



Camellia chinmeii, a new species of *Camellia* sect. *Paracamellia* in Taiwan

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ABSTRACT: A new species of *Camellia chinmeii* S.L. Lee & T.Y.A. Yang (Theaceae; sect. *Paracamellia* Sealy) is described. *Camellia chinmeii* has sessile flowers, six to ten perules, four or five white, early deciduous petals, yellow radiating stamens separate to the base or nearly so, style 6-7 mm long and fused 1/2 to 2/3 from the base, densely tomentose ovary. The fruit is a globose, beaked or unbeaked capsule.

KEY WORDS: *Camellia chinmeii*, New species, Section *Paracamellia*, Theaceae, Taiwan.

INTRODUCTION

Camellia L. is the largest genus in Theaceae A. Juss. and has some synonyms, such as *Calpandria* Blume, *Thea* L and *Yunnanea* Hu (Ming, 2000). Distinguishing between the 280 species in the genus is often difficult (Chang, 1998), 300 (Ming, 1999, 2000), 119 (Mabberley, 2008). Henry (1896) was first person to recognize four species in Taiwan. The two editions of the Flora of Taiwan first reported 8 species (Li, 1976), then 12 species (Hsieh et al., 1996). Since then, new records, new combination and transfers by Su *et al.* (2004, 2007, 2008, 2009, 2012) and Yang *et al.* (2011) have resulted in 12 species known from Taiwan.

The first author (Shih-Lin Lee) and his wife, Ms. Chin-Mei Hung have focused on the conservation of the Taiwanese species of *Camellia*. During a mid elevation field trip around Tunyuan, Nantou County, they found a group of camellias similar to *C. brevistyla* and also *C. confusa*. After more than 8 years of field collections and investigations we determined that this group of plants represents a new taxon belonging to Sect. *Paracamellia* Sealy. We here describe it as new species from Taiwan. To distinguish it from other species, we provide a colour illustration (Figure 1), distribution map (Figure 3), taxonomic description and a key to sect. *Paracamellia* in Taiwan. Four species of *Camellia* in Taiwan are in sect. *Paracamellia*. Table 1 shows the differences between this new taxon and *C. brevistyla* and *C. confusa*.

TAXONOMIC TREATMENT

Key to the taxa of *Camellia*, sect. *Paracamellia* in Taiwan

- 1a. Styles more than 5 mm long; filaments slightly connate at base or free 2
 1b. Styles less than 3 mm long; filaments connate 3
 2a. Leaves thick coriaceous; fruit fusiform to broadly fusiform
 *C. hengchuanensis*

2b. Leaves thick papery to thin coriaceous; fruit globose ... *C. chinmeii*

3a. Apex of leaves caudate; styles 2-3 mm long; fruits pyriform
 *C. kissi*

3b. Apex of leaves acuminate or acute; styles 1-1.5 mm long; fruit
 globose *C. brevistyla*

Camellia chinmeii S.L. Lee & T.Y.A. Yang, *sp. nov.*

錦美山茶 Figs. 1 & 2

TYPE: TAIWAN: Nantou County, Jenai Township, Mt. Weishangshan, S.L. Lee & C.W. Lee 26, 5 Dec. 2017 (holotype, TAI; isotypes: KUN, TAI, TNM)

Diagnosis: Similar to *Camellia brevistyla*, but differing in having fewer stamens, fewer filaments free from each other, longer styles and smaller fruit. It is also similar to *Camellia confusa*, but has smaller leaves and flowers, fewer stamens and smaller fruit. It is also similar to *Camellia hengchuanensis*, but has thin leaves and globose fruit. It is also similar to *Camellia kissi*, but differs in having the filaments free from each, longer styles and globose fruit.

