

- Berg, C.C. (2001a) Moraceae. In: Berry, P.E., Yatskievych, K. & Holst B.K. (Eds.) *Flora of the Venezuelan Guayana, Volume 6: Liliaceae-Myrsinaceae*. Missouri Botanical Garden Press, St. Louis, pp. 693–729.
- Berg, C.C. (2001b) Moreae, Artocarpeae, and *Dorstenia* (Moraceae) with introductions to the family and *Ficus* and with additions and corrections to Flora Neotropica Monograph 7. *Flora Neotropica* 83: 1–346.
- Berg, C.C. (2009) 27C. Moraceae (*Ficus*). In: Harling, G. & Persson, C. (Eds.) *Flora of Ecuador 85*. University of Göteborg, Sweden, 146 pp.
- Berg, C.C. (2013) Moraceae. In: Davidse, G., Sousa, M., Knapp, S., & Chiang, F. (Eds.) *Saururaceae a Zygophyllaceae. Fl. Mesoamer. 2(3): ined.* Universidad Nacional Autónoma de México, México, 91 pp. Available from: <http://www.tropicos.org/docs/meso/moraceae.pdf> (accessed 13 January 2013).
- Berg, C.C. & Simonis, J.E. (2000) Moraceae. In: Riina, R. (Ed.) *Flora de Venezuela*. Moraceae-Cecropiaceae. Fundación Instituto Botánico de Venezuela, Caracas, 269 pp.
- Berg, C.C., Vázquez-Ávila, M., & Kooy F. (1986) *Ficus* species of Brazilian Amazonia and the Guianas. *Acta Amazonica* 14: 159–194.
- Berg, C.C. & Villavicencio, X. (2004) Taxonomic studies on *Ficus* (Moraceae) in the West Indies, extra-Amazonian Brazil, and Bolivia. *Ilicifolia* 5: 1–177.
- Burger, W.C. (1973) New species in Moraceae. *Phytologia* 26(6): 421–434.
- Carauta, J.P.P. (1989) *Ficus* (Moraceae) no Brasil: conservação e taxonomia. *Albertoa* 2: 1–365.
- DeWolf, G.P. (1965) *Ficus*, subgenus *Pharmacosycea* in America. *Elliottia* 4: 1–20.
- Dugand, A. (1942) Nuevas especies colombianas del género *Ficus*. *Caldasia* 1(4): 25–74.
- Dugand, A. (1943) Nuevas nociones sobre *Ficus*. *Caldasia* 2(8): 265–283.
- Dugand, A. (1944) Nuevas nociones sobre *Ficus* II. *Caldasia* 2(9): 375–386.
- Dugand, A. (1946) Nuevas Nociones Sobre *Ficus* V. *Caldasia* 4(17): 113–120.
- Harrison, R.D. (2005) Figs and the diversity of tropical rain forests. *Bioscience* 55: 1053–1064.
[http://dx.doi.org/10.1641/0006-3568\(2005\)055\[1053:FATDOT\]2.0.CO;2](http://dx.doi.org/10.1641/0006-3568(2005)055[1053:FATDOT]2.0.CO;2)
- IUCN (2001) *IUCN Red List Categories and Criteria: Version 3.1*. IUCN Species Survival Commission. IUCN, Gland, Switzerland and Cambridge, U.K. 30 pp.
- Miquel, F.A.W. (1867) Annotationes de *Ficus* speciebus. *Annales Museum Botanicum Lugduno-Batavi* 3(9): 260–300.
- Pederneiras, C.P. & Romaniuc-Neto, S. (2012) *Ficus dewolfii* (Moraceae), a New Species from Colombia. *Systematic Botany* 37(3): 684–687.
<http://dx.doi.org/10.1600/036364412x648643>