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## Typification of the Genus *Fordiophyton* (Melastomataceae) and Two New Combinations from China

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**ABSTRACT.** *Fordiophyton faberi* Stapf is selected as the type of *Fordiophyton* Stapf (Melastomataceae), which has not been typified before. Based on the characters of eight dimorphic and unequal stamens with the anther connectives not calcarate at the base, *Stapfiophyton* Li is recognized as a synonym of *Fordiophyton* Stapf. This results in two new combinations, *Fordiophyton degeneratum* (C. Chen) Y. F. Deng & T. L. Wu and *F. breviscapum* (C. Chen) Y. F. Deng & T. L. Wu.

**Key words:** China, *Fordiophyton*, Melastomataceae, *Stapfiophyton*.

*Fordiophyton* Stapf (Melastomataceae) comprises 11 species, including two new combinations proposed in the present paper, distributed in China and Vietnam. The genus is characterized by eight dimorphic and unequal stamens with the anther connectives not calcarate at the base (Li, 1944; How, 1958; Chen, 1984b; Renner, 1993; Hansen, 1992; Cellinese, 2002). *Fordiophyton* is affined to *Phyllagathis* Blume, but differs in its eight stamens (vs. 4 or 8, or rarely 10), unequal (vs. equal or subequal), and anther connectives not calcarate at the base (vs. usually short-calcarate). *Fordiophyton* is also close to *Sarcopyramis* Wallich in habit, which is acaulescent or subacaulescent, but differs in its striking stamen dimorphism and capsule morphology (Cellinese, 2002).

The name *Fordiophyton* was established in 1892 and contained two Chinese species, *F. cantonense* Stapf and *F. faberi* Stapf. Typification for the genus is necessary since the type of the genus was not originally designated by Stapf in 1892. Both species correspond to the original description of *Fordiophyton*. *Fordiophyton cantonense* was established by Stapf (1892) as a new combination based on *Sonerila fordii*, but the name is illegitimate according to Article 52.1 of the current ICBN (Greuter et al., 2000). Krasser (1893) correctly made a new combination, *Fordiophyton fordii* (Oliver) Krasser, for this species. Therefore, we select *F. faberi* Stapf as the lectotype for the genus.

*Gymnagathis* Stapf, typified by *G. peperomiaefol-*

*ia* (Oliver) Stapf (basionym: *Sonerila peperomiaefolia* Oliver), based on collections from Kwangtung (Guangdong), China, was established by Stapf (1892) and accepted by Krasser (1893) and Diels (1932). Unfortunately, none of these authors noticed that *Gymnagathis* was an illegitimate generic name based on the prior homonym *Gymnagathis* Schauer (Linnaea 17: 243. 1843), which belongs to the Myrtaceae, now generally placed as a synonym of *Melaleuca* L. In 1944, Li proposed a new generic name, *Stapfiophyton*, to replace the illegitimate name *Gymnagathis* Stapf. Li (1944) stated that *Fordiophyton* is closely related to *Phyllagathis* in its herbaceous habit and stamen structure, but differs in the habit of acaulescent or subacaulescent herb, the cymose-subracemose inflorescence, and strongly dimorphic stamens in two series. He recognized three species including his two new combinations, *S. elattandrum* and *S. tetrandrum*, which were originally described in the genus *Phyllagathis* by Diels (1932) and then re-transferred into *Phyllagathis* by Chen (1984a) and Hansen (1992). *Stapfiophyton tetrandrum*, a subacaulescent herb, has umbellate inflorescences and is one of the few species with only four stamens. *Stapfiophyton elattandrum* has subequal stamens and is one of the few species with four fertile stamens and four staminodes. Placement of *S. elattandrum* and *S. tetrandrum* confused the boundaries of *Stapfiophyton*.

Hu (1952) described a fourth species, *Stapfiophyton erectum* S. Y. Hu, based on collections from Yunnan Province. She pointed out that it can be placed either in *Phyllagathis* or *Stapfiophyton* by its disintegrating fruit placenta, and she chose *Stapfiophyton* because of its cymose-paniculate inflorescences. This fourth species, with eight subequal stamens and anther connectives with short spurs, was transferred to *Phyllagathis* by Chen (1984a, 1984b).

