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Resolving taxonomic uncertainties in *Iryanthera* (Myristicaceae): *Iryanthera microcarpa* a synonym of *Iryanthera tessmannii* and status of an unpublished name, *Iryanthera scandens*

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Neotropical *Iryanthera* Warburg (1896: 94) is a genus of Myristicaceae distinguished from other members of the family by its malpighiaceae trichomes, strikingly coriaceous leaves, and distinctive fruits, which are broader than long with subentire arils (Gentry 1993). Approximately 20 to 23 species of *Iryanthera* are currently recognized (Ribeiro *et al.* 1999, Jiménez *et al.* 2002, The Plant List 2017, POWO 2025), distributed across South and Central America (Tropicos.org 2017, INCT 2018). In the Peruvian Amazon, 14 species have been reported (Smith 1937, Brako & Zarucchi 1993, Tropicos.org 2017, Vásquez *et al.* 2002, Ulloa *et al.* 2004, Pennington *et al.* 2004), with the highest diversity occurring in north-eastern Peru (Loreto), where they are particularly abundant. In Brazil, 20 species have been documented (Flora of Brazil 2020, 2016), whereas Bolivia harbors eight species (Tropicos.org 2017), Ecuador 12 species (Tropicos.org 2017), Panama three species (Tropicos.org 2017), and Colombia 17 species (Universidad Nacional de Colombia 2017).

Iryanthera was first described by Warburg in 1895, incorporating two species previously classified under *Myristica*: *Myristica macrophylla* Benth (1853: 6), collected by Richard Spruce in a flooded forest near the Black River in Brazil, and *Myristica hostmannii* Benth (1853: 7), from forested regions of Suriname. Warburg continued revising the genus, and in 1897 transferred two additional species from *Myristica* to *Iryanthera*: *I. paradoxa* (Schwacke 1886: 160) Warburg (1897: 260) and *I. sagotiana* (Benth 1878: 48) Warburg (1897: 160–162), both from the lower Amazon near Manaus (Brazil) and French Guiana. In 1905, he described *I. juruensis* Warburg (1905: 137) and Huber added *I. paraensis* Huber (1909: 158), both from the lower Amazon. Nearly two decades later, the genus was expanded with *I. laevis* Markgraf (1926: 965) and *I. tessmannii* Markgraf (1928: 236), the latter based on specimens from the Peruvian Amazon. Between 1932 and 1936, Ducke made significant contributions by describing eight species: *I. tricornis* Ducke (1932: 11), *I. coriacea* Ducke (1936: 218), *I. dalyandra* Ducke (1936: 215), *I. elliptica* Ducke (1936: 219), *I. grandis* Ducke (1932: 220), *I. lancifolia* Ducke (1936: 217), *I. obovata* Ducke (1932: 11), and *I. polyneura* Ducke (1936: 216), all from his own collections in the Amazon. Smith later enriched the taxonomy of *Iryanthera*, describing *I. crassifolia* Smith (1938: 431) and *I. olacoides* Smith (1938: 427) from the Juruá River basin in the lower Amazon. Ducke introduced *I. microcarpa* Ducke (1945: 8) based on a single specimen from the forests of Tabatinga, Brazil. Further additions to the genus included *I. megistophylla* Smith (1950: 325), an endemic species from the Caribbean (Colombia and Panama) according to García (2007), and *Iryanthera megistocarpa* Gentry (1975: 478) from Colombia and Panama (Tropicos.org, 2017). In the 1980s, Rodrigues described two more species from the lower Amazon: *I. inpa* Rodrigues (1981: 852) and *I. campinae* Rodrigues (1982: 295–297). Lastly, *Iryanthera scandens* Blake is listed in The Plant List (2017) and Tropicos.org (2024), although its origin and taxonomic status are not indicated.

This study aims to clarify the taxonomic status of *I. microcarpa* by evaluating morphological and historical data to determine its potential synonymy with *I. tessmannii*. Additionally, it critically assesses the validity of *I. scandens* to establish whether its taxonomic placement is justified or should be formally rejected. A comparative morphological analysis was conducted using herbarium specimens and literature to refine species delimitations in *Iryanthera*. Furthermore, the study seeks to document and update the geographical distribution of *I. tessmannii* and related species in the Neotropics. Ultimately, the findings will contribute to the systematics of Myristicaceae by providing a well-supported taxonomic framework that enhances understanding of species relationships in the genus.

