



Guatteria darienensis (Annonaceae), a new species from Panama and Colombia

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Introduction

Guatteria Ruiz & Pavón (1794: 85) is the largest genus of Annonaceae with about 210 recognized species (Chatrou *et al.* 2012, Maas *et al.* 2011). It comprises small- to medium- sized trees, rarely canopy trees or shrubs, and only two species are lianas, *Guatteria scandens* Ducke (1925:10) and *G. fractiflexa* Maas & Westra (2008: 491; Erkens *et al.* 2008). It is widely distributed throughout Mesoamerica, the Caribbean, and tropical South America (Erkens & Maas 2008). Species of *Guatteria* are common members of Neotropical forests where they occupy a wide variety of habitats, such as lowland rain forests, gallery forests, semideciduous forests, coastal forests, inundated forests, savannas and montane forests (Erkens *et al.* 2007b). However, the highest species diversity is found in the Amazon Basin with approximately half of the species occurring there. Central America harbours ca. 30 species, mostly endemics (Erkens *et al.* 2008) of which ca. 20 species occur in Panama, a highly under-collected country with respect to *Guatteria* (Erkens *et al.* 2006). In the adjacent Colombian Chocó region, we found ca. ten endemic species, and to date, only two species, *Guatteria aberrans* Erkens & Maas (2006: 201) and the new species described in this paper, are restricted to Panama and northwestern Colombia.

Recent phylogenetic studies (Erkens *et al.* 2007a, b) have confirmed monophyly of the genus and the position of *Guatteria anomala* Fries (1939: 524–525) from Mexico, Guatemala and Honduras, as sister to the rest of the genus. *Guatteria anomala* is part of a grade consisting predominantly of species of Central America and the Chocó region in Colombia (west of the Andes). Within this grade, a large unsupported clade contains the majority of the species in the genus, the so-called South American clade. Most species in this clade have South American distributions, but some nested species are from Central America, e.g. *G. dolichopoda* Donnell Smith (1897: 2) (as “*G. tonduzii*” Diels (1931: 75)), *G. aberrans* and *Guatteria sessilicarpa* Maas & Setten (1988: 257–259).

In general, *Guatteria* is easily distinguished from other Neotropical Annonaceae genera by the combination of an impressed primary vein on the upper side of the leaves, mostly axillary flowers with a clear oblique suprabasal articulation on the pedicel (Maas *et al.* unpubl. data), valvate sepals, almost always imbricate petals, and numerous carpels with a single basal ovule (Erkens & Maas 2008). Moreover, the genus is characterized by unusual chromosome differentiation and cuticular folding patterns (Moratwez & Waha 1985) and a highly distinctive type of pollen unique within Annonaceae (Moratwez & Waha 1985; Doyle & Le Thomas 2012).

Although the genus is recognizable, species recognition in *Guatteria* can sometimes be problematic because of the uniformity of floral (van Heusden 1992) and fruit characters (van Setten & Koek-Noorman 1992) and the variability in some vegetative characters within species. Furthermore, most herbarium material has only immature flowers (“open flower buds”), which are morphologically different from mature flowers in petal size, proportion and orientation (Lobão *et al.* 2011), making delimitation of species difficult. As a result several species complexes exist (Erkens 2007).

In 1939, Fries published the only revision to date of the genus as a whole. In this revision, he described 106 new species and recognized 217 species in total. His descriptions were based on gross morphology and the relatively few collections available at that time (Chatrou 1998). Since Fries’ treatment, large amounts of unidentified material have accumulated in herbaria (Erkens 2007; Erkens *et al.* 2008). Unfortunately, identifying new material using Fries’ keys (1939) has become almost impossible (Scharf *et al.* 2006a). Due to recent taxonomic revisions dealing with different geographical areas within the distribution of the genus (Scharf *et al.* 2005, 2006a, b, 2008; Erkens *et al.* 2006, 2008; Lobão & Mello-Silva, 2007; Erkens & Maas 2008; Lobão *et al.* 2010, 2011; Maas & Westra 2010, 2011), much of the previously unidentified material has been named to species, many names were placed into synonymy, and new species

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