Chen (1984a) argued that Li (1944) confused the concept of *Stapfiophyton* with *Phyllagathis* and re-delimited the genus as characterized by the acaulescent or subacaulescent habit, the cymose-subracemose inflorescences, eight stamens in two

unequal series, the longest anther ca. 7 mm long, and its anther sacs not evident at the base. He recognized three species in *Stapfiophyton*, including his two new species, *S. breviscapum* C. Chen and *S. degeneratum* C. Chen, and excluded three other species included by Li (1944) and Hu (1952). Chen (1984b) recognized eight species in the genus in China divided into two sections according to their habit: section *Fordiophyton* is erect and section *Repentia* C. Chen is prostrate.

In his revision of *Phyllagathis* for Indo-China and China, Hansen (1992) argued that *Stapfiophyton* was heterogeneous, stating that the type species, *S. peperomiifolium*, is similar to *Fordiophyton* in having raphides and in the dimorphic and unequal anthers with small pores. *Stapfiophyton peperomiifolium* was transferred to *Fordiophyton* by Hansen (1992). Thus, *Stapfiophyton* becomes a synonym of *Fordiophyton*. As to the other species previously placed in *Stapfiophyton*, Hansen (1992) agreed with Chen (1984a) that *S. erectum* and *S. tetrandrum* belonged to *Phyllagathis*. Because no material was available, the placement of *S. breviscapum* and *S. degeneratum* could not be decided. *Stapfiophyton elatandrum* was transferred to *Phyllagathis*, but treated as uncertain (Hansen, 1992).

Prior to Hansen (1992), *Stapfiophyton* was recognized as a distinct genus by most authors (Li, 1944; Hu, 1952; How, 1958; Chen, 1979, 1984a, 1984b; Wu, 1991). It differs from *Fordiophyton* in its longest anther ca. 7 mm long (vs. longer than 12 mm) and its anther sacs evident at the base (vs. not evident) (Li, 1944; Chen, 1984b). However, these characters are not sufficient to separate *Stapfiophyton* from *Fordiophyton*. During editing of the family Melastomataceae for the *Flora of Guangdong*, we agreed with Hansen (1992) that *Stapfiophyton* should be reduced to *Fordiophyton* and *S. peperomiifolium* transferred to *Fordiophyton*. Given this reduction of *Stapfiophyton*, the placement of Chen's two species *S. breviscapum* and *S. degeneratum* must be evaluated. After checking their types, we affirmed that these two species have eight dimorphic and unequal stamens with the anther connectives not calcarate at the base and fit into the morphological boundaries of *Fordiophyton*. Therefore, two new combinations are required.

Including two new combinations proposed here, *Fordiophyton* consists of 11 species in China and Vietnam: *F. brevicaulis* C. Chen, *F. breviscapum* (C. Chen) Y. F. Deng & T. L. Wu, *F. cordifolium* C. Y. Wu ex C. Chen, *F. degeneratum* (C. Chen) Y. F. Deng & T. L. Wu, *F. faberi* Stapf, *F. fordii* (Oliver) Krasser, *F. longipes* Y. C. Huang ex C. Chen, *F. multiflorum* C. Chen, *F. peperomiifolium* (Oliver) C.

Hansen, *F. repens* Y. C. Huang ex C. Chen, and *F. strictum* Diels.

**Fordiophyton** Stapf, Ann. Bot. 6: 314. 1892.

TYPE: *Fordiophyton faberi* Stapf (lectotype, designated here).

*Stapfiophyton* H. L. Li, J. Arnold Arbor. 25: 28. 1944.

Replaced name: *Gymnagathis* Stapf, Ann. Bot. 6: 315. 1892, non *Gymnagathis* Schauer, 1843. TYPE: *Stapfiophyton peperomiaefolia* (Oliver) H. L. Li.