The taxonomic status of *I. microcarpa* and *I. scandens* remains uncertain, as reflected in major botanical databases. Both names are listed in *The Plant List* (2017) and *Tropicos* databases, yet discrepancies persist regarding their validity and proper classification. Notably, *I. microcarpa* appears in the *International Plant Names Index* (IPNI), whereas *I. scandens* is absent, raising questions about its nomenclatural legitimacy. Given these inconsistencies, a thorough taxonomic reassessment is necessary to resolve their status and clarify their placement within *Iryanthera*, ensuring accurate representation in botanical literature and databases.

Iryanthera microcarpa Ducke, Bol. Técn. Inst. Agron. N. 4: 8 (1945), mata da varzea do Mariassú, Brazil, with notes stating “Arvorezinha de 4 m de alt. Arilo vermelho”, 4 Mar 1944, *Ducke 1510* (RB00541801!, image from <https://plants.jstor.org/stable/viewer/10.5555/al.ap.specimen.rb00541801>)
= *Iryanthera tessmannii* Markgr., Notizbl. Bot. Gart. Berlin-Dahlem 10: 236 (1928), Peru (Peru), *Tessmann 3396* (holotype: B, destroyed; lectotype, designated here: US00098877!, image from <https://plants.jstor.org/stable/viewer/10.5555/al.ap.specimen.us00098877>)

The nomenclatural clarification presented here addresses the typification and synonymy of *I. microcarpa* and *I. tessmannii*. A review of the original protologues, specimen data, and available herbarium collections has led to the recognition of *I. microcarpa* as a synonym of *I. tessmannii*. Markgraf (1928) first described *I. tessmannii* based on a specimen collected by Tessmann (*Tessmann 3396*, 30 Nov 1923) from the flooded forests of Yarinacocha, Ucayali, Peru. The holotype at B was destroyed during World War II, but isotypes were cited as being at NY and S, which were not possible to locate. A lectotype is designated here from the US (US00098877). Markgraf’s description was based on a male individual, detailing leaf morphology, male flowers, and inflorescence structure. Later, Smith (1937) expanded knowledge of the species by describing female flowers and fruit morphology in his monograph of American Myristicaceae. Independently, Ducke (1945) described *I. microcarpa* from the floating forests of Tabatinga, Amazonas, Brazil, based on a specimen he collected (*Ducke 1510*, 4 Mar 1944, RB00541801). His description emphasized three traits that he considered diagnostic: (1) habit a small tree (4 m tall) in flooded forests, (2) relatively small fruits compared to other species in the genus and (3) placement of twigs in the inflorescences. However, upon examining the protologues and specimens, these features were found to be within the morphological variation of *I. tessmannii*, leading to the conclusion that *I. microcarpa* represents the same taxon.

A detailed comparison of the specimens reveals that both taxa share fundamental morphological and ecological characteristics, including inflorescence size, fruit dimensions, leaf shape, number of secondary veins and habitat preferences. *Iryanthera tessmannii* and *I. microcarpa* both inhabit Amazonian várzea forests, exhibiting similar adaptations to seasonally flooded environments. Although *I. tessmannii* was originally described from Peru and *I. microcarpa* from Brazil, their distributions align in the Amazon basin, further supporting their synonymy. The morphological overlap in key diagnostic characters combined with the geographical continuity confirms that *I. microcarpa* is indistinguishable from *I. tessmannii*. This clarification resolves previous taxonomic inconsistencies and contributes to a more accurate understanding of species limits within *Iryanthera*.

Iryanthera scandens, nom. inv.

According to the information available in *Tropicos* (2024), the *Foster & Smith 9431* specimen at MO was identified in 1983 by M. Dillon (F) as *I. scandens*. However, the name *I. scandens* does not appear in IPNI, *World checklist of vascular plants* (WCVP) or *Plants of the World online* (POWO). Furthermore, *The plant list* (<http://www.theplantlist.org/>) classifies it as an “unresolved name,” indicating the absence of formal publication. No duplicates or associated material exist in major herbaria, and the name is absent from *JSTOR global plants*. To resolve this issue, the first author consulted Dillon and MO (pers. comm., October 2016) regarding the *Foster & Smith 9431* specimen, and he suggested that *I. scandens* was likely a typographical error. The intended name was *Ichthyothere scandens* S.F.Blake (Asteraceae). MO subsequently confirmed that the name was indeed a misidentification and that the correct taxon associated with Foster and Smith’s collection is *Ichthyothere scandens*. Further verification of the MO Herbarium database corroborates that *Foster & Smith 9431* is *Ichthyothere scandens*. Based on this evidence, we conclude that *Iryanthera scandens* S.F.Blake originated from a mistake on a determination rather than a published taxonomic name.

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