THE CONFUSING TAXONOMY AND NOMENCLATURE OF SYZYGIUM CONFUSUM COMPLEX (MYRTACEAE)

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ABSTRACT
WIDODO, P. & VELDKAMP, J. F. 2021. The confusing taxonomy and nomenclature of Syzygium confusum complex (Myrtaceae). Reinwardtia 20(2): 43‒49. — The taxonomic and nomenclatural confusions surrounding the Syzygium confusum complex are elucidated. For that purpose, type specimens are designated and circumscriptions are presented for each species. Typifications, newly characterized descriptions and illustrations are presented for Syzygium korthalsii Widodo, S. confusum (Blume) Bakh.f., S. blumei (Steudel) Merr. & L.M.Perry, S. insigne (Blume) Merr. & L.M.Perry.
The new species Syzygium sipirokense Widodo & Veldkamp is described.

Key words: Jambosa, Malesia, Myrtaceae, Southeast Asia, Syzygium.

INTRODUCTION
In studying the Sumatran free petalled species of Syzygium one may have difficulty in identifying the species with narrow leaves, especially because some of their representatives are rare and hence poorly known (Backer & Bakhuizen van den Brink Jr., 1963:343). In April 1972, for the Flora Malesiana project, Bakhuizen van den Brink Jr. & van Steenis tentatively identified and annotated two specimens preserved in L (namely HLB no. 898.203-342 part of Herb Blume s.n collected in Java without definite locality and HLB no. 898.203-344 collected around Bogor, Java by an unknown collector) as Syzygium confusum (Blume) Bakh.f. Another specimen (HLB no 898.203-345 collected in Mount Malintang, West Sumatra by Korthals) was tentatively identified by them as Syzygium cf. confusum (Blume) Bakh.f.

In 1846 Korthals had already identified his collection (HLB 898.203-345) as Jambosa lanceolata Korthals. Confusion arose when Blume (1849) proposed the name Jambosa confusa Blume for other material from Java and Sumatra, inferring that Korthals’s name was superfluous, as Jambosa lanceolatoria was an earlier name for Korthals’s material, based on Eugenia lanceolaria Roxb. (1832). To rectify this, Blume (1850) proposed Jambosa korthalsii Blume as a new name for Jambosa lanceolata Korthals. Although these specific epithets are similar, they do not mean exactly the same thing because lanceolarius (= small tip of a spear) and lanceolatus (= lance-shaped) and they are not confusable under the ICNafp (Turland et al., 2018). In this case, what is the nomenclatural status of Blume’s proposed new name Jambosa korthalsii Blume? Is it a superfluous name? Korthals’ specific epithet lanceolatum cannot be transferred to Syzygium because it is pre-empted by the combination S. lanceolatum (Lam.) Wight & Arn. (1834). It is clear, therefore, that there is a need to clarify this nomenclaturally confused situation.
In revising the taxonomy of the narrow leaves *Syzygium* in Sumatra (Widodo, 2011) we found that twigs, leaf shape, leaf base and apex more often than not offer valuable characters for delimiting species. Consequently, morphological variation in these characters in the *Syzygium confusum* complex will be given special attention.

During the course of this study, in BO we found specimens from Sumatra with characteristics very much like *Syzygium insigne* (Blume) Merr. & L.M.Perry and *S. blumei* (Steudel) Merr. & L.M.Perry (species also related to the *Syzygium confusum* complex) but with consistently varying characteristics. We take this opportunity to describe these specimens and propose a species new to science.

**MATERIALS AND METHODS**

Materials used in this research are herbarium specimens from Sumatra, Java, and Borneo preserved in the herbaria of BO, L and K. Procedures and methods of observations used in this study mostly followed those elaborated by Rifai (1976), de Vogel (1987), Widodo (2011) and Widodo (2012).

**RESULTS AND DISCUSSION**

Results of our renewed observations of morphological characters of *Syzygium confusum* complex are presented in Table 1. We found that combinations of these characters are of assistance for delimiting closely related species as can be observed in Table 1.

1. **SYZYGium KORTHALSII** Widodo. — Fig. 1. *Jambosa lanceolata* Korth. Ned. Kruidk. Arch. 1: 199. 1846. [non *Syzygium lanceolatum* (Lam.) Wight & Arn., 1834]. — *Jambosa korthalsii* Blume, Mus. Bot. Lugd.-Bat. 1: 101. 1849 [1850], nom. superfl. — *Syzygium korthalsii* Widodo, Reinw. 13(3): 235‒240 (2012). — TYPE: INDONESIA, West Sumatra, Gunung Malintang, Korthals s.n. (Holotype L! HLB no. 898.203-345), designated by Widodo (2012).