Eleven species distributed in southern China and northern Vietnam.

**Fordiophyton breviscapum** (C. Chen) Y. F. Deng

& T. L. Wu, comb. nov. Basionym: *Stapfiophyton breviscapum* C. Chen, Bull. Bot. Res. 4: 57. 1984. TYPE: China. Guangdong: Lian-nan, Baimang, "prope rivulas in locis udis regionis convallae montanae, infra dense rarove silvis," 20 Aug. 1958, *Tan Peixiang* (P. C. Tam) 59165 (holotype, IBSC).

*Distribution.* *Fordiophyton breviscapum* is endemic to China, known from Hunan and Guangdong. It occurs in wet sloping meadows by rivers, from 700 to 1150 m.

*Fordiophyton breviscapum* differs from *F. peperomiifolium* in its stem 10–20 cm (vs. shorter than 5 cm), 4-angular and 4-ribbed (vs. terete), leaves ovate to sublanceolate (vs. cordate), 5–8.5 cm (vs. 6–11 cm) long, 2–3.5 cm (vs. 3.5–7 cm) broad, base cuneate or obtuse (vs. cordate), apex acuminate (vs. acute), 3-nerved (vs. 7- to 9-nerved) (Chen, 1984a, 1984b).

*Additional specimens examined.* CHINA. **Hunan:** Yizhang xian, Mangshan, Pingkeng, Hongxingqiao, *Huang Maoxian* 112320 (IBSC); Yizhang xian, Mashan, Huoshaoao, *Huang Maoxian* 112352 (IBSC); Yizhang xian, Manshan, Laofengkeng, *Huang Maoxia* 111918 (IBSC); Yizhang xian, Jinqian xiang, Mangshan, *Liang Baohan* 83831 (IBSC). **Guangdong:** Liannan xian, Jinkeng xiang, Huangdong, W. Lingzui, *Tan Peixiang* 59562 (IBSC); Ruyuan xian, Luoyang xiang, near Datianjinshan, *Huang Zhi* 42909 (IBSC).

**Fordiophyton degeneratum** (C. Chen) Y. F.

Deng & T. L. Wu, comb. nov. Basionym: *Stapfiophyton degeneratum* C. Chen, Bull. Bot. Res. 4: 58. 1984. TYPE: China. Guangxi: Fusui, Damingshan, "prope rivulas in convallis montibus saxorum calcareorum," 200–300 m, 2 May 1957, *Chen Shaoqing* (S. H. Chun) 12160 (holotype, IBK; isotype, IBSC).

*Distribution.* This species is known from Guangdong Province and Guangxi Zhuangzu Autonomous Region, China, growing on limestone

cliffs or in wet places by rivers at elevations from 200 to 300 m.

*Fordiophyton degeneratum* is easily distinguished from other species in the genus by having four fertile stamens and four staminodes (Chen, 1984a, 1984b). Similar androecial characters also occur exceptionally in *Phyllagathis elattandra* Diels (Diels, 1932; Li, 1944; Chen, 1984a, 1984b) and *Kerriothyrsus* Hansen (1988). *Phyllagathis elattandra*, considered an uncertain species in *Phyllagathis* by Hansen (1992), was included in *Staphiophyton* (now *Fordiophyton*) by Li (1944) because of its anther connectives short-calcarate at the base. Laos monotypic *Kerriothyrsus* Hansen is characterized by having four fertile stamens and four staminodes and differs from *Fordiophyton* in its scorpioid inflorescence, olive-colored seed coat, and smooth testa. We place this species in *Fordiophyton* rather than *Phyllagathis* or *Kerriothyrsus* because its inflorescence is cymose-subracemose, the fertile stamens have anther connectives that are not calcarate, by the absence of stamen ventral appendages, and by a tuberculate seed testa.

*Additional specimen examined.* CHINA. **Guangdong:** Maoming xian, Pengqing xiang, Lingdengling, *Zhanjiang Plant Exped.* 4071 (IBSC).

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