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NOTES ON MYRTACEAE IX

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I. A PRELIMINARY KEY TO THE SPECIES OF SYZYGIUM IN CENTRAL AND EAST AFRICA

1*a* Leaves cordate at the base, sessile or petiolate. Twigs as a rule sharply quadrangular (except in nr. 2). 2

b Leaves petiolate, acute, obtuse or rounded at the base. Flowers white. 5

2*a* Leaves as a rule not more than 10 cm long, often much smaller, subsessile. Flowerbuds not more than 3 mm in diameter. Flowers white. . . . . 1. **cordatum**

b Leaves and flowers larger, the leaves 8–30 cm long, the adult flowerbuds 5–7 mm in diameter. 3

3*a* Flowers (filaments) white. Inflorescence distinctly branched. Twigs conspicuously winged. 4

b Flowers (filaments) red. Leaves subsessile. Inflorescence short and dense. Twigs at least partly subterete. . . . . 2. **Giorgii**

4*a* Leaves petiolate. Flowers in bud about 5 mm in diameter . . . . . 3. **Germainii**

b Leaves subsessile. Flowers in bud about 7 mm in diameter. . . . . 4. **Gilletii**

5*a* A geopyrophyte, emitting short annual flowering stems from a woody base, rarely more than 60 cm high. . . . . 5. **huillense**

b Shrubs or trees. 6

6*a* Calyx-lobes distinct, about 1 mm high, subimbricate in the bud, as a rule persistent and conspicuous on the fruit. Leaves obovate or oblanceolate, mostly rounded and shortly acuminate at the apex. . . . . 6. **congolense**

b Calyx-lobes very small. 7

7*a* Flowers very small, the buds scarcely 1 mm in diameter. (Uluguru mountains). . . . . 7. **parvulum**

b Flowers larger, the buds at least 2 mm in diameter. . . . 8

8*a* Twigs quadrangular. Leaves and flowers relatively small, the leaves not more than 9 cm long, as a rule. [1]) 9

b Twigs terete. 10

[1]) **Syzygium Rowlandii** Sprague, with quadrangular twigs and larger flowers and leaves, is thus far only known from West Africa and Angola.

9*a* Leaves short- or rather long-acuminate at the apex, narrowly elliptic or obovate-elliptic, mostly thin-coriaceous. Mountains of West Africa and the Belgian Congo. . . . . 8. **Staudtii**

b Leaves rigid-coriaceous, broadly elliptic, obtuse or rounded at the apex. Mountains of Tanganyika. . . . . 9. **sclerophyllum**

10*a* Leaves obtuse or with short recurved acumen, the tip easily breaking off. Twigs robust. Montane species. Kivu-district. Ruanda-Urundi. . . . . 10. **parvifolium**

b Leaves as a rule distinctly acuminate, the tip persisting and not recurved. (Some savanna or coastal forms of *S. guineense* (Willd.) DC have also obtuse leaves; their leaves are however larger, 7–15 cm long instead of ± 7 cm long). 11

11*a* Leaves with narrow long acute tip, ovate or lanceolate, broadest below the middle, often rounded at the base. Inflorescence terminal. A swamp tree, according to some collectors with stilt roots or pneumatophores (*S. elegans* Verm. ined.) . . . . . 11. **owariense**

b Leaves broadest near or above the middle, with shorter and broader acumen. 12

12*a* Berries oblong, curved. Inflorescence lateral. A cultivated species introduced from tropical Asia, often naturalized, in East Africa possibly also native (*S. polyneuron* Verm. ined.). . . . . 12. **Cumini**

b Berries globose or ellipsoid, not curved. Inflorescence terminal or in some forms lateral. Native species. . . . . 13. **guineense**

1. **Syzygium cordatum** Hochst. ex Sonder in Harvey and Sonder, Flora capensis II (1862) p. 521.

Distribution: Natal, Gazaland, Transvaal, Rhodesia, Moçambique, Tanganyika, the Belgian Congo and Angola. One of the commonest species.

2. **Syzygium Giorgii** De Wildem. in Bull. Jard. Bot. Bruxelles IV (1914) p. 376.

Endemic in the Belgian Congo, as far as known. During flowering, the tree must be rather conspicuous by its red flowers close together in short dense inflorescences. As type specimen must be regarded De Giorgii 1322 (BR). Locally not uncommon.

3. **Syzygium Germainii** Amshoff in Acta Botanica Neerl. 8 (1958) p. 54.

Belgian Congo, Boenda, Tsuaga, Germain 8357 fl. 16 1954 (BR., type, WA); ibidem, Evrard 4021 fl. fr. (BR).

The berry collected by Evrard, though still green and unripe, has probably reached already its full dimensions; it is globose and about 3 cm in diameter.