Trees, to 10 m tall, evergreen. Bark smooth, turning yellowish brown with age. Buds dark green to dark brown, pubescent. Young branches pale yellowish green, turning pale brown at maturity, pubescent or sometimes glabrous. Leaves dark green; petiole 7-10 mm long, both surfaces glabrous or sometimes pubescent; oblong or elliptic, 3.5-5.5 cm long, 1.5-3 cm wide, base acute to obtuse, margin slightly serrate, entire or nearly so toward base, apex acuminate; midrib prominent on both surfaces, glabrous on both surfaces and sometimes pubescent on lower surface, lateral veins 6 pairs; texture thick papery to thin coriaceous. Flowers terminal or axillary, usually in pairs, sessile, 2.5-3.5 cm. in diam.; perules 6 to 10, sometimes more, ovate, adaxially glabrous, abaxially velutinous, deciduous; petals 4 or 5, white, glabrous adaxially, velutinous abaxially, base slightly connate, margin sericeous, apex emarginate, deciduous; stamens 28-48, 7-10 mm long, 2-seriate, free from each other or

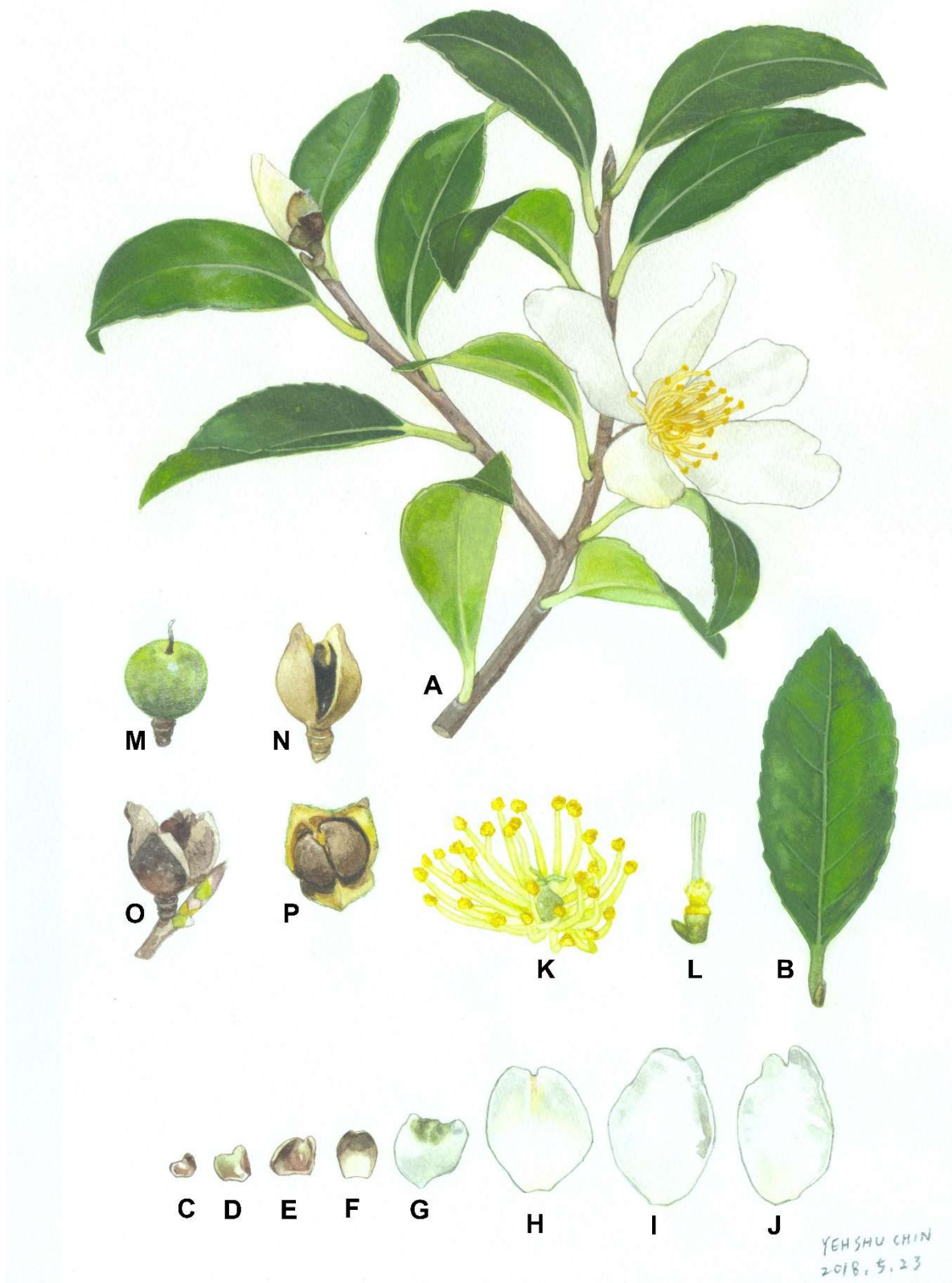


Fig. 1. *Camellia chinmeii* S.L. Lee & T.Y.A. Yang. A. Habit; B. leaf, adaxial surface; C-G. perules; H-J. petals; K. stamens and carpel, moving out tepals; L. style and stigma; M-P. fruits, M. immaturated, olive colour, N-P. matured, brown colour, P. seeds.

