Malpighia meyeriana (Malpighiaceae), a new species from the NE coast of Cuba

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Abstract

González Gutiérrez P. A.: *Malpighia meyeriana* (*Malpighiaceae*), a new species from the NE coast of Cuba [Novitiae florae cubensis 49]. – Willdenowia 45: 443–447. 2015. – Version of record first published online on 16 November 2015 ahead of inclusion in December 2015 issue; ISSN 1868-6397; © 2015 BGBM Berlin.

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Malpighia meyeriana, a new species from the NE coastal fringe of Cuba, is described and compared with other species of the genus occurring in Cuba. Aspects of its distribution and conservation status are discussed.

Additional key words: taxonomy, *Malpighia emarginata*, *Malpighia glabra*, *Malpighia verruculosa* subsp. *antillana*, endemism, critically endangered

Introduction

Malpighia L. (*Malpighiaceae*) comprises c. 130 species distributed from Texas (U.S.A.) to N South America and the islands of the Caribbean according to a revision of the genus published by Meyer (2000). Roig & Acuña (1953) recorded 21 species for the Cuban archipelago, and Borhidi & Muñiz (1972) by adding two additional species increased the number to 23. In an unpublished doctoral thesis, Vivaldi (1979) placed in synonymy some of the names accepted by Roig and Acuña (1953) and reduced *Malpighia* in Cuba to only eleven species including seven endemics.

Meyer's (2000) recognition of numerous new species and subspecies raised the number to 59 species and nine subspecies in Cuba. The descriptions of 11 of the new Cuban taxa proposed by Meyer lack diagnostic characters pertaining to inflorescences, flowers and fruits, all of which call some of the circumscriptions into question.

According to Meyer's (2000) work almost half of the species of *Malpighia* occur in Cuba. Acevedo-Rodríguez & Strong (2012) stated that "since Meyer's concepts are too contrasting from the traditional taxonomy of *Malpighia*, we feel that his system needs further testing before it can be accepted", and Anderson (2013) proposed only "50 or more species" for the genus *Malpighia*.

The taxonomic uncertainty points to the need for comprehensive revision of *Malpighia* in Cuba. With this aim, field expeditions are being carried out in order to find the wild populations of species of *Malpighia*, particularly of those that are known only from type specimens and/or incomplete descriptions. To date, about 15 species of *Malpighia* have been relocated, making possible the description of inflorescences, flowers, fruits and pyrenes of some of Meyer's novelties (e.g. *M. flavescens* F. K. Mey., *M. phillyreifolia* F. K. Mey.; González, unpubl.). Study of Meyer's (2000) treatment, field work and examination of herbarium specimens revealed a taxon with

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characteristics not matching any described species of *Malpighia*. This taxon is here described as a new species.

Malpighia meyeriana P. A. González, **sp. nov.** – Fig. 1, 2. Holotype: Cuba, Provincia de Holguín, Municipio de Gibara, cerca de la curva de la campana, entre la carretera y el manglar de *Rhizophora mangle*, en vegetación secundaria con abundancia de *Dichrostachys cinerea*, 4 Nov 2014, *P. A. González Gutiérrez HFC 88202* (HAJB G 000487; isotypes: B 10 0594594, Herbarium of Holguín Botanical Garden). [*HFC* = Series of the Herbarium of the Flora of Cuba.]

Morphological diagnosis — Leaf blade obovate or elliptic, 2–5 × 1–2 cm, base acute, margin entire, bearing thin hairs 1–1.5 mm long, apex obtuse, rounded, sometimes emarginate and commonly mucronulate. *Inflorescence* sessile or borne on a stalk, 2-flowered. *Fruit* orange, turning red when ripe, globose, 1–1.5 cm in diam.; *pyrenes* 6–7 × 3.5–4 mm.

Morphological description — Shrubs or *small trees*, densely branched, 2–5 m tall. *Stipules* 0.5–0.7 mm long, apex very acute; *petiole* 1–2 mm long, densely covered with hairs <1 mm long; *leaf blade* adaxially shiny green, abaxially paler green, obovate or elliptic, 2–5 × 1–2 cm, adaxially with scattered thin hairs <1 mm long, abaxially with abundant thin hairs <1 mm long, on both surfaces thin hairs falling with age, base acute, margin entire, bearing thin hairs 1–1.5 mm long, apex obtuse, rounded, sometimes emarginate and commonly mucronulate; *midvein* prominent abaxially; *secondary veins* 5–11 pairs. *Inflorescence* (Fig. 2A) sessile or borne on a stalk 1–2 mm long, 2-flowered, thick, densely hairy; *peduncle* 4–6 mm long, hairy; *bracts* c. 0.5 mm long, hairy; *pedicels* 9–11 mm long, hairy; *bracteoles* 0.3–0.4 mm long, densely hairy. *Flower* (Fig. 2B) c. 1 cm in diam.; *calyx* with 10 glands (1–1.5 mm long), free part of *sepals* c. 1 mm long, abaxially hairy, apex rounded; *petals* 5, dark pink; *posterior petal* limb c. 4.5 × 4.5–5 mm, margin mostly irregularly erose, claw thick, 2.5–3 mm long; *posterior lateral petals* limb c. 3 × 3.5 mm, margin irregularly erose basally and mostly entire apically, claw 1–1.5 mm long; *anterior lateral petals* limb c. 2–2.5 × 2–2.5 mm, margin mostly entire, claw 1–1.5 mm long; *stamens* 10; *filaments* c. 2 mm long, those opposing posterior lateral petals conspicuously thicker than others; *anthers* c. 0.5 mm long; *ovary* c. 2 mm in diam., glabrous with few scattered hairs; *styles* 3, c. 3 mm long, anterior style slightly thicker than posterior styles. *Fruit* (Fig. 2C) orange, turning red when ripe, globose, 1–1.5 cm in diam.; *pyrenes* (Fig. 2D) 3 per fruit, 6–7 × 3.5–4 mm, each with a prominent dorsal crest.