4. **Syzygium Gilletii** De Wildem. in Bull. Jard. Bot. Bruxelles IV (1914) p. 376.

Belgian Congo: Ravin de Kimpasa, Gillet s.n., typus (BR); rive gauche de la Tsuapa, en face de Mondombe, Evrard 4405 (BR, WA); Route Bikoro – Ingondo, forêt inondable à Mitragyne, Evrard 2680 (BR). Oubangui-Chari: collector unknown (P).

Gaboon: dans la circumscription de Wolen-Ntem, Le Testu 9207 (P).

The collections of Evrard, carefully annotated, make it possible to give a better definition of *S. Gilletii* De Wildem., and to separate it on better characters from *S. Giorgii* De Wildem. (see key). Two of the specimens cited by De Wildeman in his original descriptions under *S. Gilletii* De Wildem., Claessens 311 (BR) and Van De Rijst 2026 (BR) belong, as shown by their inflorescences and red filaments (the colour is still visible in Claessens 311) to *S. Giorgii*. The twigs in *S. Giorgii* are often partly quadrangular, though less strongly and uniformly than in *S. Gilletii*. *S. Gilletii* seems to be less common in the Belgian Congo than *S. Giorgii*, but extends into Gaboon and Oubangui-Chari.

5. **Syzygium huillense** (Hiern) Engl. in Engler Bot. Jahrb. 54 (1917) p. 339; Milne-Redhead in Kew Bulletin 1947 p. 24; *Eugenia guineensis* (Willd.) Baill. ex Laws. var. *huillensis* Hiern, Cat. Welw. Afr. Plants (1898) p. 359.

An undershrub, typically developed as a geopyrophyte emitting annual flowering stems from a woody base, but possibly reaching higher dimensions (i.e. higher than 60 cm) under more favorable conditions, when there is no annual burning. Considered by White ined. as a subspecies of *S. guineense* (Willd.) DC., and in Rhodesia apparently intergrading with *S. guineense* (Willd.) DC. var. *macrocarpon* Engl.

The type is Welwitsch 4401 (BM, LISC) from Huilla, Angola, described as a dwarfshrub, 20–50 cm high, very gregarious and quasi-caespitose, growing on bushy pastures. The two other numbers Welwitsch 4402 and 4403, cited by Hiern, apparently do not belong here; they are described as small trees.

Distribution: Angola, Rhodesia, Belgian Congo, Tanganyika.

6. **Syzygium congolense** Vermoesen n. sp.

Arbor glaber, ramulis brunneis haud quadrangularibus, sed cum lineis distinctis a basi petiolorum decurrentibus. Folia obovata vel oblanceolata, apice plerumque rotundata et abrupte breviter acuminata, basi longe cuneata, 8–12 cm longa, 3–5 cm lata, vel interdum minora, vix discoloria, costa supra impressa, subtus crassa prominente, nervis lateralibus numerosis, tenuibus, utrinque prominulis, sub angulo fere recto abeuntibus, vel parum obliquis. Petiolus gracilis, circ. 1 cm longus. Inflorescentia terminalis, ramulis quadrangularibus, rigidis; floribus ultimis ternis, sessilibus. Alabastra adulta 5 mm

longa, 2–3 mm in diametro, obconoidea, lobis calycis bene evolutis, rotundatis, leviter imbricatis, 1–1$^1/_2$ mm longis. Stylus 7 mm longus; stamina breviora. Bacca globosa, sepalis conspicuis persistentibus coronata, in sicco circ. 1 cm in diametro.

Belgian Congo: Zobia, Claessens 540, type (BR); Yangambi, Germain 8281 (BR, WA); Eala, Pynaert 1166, 849 (BR); Nouvelle Anvers, De Giorgii 597 (BR); Terr. Boende, Tsuapa R., Evrard 3900 (BR, WA); Terr. Walikale, Léonard 1692 (BR, WA), etc.

Uganda: locality?, Dümmer 3236 (U.S., BM, K); Entebbe, Eggeling 4410 (K, BR), cited in Eggeling and Dale, Indigenous trees Uganda (1951) p. 274 under S. guineense (Willd.) DC., etc.

Oubangui-Chari: Thollon 33 (K).

French Cameroons: Forêt d'Essong,? Letouzey 1865 (WA, on dry soil!).

Gaboon: Ngounge, Le Testu 5730 (BM).

A swamp-forest tree, characterized by its well developed sepals and by the form of its leaves. *S. Staudtii* (Engl.) Mildbraed can be confused with this species, but grows in other localities, has quadrangular twigs, shorter sepals and as a rule smaller leaves. I am following the late Vermoesen in describing this as a species, not as a subspecies or variety of *S. guineense* (Willd.) DC.

