

A new *Schefflera* and taxonomic notes on Araliaceae from Thailand

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ABSTRACT. A new species of *Schefflera* (Araliaceae), *S. poomae*, is proposed, only known from few recent collections from Tak province, Thailand. In addition, new synonyms and lectotypes are proposed in *Arthropphyllum*, *Brassaiopsis*, *Dendropanax*, and *Schefflera*.

KEY WORDS: Araliaceae, *Arthropphyllum*, *Brassaiopsis*, *Dendropanax*, *Schefflera*, taxonomy, Thailand.

INTRODUCTION

The Araliaceae are a family of predominantly woody plants, in Thailand represented by 12 genera with 53 species. Following Craib (1931a), there has been no critical treatment of the Thai taxa, and the revision of the family for Flora Malesiana (Philipson 1979) did not account for the largest genus, *Schefflera* J.R. & G. Forst. The recent World Checklist of Araliaceae (Frodin & Govaerts '2003' publ. 2004) was an important nomenclatural update for the whole family. Esser & Jebb (2009) published some more general data on the family in Thailand, and additional data for the genera discussed here can be found there as well as in Frodin & Govaerts (2003 publ. 2004). In the present publication, a precursor for the Flora of Thailand, a new species of *Schefflera* is established, and most new synonyms are proposed and discussed that will apply for the Flora of Thailand Araliaceae; only the synonymy in the complex of *Schefflera bengalensis* Gamble and *S. elliptica* (Blume) Harms is not discussed here, because this difficult complex could not be solved completely and we therefore refrained from a formal taxonomic discussion. Thailand is still an undercollected country. Six of the Thai species of *Schefflera* are known from three or fewer collections, and further new discoveries in Thai Araliaceae could be expected.

INDIVIDUAL TAXA

Arthropphyllum Blume is a Malesian genus of trees with 3 species in Thailand, distinguished by an unusual architecture with alternate pinnate leaves in the lower parts but opposite simple ones on fertile shoots, and by 1-celled ovaries and fruits.

Arthropphyllum diversifolium Blume, Bijdr. Fl. Ned. Ind. 15: 879. 1826; I.M. Turner, Gard. Bull. Singapore 47: 133. 1995; Frodin in Frodin & Govaerts, World Checkl. Bibliogr. Araliac.: 85. 2003 (publ. 2004; for Java only). Type: Java, 'in sylvis montis Salak', fl., without date, *Blume* (L).—*Arthropphyllum meliifolium* Craib var. *kratense* Craib, Fl. Siam. 1: 802. 1931. **Synon. nov.** Type: Thailand, Trat ['Krat'], Kao Saming, fl., 30 Jan. 1927, *Put* 597 (lectotype **K!**, proposed here; isolecotypes **ABD!**, **BK!**, **BM!**, **C!**, **E!**, **TCD!**).

Arthropphyllum is an insufficiently known and taxonomically difficult genus, and many species are quite rare. The Javanese taxa are also in need of revision. Craib's name of *A. meliifolium* var. *kratense* is provisionally synonymized here with *A. diversifolium*. This variety does not belong to *A. meliifolium* and was certainly misplaced by

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Craib (1931a). Therefore all (sub)glabrous Thai plants are now united under one name. The species is known from ten collections from C and SE Thailand, all from lowland forests.

The taxonomic situation is complicated. The original *A. diversifolium* from Java seems to differ in bipinnate lower leaves, but, as Esser & Jebb (2009) discussed, sufficiently complete collections are rare. Philipson (1977) certainly united too many taxa under his *A. diversifolium*; but Turner (1995) also applied a wide concept. In particular, the common lowland species of the Peninsular Malaysia, which had been named as *A. ovalifolium* by Ridley (1922) and was synonymized with *A. jackianum* (G.Don) Frodin by Frodin & Govaerts (2003 publ. 2004), is certainly different from the Thai plants; it is separated by leaves with distinct veinlets and more numerous (ca 10 pairs of) leaflets (instead of 4–7), as well as larger and more robust, always twice compound inflorescences. The Thai plants are more like the Malayan *A. montanum* Ridl., which is however a submontane species of altitudes of 250–1500 m. They are also similar to *A. macrocarpum* Philipson & Bui, described from Laos and known from the type only; both taxa seem to differ mainly in their fruit size (5–6 versus 12–15 mm long). Frodin (in the World Checklist, 2003 publ. 2004) restricted the name *A. diversifolium* to Java, with the widespread Malayan species named *A. jackianum*, but only in Malesia; he did not give a name for the Thai taxon.