Tree diameter unknown. Twigs usually 4-angled to 4-winged, with smooth and whitish pale brown bark. Leaves relatively long compared to width, the leaf form very narrowly ovate, 30‒45 cm by 2.5‒5 cm, brown above and milky brown below when dry; leaf base cordate, leaf apex long narrowly acuminate; petiole ca. 3 mm long, swollen and corky, drying pale brown; midrib channelled on the upper surface and raised on the lower surface, pale brown when dry; major lateral veins consists of ca. 25 pairs, 1‒1.5 cm apart, at an angle of 60°‒70°, sometimes curved near the midrib and straight near the intramarginal veins; minor lateral veins absent or present, oil dots between 2 major lateral veins less than 20 per cm²; intramarginal vein 1 or 2, faint, 1‒3 mm from margin. Inflorescence a terminal cyme, but the flower with a pseudostipe 5‒7 mm long, hypanthial cup funnel-shaped; sepals triangular, 5‒6 mm long, 5 mm wide; petals unknown; style 35 mm long. Fruits unknown.

**Distribution.** *Syzygium korthalsii* is known from a limited area in West Sumatra, namely in Pariaman and in Gunung Malintang.

**Notes.** *Syzygium korthalsii* can be readily distinguished from other Sumatran species by its leaf form which is very narrowly ovate and almost linear, reaching approximately 45 cm long and only around 3.5 cm wide on average.

2. **SYZYGium CONFUSUM** (Blume) Bakh.f. — Fig. 2. *Jambosa confusa* Blume, Mus. Bot. Lugd.-Bat. 1: 101. 1849 (non *J. confusa* Blume ex Miq., Anal. Bot. Ind. 1: 27. 1850, nom. inval., in syn. sub *E. microbotrya* Miq., non pert.). *Syzygium confusum* (Blume) Bakh.f. in Bakhuizen v/d Brink Jr. & Koster, Blumea 12: 61. 1963. — *Eugenia dolichophylla* Koord. & Valeton, Meded. Lands Plantein 40: 78. 1900, “dolichophylla” non *Eugenia dolichophylla* Klaersk., En. Myrt. Bras. 157. 1893, nec *Syzygium dolichophyllum* (Laut. & K.Schum.) Merr. & L.M.Perry, J. Arn. Arb. 23: 249. 1942. — *Eugenia malayanum* Gagnep. in Lecomte, Fl. Indo-China 2: 838. 1921. *Syzygium malayanum* (Gagnep.) I.M.Turner, Gard. Bull. Singapore 47: 378. Jul 1997 (“Dec 1995”); Singapore Natl. Acad. Sci. 22‒24: 21. Aug 1997 (“1996”), nom. superfl. — *Syzygium amshoffianum* Merr., Philipp. J. Sci. 79: 366. 1951 (“1950”), nom. superfl. — TYPE: INDONESIA, Java without definite locality. Herb. Blume s.n. (Holotype L! HLB no. 898.203-342), tentatively identified/annotated as *Syzygium confusum* (Blume) Bakh.f. in April 1972 by Bakhuizen van den Brink Jr. & van Steenis.

Tree to 8 m tall. Twigs terete and slightly compressed near the nodes. Leaves narrowly lanceolate, 20‒30 cm by 3‒5 cm tapered gradually from the middle to apex; upper surface blackish brown, lower surface reddish brown when dry; leaf base
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Table 1. Morphological differences between species of Syzygium confusum complex

| No | Character       | S. korthalsii | S. confusum | S. blumei | S. insigne | S. sipirokense |
|----|----------------|---------------|-------------|-----------|------------|---------------|
| 1  | Twigs          | 4-angled to 4-winged | Terete and slightly compressed near nodes | Terete and 4-angled near nodes | 4-winged |
| 2  | Leaf form      | Very narrowly ovate | Narrowly lanceolate | Quite narrowly ovate | Narrowly ovate | Quite narrowly ovate to almost oblong ovate |
| 3  | Leaf apex      | Long narrowly acuminate | Acute to acuminate | Acute to acuminate | Acute | Acuminate to apiculate |
| 4  | Leaf size      | 30–45 cm by 2.5–5 cm | 20–44 cm by 3–5 cm | 15–20 cm by 2–3 cm | 4–10 cm by 1–2.75 cm | 10–15 cm by 3–5.5 cm |
| 5  | Leaf base      | cordate | Almost narrowly cuneate | Rounded or subcordate | Subcordate or almost rounded | Rounded or subcordate |
| 6  | Inflorescence  | Peduncle unknown | Peduncle unknown | Peduncle very short 2–5 mm or sessile | Peduncle unknown | Peduncle 4-angled, drying black |
| 7  | Locality       | Sumatra, Mount Malintang | Java | Java | Borneo, Mantapura | Aceh, North Sumatra |

narrowly cuneate, apex long acute to acuminate; petiole 10–13 mm long, slender or swollen, scaly, peeling off; midrib rounded below, pale brown when dry; lateral veins very faint on both the upper and lower surfaces ca. 30 pairs, 1–2 cm apart, at an angle of 60°–70°, oil dots a few per cm²; intramarginal vein 1, very faint 1–2 mm from margin. Inflorescence simple or paniculate to 5 cm long, terminal, up to 21 flowers per inflorescence. Rachis terete and 4-angled, drying dark brown. Flowers with short ultimate inflorescence axis, pseudostipe and hypanthial cup 8–15 mm long, trumpet-shaped to turbinate. Sepals 4 free, semiobovate, 3.5 mm long ca. 4 mm wide. Petals semiobovate ca. 5.5 mm long and wide, a few gland dots. Stamens ca. 10 mm long. Style ca. 20 mm long. Ovary 2-locular. Fruits campanulate (immature).