S. congolense Verm. is apparently widely distributed in aequatorial Africa. A sterile specimen collected by Bancroft (nr. 188) in the Bukoba district of Tanganyika may also belong here; according to the collector it is the same species as that common on the shores of Lake Victoria and its islands in Uganda.

7. **Syzygium parvulum** Mildbraed in Notizblatt XIV (1938) p. 107; Amshoff in Acta Botanica Neerl. 8 (1958) p. 54.

Endemic in the Uluguru mountains of Tanganyika. The type is Schlieben 3922 (BM; BR). Recently, the species has been collected in the same mountains by Drummond and Hemsley nr. 1615 and by Semser nr. 1220. Two of these specimens are densely beset by mosses and lichens.

8. **Syzygium Staudtii** (Engl.) Mildbraed, Wissensch. Ergebn. Deutsch Zentr. Afr. Exp. (1910–1911) p. 188 (1922); Keay in Kew Bulletin 1953 p. 288; *Syzygium guineense* (Willd.) DC var. *Staudtii* Engl. t.c. (1913) p. 582; *Syzygium marounzense* Pellegr. in Bull. Mus. Hist. Nat. Paris (1923) p. 269.

Distribution: French Guinea, Liberia, Ivory Coast, British and French Cameroons, French and Belgian Congo, Gaboon.

A montane species, growing in forests at altitudes of 1000–2400 m or higher still. Sometimes also at lower altitudes. The type is apparently Staudt 491, from the Johann Albrechtshohe, at only 300 m altitude, British Cameroons. The name was however only published by Engler after the same form was recollected by Mildbraed in the Belgian Congo, between Beni and Irumu.

9. **Syzygium sclerophyllum** Brenan in Kew Bulletin 1949 p. 79. Only known from the mountains of Tanganyika.

10. **Syzygium parvifolium** (Engl.) Mildbraed, Wissensch. Ergebn. Deutsch. Zentr. Afr. Exp. (1907–1908) II Bot. 1914 p. 623; Lebrun, Essences forestières Congo Orient. (1935) p. 173 fig. 17; *Syzygium guineense* (Willd.) DC. var. *parvifolium* Engl. in Mildbraed t.c. p. 582.

In the last years, repeatedly recollected in Ruanda-Urundi and also on the other side of Lake Kivu. Not known so far from the other side of the frontier, though very similar to *S. sclerophyllum* Brenan from the Tanganyika mountains (with quadrangular twigs). The type, Mildbraed 1032, is probably lost; in that case, Robijns 2360 (BR), compared by Lebrun with the type in 1935 or before has to be designated as the neotype.
Exsiccata: Pierlot 571, 594, 287, Léonard 3418, 3440.

11. **Syzygium owariense** (Beauv.) Benth. in Pl. Nigrit. (1849) p. 359; Keay in Flora West Tropical Africa Rev. part I (1854) p. 240; Aubréville, Fl. For. C.I. ed. 2 (1959) p. 86; *Eugenia owariensis* Beauv., Fl. Owar. 2, 20 t. 70 (1810); *Syzygium guineense* (Willd.) DC var. *palustre* Aubréville, Fl. For. C.I. ed. 1 (1936) Vol. III t. 268 B; *Syzygium elegans* Verm. ined.

It seems that this species is easier recognized in the field than in the herbarium. The flowers are quite similar to those of *S. guineense* (Willd.) DC., (more glomerate perhaps), the difference in the form of the leaves is not always quite pronounced. While *S. guineense* (Willd.) DC var. *guineense* grows as a rule in fringing forests, *S. owariense* is a swamp-forest tree with (always?) stilt roots or pneumatophores (not known, apparently, in *S. guineense*). The form was first recognized by Aubréville, but needs further study.

Distribution: Sierra Leone, Ivory Coast, Southern Nigeria, Gabon, Belgian Congo (from this region often mentioned as *S. elegans* Verm. ined.); Northern Rhodesia (White ined.); Tanganyika (Iringa-district, Brenan and Greenway 8242; Burrt 6290; Mr and Mrs Hornby 666); Uganda (S. Buddadistrict Dawe 322, 963 (K)).

The name *S. owariense* has often been used for *S. guineense* (Willd.) DC., before a fragment of the type could be studied by Keay who recognized it as the var. *palustre* Aubrév. In Eggeling and Dale, Indigenous trees Uganda the name *S. owariense* is used for *S. guineense* (Willd.) DC var. *macrocarpon* Engl. (p. 275, Dawkins 295 (K)!).

12. **S Cumini** (L.) Alston, a well-known species.

13. **Syzygium guineense** (Willd.) DC.