If the provisional synonymy proposed here proves to be wrong, the Thai plants under this name may well represent a new taxon.

Arthropphyllum meliifolium Craib, Bull. Misc. Inform. Kew 1930: 424. 1930; Fl. Siam. 1: 802. 1931; Frodin in Frodin & Govaerts, World Checkl. Bibliogr. Araliac.: 88. 2003 (publ. 2004). Type: Thailand, Peninsular, Nakhon Si Thammarat, Sichon, fl., 11 May 1928, *Kerr* 15668 (lectotype **K!**, proposed here; isolectotypes **ABD!**, **BK!**, **BM!**, **TCD!**).—*Arthropphyllum lucens* Craib, Bull. Misc. Inform. Kew 1930: 423. 1930; Fl. Siam. 1: 801. 1931; Frodin in Frodin & Govaerts, World Checkl. Bibliogr. Araliac.: 88. 2003 (publ. 2004). **Synon. nov.** Type: Thailand, Peninsular, Songkhla, Saba Yoi, fr., 26 March 1928, *Kerr* 14801 (**ABD!**, **BK!**, **BM!**, **K!**).

Only three specimens of this rare Thai endemic could be studied, the two types and *Kerr* 11926 (**ABD!**, **BK!**, **BM!**, **K!**, **TCD!**) from Chumphon province. Nevertheless this new synonymy can be proposed with sufficient confidence. Craib (1930) separated the two species by glossy leaves and larger inflorescences, being an umbel of compound umbels, only known in fruit (*A. lucens*) versus non-glossy leaves and slightly smaller inflorescences, being an umbel of umbels, only known in flower (*A. meliifolium*). These differences are most probably not sufficient for separation: In *Kerr* 11926, the third known collection, some peduncles are branched, some are not, and another Thai species, *A. diversifolium* Blume (see above), is quite variable in the glossiness of leaves. It is remarkable that Craib himself never compared the two species with each other, but only delimited both from other species, such as *A. diversifolium*.

Brassaiopsis Decne. & Planch. is an Asian genus (from China to Malesia) of trees with 6 species in Thailand; it is distinguished by spiny stems, palmately divided to compound leaves and a distinct reddish-brown indumentum.

Brassaiopsis hainla (Buch.-Ham. ex D.Don) Seem., J. Bot. 2: 291. 1864; Esser & Frodin in Frodin & Govaerts, World Checkl. Bibliogr. Araliac.: 102. 2003 (publ. 2004).—*Hedera?* *hainla* Buch.-Ham. ex D.Don, Prodr. Fl. Nepal.: 187. 1825.—*Panax?* *hainla* (Buch.-Ham. ex D.Don) DC., Prodr. 4: 253. 1830. Type: Nepal, Naramhetty, fl., 18 Feb. 1809, *Hamilton* s.n. (holotype **BM!**).—*Brassaiopsis calcarea* Craib, Bull. Misc. Inform. Kew 1930: 422. 1930; Fl. Siam. 1: 803. 1931; Esser & Frodin in Frodin & Govaerts, World Checkl. Bibliogr. Araliac.: 99. 2003 (publ. 2004). **Synon. nov.** Type: Thailand, South-Western, Kanchanaburi, Rachaburi, fl. (without leaves), 7 Feb. 1926, *Kerr* 10456 (lectotype **K!**, proposed here; isolectotypes **ABD!**, **BK!**, **BM!**).