Phenology — The species has been collected in flower in November and in fruit in September, October and November.

Distribution — Malpighia meyeriana is a local endemic of the coastal fringe of the province of Holguín in NE Cuba. It has been collected in the municipalities of Gibara and Mayarí, which are located about 70 km apart (Fig. 3).

Ecology — The species has been collected in thickets near mangroves of *Rhizophora mangle* L. (*Rhizophoraceae*) in Gibara and of *Avicennia germinans* (L.) Stearn (*Acanthaceae*) in Mayarí. In Gibara it grows in secondary thickets, where the exotic and invasive *Dichrostachys cinerea* (L.) Wight & Arn. (*Fabaceae*) is dominant and two other species of *Malpighia* occur, *M. flavescens* and *M. linearifolia* F. K. Mey. In Mayarí the species grows associated with *M. linearifolia*.

Conservation status — In the last four years only two mature plants of *Malpighia meyeriana* were seen in nature at localities c. 70 km apart. Other coastal areas of Gibara and Vuelta Larga were explored during the last 15 years, but no other populations of *M. meyeriana* were found. The estimate of the area of occupancy of this species is less than 10 km^2. In Gibara *M. meyeriana* was found growing in thickets dominated by exotic invasive *Dichrostachys cinerea*. Thus, according to IUCN criteria (IUCN 2012), *M. meyeriana* must be classified as Critically Endangered: CR B1ab(iii,v)+2ab(iii,v); D.

Etymology — The specific epithet honours Friedrich Karl Meyer (1926–2012), who dedicated part of his life to the study of the genus *Malpighia*.

Discussion of morphological characters — The most outstanding character of the species of *Malpighia* occurring in Cuba is the presence of sharp stinging T-shaped hairs or bristles, "Spindelstechhaare" in the terminology of Meyer (2000). In Cuba only three taxa are almost glabrous or have short and thin hairs, *M. emarginata* DC., *M. glabra* L. and *M. verruculosa* subsp. *antillana* (Vivaldi) F. K. Mey., which are the taxa most similar to the new species described here.

Meyer saw a specimen of the new species (*HFC 86489*, JE) and identified it in February 2011 as *Malpighia emarginata*, which is cultivated in Cuba; it can be found in abandoned orchards or rarely growing spontaneously near towns. *Malpighia emarginata* is often cursorily identified by the short shoots bearing closely spaced paired leaves as well as shoots with longer internodes. Fig. 1 shows that this leaf arrangement is also found in *M. meyeriana*, which may have led Meyer to assign the cited specimen to *M. emarginata* (C. Anderson, pers. comm.). *Malpighia emarginata* has leaves slightly larger than those of *M. meyeriana*, and the leaf margin of *M. emarginata* is glabrous or bears hairs shorter than in *M. meyeriana*. Plants of *M. emarginata* usually have inflorescences with more than 2 flowers, whereas *M. meyeriana* has only 2-flowered inflorescences. The pyrenes of

Fig. 1. Holotype of *Malpighia meyeriana*, deposited in the Herbarium of the National Botanical Garden of Cuba (HAJB).

Fig. 2. *Malpighia meyeriana* – A: flowering branch; B: flower, posterior petal at top; C: fruiting branch; D: comparison of pyrenes of *M. emarginata* (left) and *M. meyeriana* (right).

M. emarginata are larger than those of *M. meyeriana* (Fig. 2D).

Malpighia glabra differs from the new species by its almost glabrous leaves, which have short and thin hairs only when they are very young. The leaf blade apex in *M. glabra* is mostly acute, but in *M. meyeriana* it is mostly obtuse, rounded, sometimes emarginate and commonly mucronulate. The inflorescence of *M. glabra* has more flowers [(2 or)3-5(or 6)-flowered] than that of *M. meyeriana* [2-flowered].

The separation of *Malpighia meyeriana* and *M. verruculosa* subsp. *antillana* is more obvious, since among the species of *Malpighia* occurring in Cuba, *M. verruculosa* subsp. *antillana* is the only taxon in which the fruit splits into three carpels. In *M. meyeriana* the fruit is globose, as in *M. emarginata* and *M. glabra*.

Additional specimens seen — Cuba: Provincia de Holguín: Municipio de Mayarí, Vuelta Larga, en un parche de matorral que se encuentra en una zona de pastos propiedad de Tico Pérez, 20 Oct 2010 (fruits), *P. A. González Gutiérrez HFC 86489* (B, HAJB, JE); Municipio de Gibara, Rancho Bravo (cultivated), 18 Sep 2011 (fruits), *P. A. González Gutiérrez HFC 87223* (HAJB).

Fig. 3. Localities (*) where *Malpighia meyeriana* was collected on NE coast of Cuba.

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