An extremely variable species. Keay in his revision of the Flora of West Tropical Africa distinguishes the varieties *guineense*, *macrocarpon* Engl. and *littorale* Keay, the latter a coastal form with rather rigid leaves and short petioles, ranging from French Guinea to the estuary of the Congo. White ined. admits for Northern Rhodesia the subspecies *guineense*, *macrocarpon* (a widespread savanna-form), *huillense* (here, until further information, still recognized as a species), *afromontanum* White ined., a mountainform also known from adjacent

Belgian Congo and Angola, and *barotsense* White ined., growing along the upper Zambesi R. These forms show small differences in the form and dimensions of the leaves, in the length of the petioles (very short in *huillense* and *littorale*, often very long in *macrocarpon*), in the dimensions of the inflorescence (lax and manyflowered in *afromontanum*) and in the color of the fruit (said to be red in *barotsense*, grey and not edible in *guineense* var. *guineense*, according to Keay; purple or violet and edible in other forms). The color in the variety *guineense* is, however, probably also purplish to black, according to other collectors. In East Africa there are probably still other forms worthy of recognition.

Syzygium deiningeri Engl. et v. Brehm. in Engl. Bot. Jahrb. 54 (1917) p. 340; Brenan, Checklist Trees and Shrubs Tanganyika Territory Part II (1949) p. 379.

The species seems at the moment only to be known from the description; the type (Tanganyika, Usambaras, Deininger under Holtz 2753 and 2880) was in Berlin and is now lost. Any information about this species will be welcome to the author.

II. A NEW EUGENIA SPECIES FROM THE BELGIAN CONGO

In Bull. Jard. Bot. Bruxelles XXXI (1960) p. 15 Laurent Aké Assi describes a new *Eugenia* species from the Ivory Coast, *Eugenia Miegeana* Ake Assi. However, he cites, except three specimens from the Ivory Coast, among which the type, Aké Assi I A 5295 (a duplicate seen by me in Bruxelles) the same three specimens from Gaboon, which were described by me as *Eugenia gabonensis* Amsh. in Acta Bot. Neerl. 7 (1958) p. 56. Aké Assi describes the flowers also, while I had at the time only seen fruiting specimens, Additional specimens of *E. gabonensis* are: Ivory Coast, Forêt de Yapo, De Wilde 146, 1020 (WA); Forêt de Téké, De Wilde 575 (WA) and the Belgian Congo (poste près de Dimo, Laurent 1072 fl. 11–11–1903 (BR)). Moreover, there is a specimen cultivated in the hothouse of Wageningen raised from seed collected by Dr. de Wit on the Ivory Coast; it was flowering June 1960.

Also, I found during my stay in Bruxelles another African species with cordate leaves, this time from the Belgian Congo, in addition to the three species to which a key is given by Aké Assi.

Eugenia yangambensis Amsh. n.sp.

Frutex 2–5 m altus ramulis teretibus novellis sub lente breviter patente pubescentibus. Folia ovato-lanceolata usque oblonga, apice obtuse acuminata, vel interdum obtusa, glabra, coriacea, (3–) 5–9 cm longa, $2\frac{1}{2}$–$4\frac{1}{2}$ cm lata; costa supra angusta impressa, subtus prominente, nervis lateralibus circ. 12-jugis, utrinque prominulis, 2–5 mm a margine arcuato-anastomosantibus. Petiolus circ. 2 mm longus, breviter pubescens. Flores fasciculati, axillares vel in nodis defoliatis; pedicelli 2 mm longi, sub lente breviter pubescentes. Sepala 1 mm longa, obtusa; petala 2 mm longa; ovarium fere glabrum. Bacca

rosea, in sicco 8 mm in diametro, monosperma. Embryo homogeneus, curvatus.

Belgian Congo: Yangambi, rive gauche, alt. 470 m, sousbois forêt périodiquement inondée de la Litulumba, le long de la fleuve, Louis 14786 fr. 13–V–1939 (Arbuste hydro-sciaphile de 3 mètres de hauteur. Fleurs nouées. Fruits roses). Yangambi, forêt rivulaire le long du fleuve Congo, Léonard 815 fr. 24–VI–1958 (Arbuste de 5 m de hauteur. Fruits roses). Yangambi, ile Tukutu, alt. 470 m, sousbois forêt primitive lianeuse, Louis 14435 fl. 31–III–1939 (Arbuste sciaphile de 2 metres de hauteur. Fleurs blanches inodores à nombreuses étamines).

By the leaves cordate at the base with the marginal nerve rather distant from the margin this is one of the most distinct species of *Eugenia*, perhaps best comparable with *E. gabonensis* Amsh., with similar but much more elongate, 17–28 cm long leaves. Moreover, *E. gabonensis* seems to grow not higher than 30–80 cm; the specimen in the hothouse of Wageningen was already flowering in its second year.