Brassaiopsis calcarea was based on a leafless, flowering collection of uncertain affinity. *Brassaiopsis hainla* is known as deciduous species, and within the genus presumably the only species that sometimes flowers when leafless. In the meantime several collectors in different countries noted that they saw plants of *B. hainla* flowering before

leaves develop [e.g. *Kingdon-Ward* 17069 (**BM!**, **NY!**), India], and the reduction of *B. calcarea* to *B. hainla* can now be proposed with sufficient certainty. In the absence of leaves, the distinctly hairy floral bracts together with the comparatively short pedicels are quite distinctive for *B. hainla*. The species is rare in Thailand, with only seven known collections, mostly from the Northern provinces.

Dendropanax Decne. & Planch. is a genus of trees that occurs in Asia and South America; the plants are completely glabrous, and leaves and umbels are simple.

Dendropanax maingayi King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 67: 58. 1898; I.M. Turner, Gard. Bull. Singapore 47: 134. 1995; Frodin in Frodin & Govaerts, World Checkl. Bibliogr. Araliac.: 131. 2003 (publ. 2004).— *Gilibertia maingayi* (King) Philipson, J. Bot. 78: 117. 1940. Type: Malaysia, 'Malacca', Johor, Mt Ophir, fl., fr., Aug. 1867, *Maingay* 2587 (Kew Distr. 682) (lectotype **K!**, proposed here; isolectotypes **K!**, **L!**). Remaining syntypes: Malaysia, 'Malacca', fr., without date, *Scortechini* 308 (**BM!**, **K!**); Malaysia, Johor, Mt Ophir, fl., fr., without date, *Griffith* 2685/1 (**K!**, **P!**).— *Gilibertia siamensis* Craib, Bull. Misc. Inform. Kew 1931: 206. 1931; Fl. Siam. 1: 796. 1931. **Synon. nov.**— *Dendropanax siamensis* (Craib) Merr., Brittonia 4: 134. 1941; Frodin in Frodin & Govaerts, World Checkl. Bibliogr. Araliac.: 135. 2003 (publ. 2004). **Synon. nov.** Type: Thailand, South-Eastern, Trat ('Krat'), Kao Kuap, fl., fr., 26 Dec. 1929, *Kerr* 17812 (lectotype **K!**, proposed here; isolectotypes **ABD!**, **BK!**, **BM!**).

Craib (1931b) did not compare his *Gilibertia siamensis* with *Dendropanax maingayi* when proposing it. Both agree very closely, even in quantitative characters, and are therefore considered synonymous here. The lectotype for *D. maingayi* is a good collection with flowers and fruits, and among the syntypes the one with the most duplicates. *Dendropanax maingayi* is known from several states of the Peninsular Malaysia. In Thailand, only three collections have been seen, all from the same locality, but none from Peninsular Thailand: *Put* 2977 (**ABD!**, **BK!**, **E!**, **TCD!**), *Put* 3012 (**ABD!**, **BK!**, **BM!**, **K!**, **SING!**), and the type. It may not

have been recollected in Thailand for many decades.

Heteropanax Seem. is an Asian genus (Himalaya to China) of trees with a single Thai species; it is distinguished by multiple-pinnate leaves and peculiar, 2-locular, compressed fruits.

Heteropanax fragrans (Roxb. ex DC.) Seem., Fl. Vit.: 114. Jan. 1866; J. Bot. 4: 297. Sept. 1866; Craib, Fl. Siam. 1: 802. 1931; Frodin in Frodin & Govaerts, World Checkl. Bibliogr. Araliac.: 196. 2003 (publ. 2004).— *Panax fragrans* Roxb. [Hort. Bengal.: 21. 1814 (nomen)] ex DC., Prodr. 4: 254. 1830, excl. syn. *Hedera fragrans* D. Don [= *Aralia fragrans* (D. Don) Jebb & J. Wen]. Type: Nepal, *Wallich* (**G-DC**, microfiche!).— *Heteropanax phanrangensis* C.B. Shang, Adansonia 19: 78, fig. 1 A-D. 1997; Frodin in Frodin & Govaerts, World Checkl. Bibliogr. Araliac.: 197. 2003 (publ. 2004). **Synon. nov.** Type: Vietnam, Ninh Thuân, Ka Rom, fr., March 1924, *Poilane* 9975 (holotype **P**).