Distribution. Java. In Sumatra, Syzygium confusum is known only from Batam Island.

Notes. Koorders & Valeton (1900) realised that Blume’s specific epithet confusa could not be combined with Eugenia because it was pre-empted by E. confusa DC. (1828), so that he proposed the new combination E. doligophylla. This, however, is an orthographic variant of the earlier E. dolichophylla Kiaersk. (1893) as can be seen when Koorders himself corrected it (1912). It is not a misprint as was suggested by Henderson (1949: 50), as the spelling is consequently used throughout in the 1900 paper. This combination is therefore also a later homonym and illegitimate.

Gagnepain (1921) proposed the new name E. malayana for this species (Govaerts et al., 2008), which Turner (1997a, b) used in Syzygium, overlooking the fact that S. confusum was required, and that this combination had already been made by Bakhuizen van den Brink Jr. & Koster (1963). Gagnepain’s specimens (Dussaud s.n., Harmand 1314 and Thorel s.n.) and his description based on them actually refer to Syzygium megacarpum (Crab) Rathakr. & N.C.Nair (Wuu Kuang Soh, TCD, in litt.).

Unaware of Gagnepain’s action Merrill (1951) proposed yet another name: Syzygium amshoffianum, which is superfluous.

3. SYZYGIUM BLUMEI (Steu.) Merr. & L.M.Perry. — Fig. 3.
Eugenia angustifolia Blume, Flora 7(1): 291 (1824), [nom. illeg., non Eugenia angustifolia Lam., Encycl. 3: 203 (1789)]. — Myrtus
hypericifolia Blume, Bijdr. Fl. Ned. Ind.: 1082 (1826) [nom. illeg., non Myrtus hypericifolia Salisb., Prodr. Stirp. Chap. Allerton: 354 (1796)].

Jambosa hypericifolia (Blume) DC., Prodr. [A. P. de Candolle] 3: 287 (1828), nom. illeg. Eugenia hypericifolia (Blume) Koord. & Valeton, Meded. Lands Plantentuin 40, Bijdr. 6: 69 (1900) [nom. illeg.].

– Eugenia blumei Steudel, Nomencl. Bot. ed. 2. 1: 601 (1840). Syzygium blumei (Steudel) Merr. & L.M.Perry, Mem. Amer. Acad. Arts 18: 164 (1939). — TYPE: INDONESIA, Jawa, Bogor. (Holotype L! HLB no. 898.203-347), accepted by Merrill (1921), Merrill & Perry (1939), and Masamune (1942).

Jambosa insignis Blume, Mus. Bot. Lugd.-Bat. 1: 100. 1849.

Syzygium insignis (Blume) Merr. & L.M.Perry, Mem. Acad. Arts & Sci. 18: 163. 1939. Mem. Gray Herb. Harvard Univ. 4: 163. 1939; Masam., Enum. Phan. Born.: 530. 1855, nom. superfl.

— TYPE: INDONESIA, Sumatra, Tapanuli Selatan, Cagar Alam Sipirok, Nagurguran. EA Widjaja 2012, 19 March 1983 (Holotype BO!).

Small tree or shrub. Twigs winged near the nodes. Leaves sessile, opposite, lanceolate, 10–15 cm by 3–5.5 cm, leaves upper surface dark brown, lower surface brown when dry. Major lateral veins 10–14; leaf base rounded or cordate; leaf apex acuminate to apiculate; intramarginal veins one, 1–2 mm from margin, channelled above, raised below. Inflorescence arises from the leaf axil, peduncle four-angled, slightly winged, slender, black when dry. Flower unknown. Fruit ovoid to oval, 8–12 mm long, 5–7 mm diameter, green-red.

Distribution. Aceh Province, Aceh Tenggara Regency. North Sumatra, Tapanuli Selatan, Cagar Alam Sipirok, Nagurguran.

Habitat & Ecology. Primary forest 700 m alt.

Etymology. The epithet sipirokense came from one of the areas where this specimen was collected.

Conservation Status. This species is known from two locations, namely Sipirok Nature Reserve in North Sumatra and Ketambe Research Station in Aceh. The IUCN Assessment (IUCN, 2020) is categorized as Critically Endangered (CR).
Fig. 1. Syzygium korthalsii. Leafy twig.

Fig. 2. Syzygium confusum. Leafy twig.

Fig. 3. A. Syzygium blumei. B. Syzygium insigne. C. Syzygium sipirokense Widodo & Veldkamp spec. nov.
Specimen Examined. Sumatra, Aceh, Ketambe Research Station. Kramadibrata K 329, K 333, 11 March 1982.

Notes. Syzygium sipirokense resembles S. blumei. However, the leaves of Syzygium sipirokense dry dark brown above and pale brown below, instead of drying greyish above and yellowish below as in S. blumei. Twigs of Syzygium sipirokense are 4-winged, while the twigs of S. blumei are terete.

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