Heteropanax fragrans is a widespread species from India to China, and is not uncommon at least in Northern Thailand, with 28 Thai specimens seen. Although the type specimen of *H. phanrangensis* was not studied, the detailed description and illustrations show all important characters. This new synonymy is proposed here because all characters cited as diagnostic for *H. phanrangensis* fall well within the range of Thai *H. fragrans* (leaves often bipinnate, fruits globular in outline, the pedicels 2–5 mm long).

Schefflera J.R. & G. Forst. is the largest genus overall and in Thailand, with 20 Thai species; the plants are trees or shrubs, with digitately compound leaves, and spines and a reddish-brown indumentum are both absent.

Schefflera poomae Esser & Jebb, **sp. nov.** Species *Schefflerae* foliis 7–10-foliolatis ca 20-nerviis dense tomentosis, inflorescentiis subglabris, umbellis subsessilibus et floribus 6-meris distinguenda. Typus: Thailand, *Pooma et al.* 6949 (holotypus **BKF!**, isotypus **M!**). Figs. 1–2.

Epilithic shrub or small tree to 5 m tall.

Indumentum consisting of pale-brown to creamish coloured dendritic hairs ca 0.2–0.5(–0.8) mm long. Leaves often apically crowded, densely pubescent except for the upper blade surfaces; stipule ca 11–13 by 10 mm, free for more than half of length; petiole ca 4–20 cm long; leaflets 6–7(–10), their petiolules 2.5–5 cm long; leaflets oblong-elliptic, 16–20 by (4–)8.5–11 cm, chartaceous, base rounded to subcordate, margin entire, apex mucronate to short-acuminate, very densely and completely pubescent below and not glabrescent, venation distinct, side veins 18–20 or more pairs with often strong intersecondaries. Inflorescence with a short (< 5 cm) main axis and several (ca 8–9) lateral branches; these ca 30–50 cm long, the axis with scattered hairs only to subglabrous, the umbels completely glabrous; umbels ca 15–25 per raceme, apically sessile to subsessile on (0–)2–3 mm long, unbranched peduncles, near base sometimes on longer peduncles up to c. 10 mm long; umbels ca 16–20 mm in diam., with 9–15 flowers and fruits. Flowers glabrous; their bracts soon caducous, not seen; pedicel 2–6 mm long; petals 6, white, ca 3 mm long, free; stamens 6, the filaments ca 4 mm long, the anthers ca 2 mm; stylar column ca 1 mm high, stigmas 6. Fruits greenish-brown when immature, up to 4–6 by 4 mm, 6-locular, broadly ellipsoid, distinctly sulcate.

Thailand.— NORTHERN: Tak [Doi Hua Mot in Umphang Wildlife Sanctuary, fr., 21 June 2005, *Pooma*, *Phattarahirankanok*, *Sirimongkol* & *Poopath* 5370 (BKF!, M!); same locality, fl. & immat. fr., 25 May 2008, *Pooma*, *Karaket*, *Pattarahirantricin* & *Saengrit* 6949 (BKF!, M!); same locality, fr., 10 July 2001, *Suksathan* 3017 (QBG!)].

Distribution.— Only known from a single locality. Possibly endemic.

Ecology.— In open areas of dry dipterocarp scrub, on limestone; altitude 850–950 m. Flowering May, fruiting June, July.

Etymology.— The species is named after Dr Rachun Pooma (BKF), who, together with his colleagues, collected and studied this species with much detail.

Notes.— This *Schefflera* is very unusual among the Thai species and easy to recognize by several characters. The mostly subsessile umbels

and the obviously invariable number of 6 locules in flowers and fruits are unique in Thai *Schefflera*. Most Thai species have either 5 or at least 10 locules; the locule number in *S. heptaphylla* (L.) Frodin and *S. hulletii* (King) R. Vig. is 5–6 but still more variable. Only three of the 20 Thai species have distinctly pubescent leaves; the other two, *S. petelotii* Merr. and *S. siamensis* W.W.Sm., both differ however in a lower number of leaflet veins (7–15) and much smaller, distinctly pubescent inflorescences, their branches not exceeding 10 cm in length. The number of leaflet veins in *S. poomae* (18–20 or more) is higher than in any other Thai species; only *S. pueckleri* (K.Koch) Frodin approaches it with 15–19 veins, but differs in numerous other characters, such as glabrous leaves and much larger fruits with more than 50 locules. The combination of pubescent leaves with subglabrous inflorescences found in *S. poomae* also is unique in Thai *Schefflera*.

The species is possibly vulnerable based on the presumably small population size (VU D2) according to the IUCN redlist categories, as it is known from few specimens from a restricted range, but not threatened immediately.

Schefflera schizophylla (Hance) Frodin in Frodin & Govaerts, World Checkl. Bibliogr. Araliac.: 374. 2003 (publ. 2004).— *Heptapleurum schizophyllum* Hance, J. Bot. 15: 334. 1877. Typus: Cambodia, in monte Kam Chai, fr., April 1874, *Pierre* s.n. = *Herb. Hance* 19827 (holotype BM!; isotype E!).— *Schefflera oblonga* Craib, Bull. Misc. Inf. Kew 1930: 421. 1930; Fl. Siam. 1: 800. 1931; C.B. Shang, Candollea 39: 469. 1984; Frodin in Frodin & Govaerts, World Checkl. Bibliogr. Araliac.: 361. 2003 (publ. 2004). **Synon. nov.** Typus: Thailand, Southeastern, Chanthaburi, Khao Sabap, fr., 5 July 1927, *Put* 897 (lectotype K!, selected by Shang 1984; isolectotypes ABD!, BK!, BM!).

Schefflera schizophylla often has leaves with distinctly lacinate-lobed leaflets, and is therefore quite unusual among the Thai species. The type of the species, *Pierre* s.n., has particularly extreme leaflets. *Schefflera oblonga* appears to be a just a variant of *S. schizophylla* with entire leaflets; *Larsen et al.* 3412 (AAU!, BKF!, E!, from Nakhon Nayok) contains such variation from entire to lacinate in a single specimen. The type of *S. oblonga*

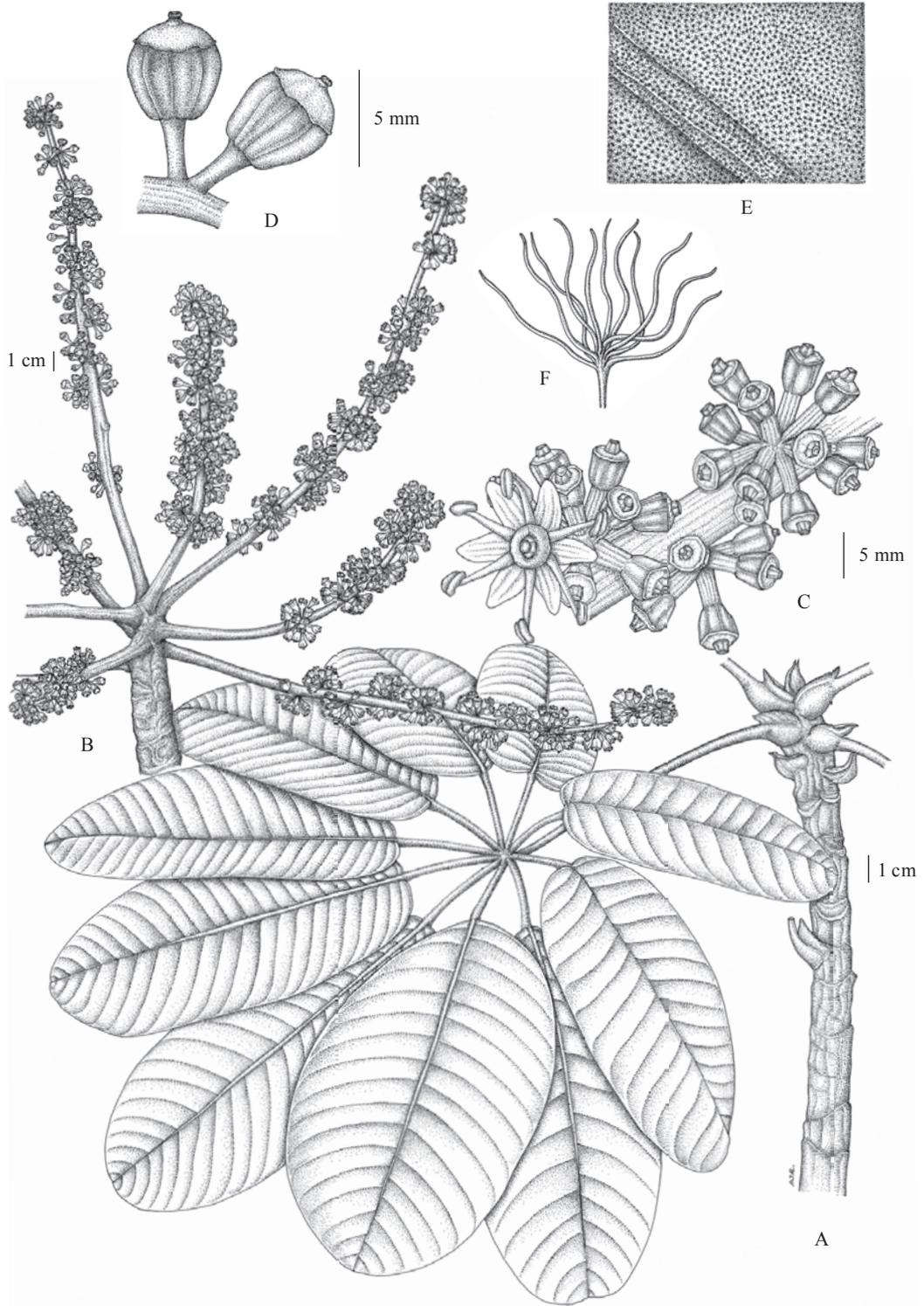


Figure 1. *Schefflera poomae* Esser & Jebb: A. shoot apex with leaf; B. inflorescence; C. detail of inflorescence; D. fruits; E. detail of lower leaf surface showing dense pubescence, F. detail of hair. All from *Pooma et al.* 6949. Drawn by P. Inthachub.



Figure 2. *Schefflera poomae* Esser & Jebb: A. habit; B. leaf; C. detail of inflorescence with subsessile umbels; D. detail of umbel with 6-merous flower. Photographed by P. Karaket (A, C–D), R. Pooma (B).

was the only known collection of *S. schizopylla* from Thailand at that time.

Schefflera simulans Craib, Bull. Misc. Inf. Kew 1930: 421. 1930; Craib, Fl. Siam. 1: 801. 1931; I.M. Turner, Gard. Bull. Singapore 47: 135. 1995; Frodin in Frodin & Govaerts, World Checkl. Bibliogr. Araliac.: 375. 2003 (publ. 2004). Typus: Thailand, Peninsular, Nakhon Si Thammarat, Khao Luang, immat. fr., 30 April 1928, *Kerr* 15514 (lectotype **K!**, selected by Shang 1984; isolectotypes **ABD!**, **BK!**, **BM!**, drawing A!).—*Schefflera bengalensis* Gamble var. *impolita* Craib, Fl. Siam. 1: 797. 1931. **Synon. nov.** Typus: Thailand, Southwestern, Prachuap Khiri Khan, Khao Luang, fr., 5 July 1926, *Kerr* 10837 (lectotype **ABD!**, proposed here; isolectotypes **AAU!**, **BK!**, **K!**).

Schefflera bengalensis var. *impolita* seems to be better placed in the synonymy of *S. simulans*. It differs from typical *S. simulans* in being a tree of 10 m (instead of an epiphytic shrub to 3 m), in the slight pubescence of the inflorescence (instead of glabrescent), which is also larger [22 cm long (instead of 10 cm), with 9 sidebranches, each one with c. 12 umbels]. This variety had been omitted by Frodin & Govaerts (2003 publ. 2004).

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