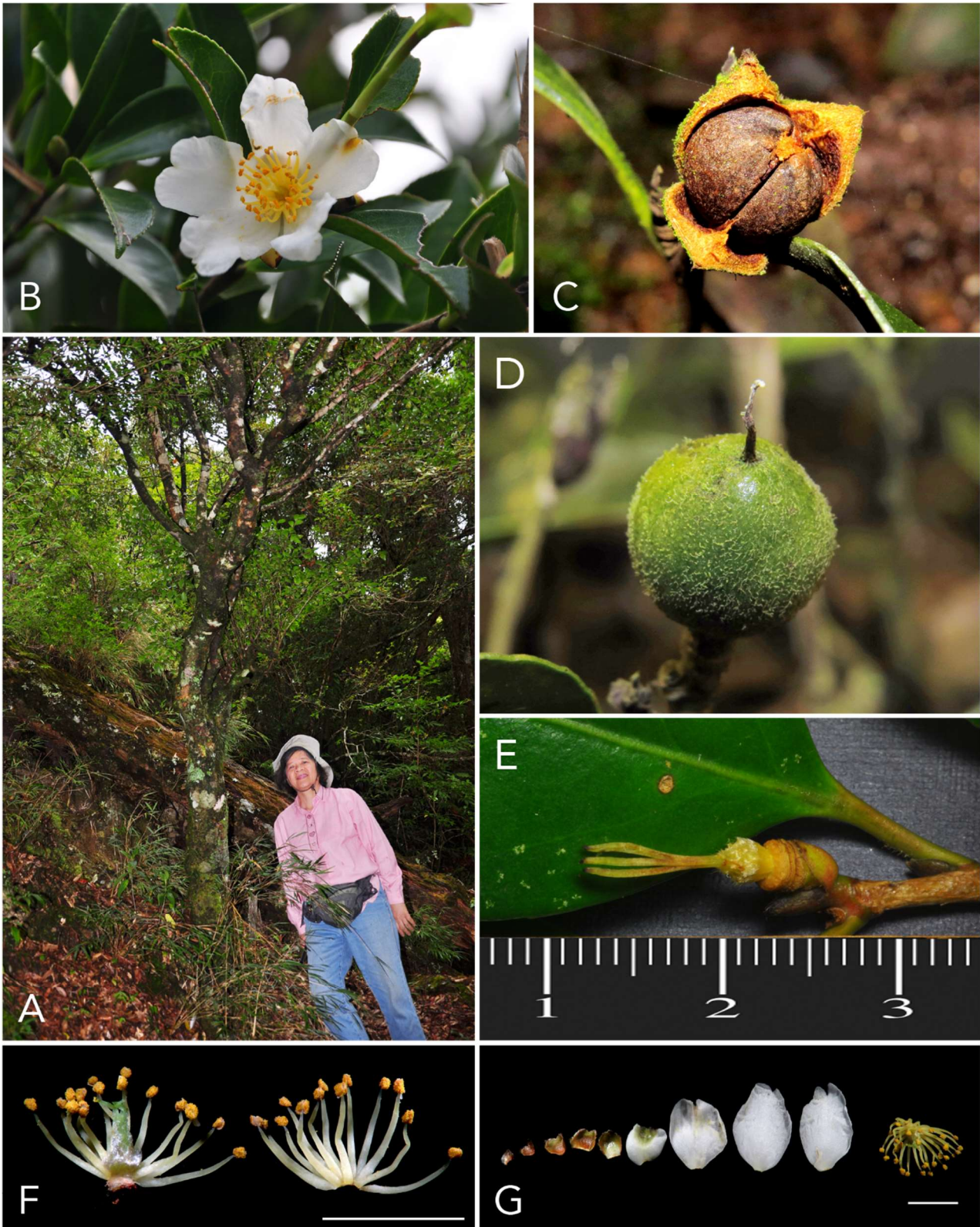
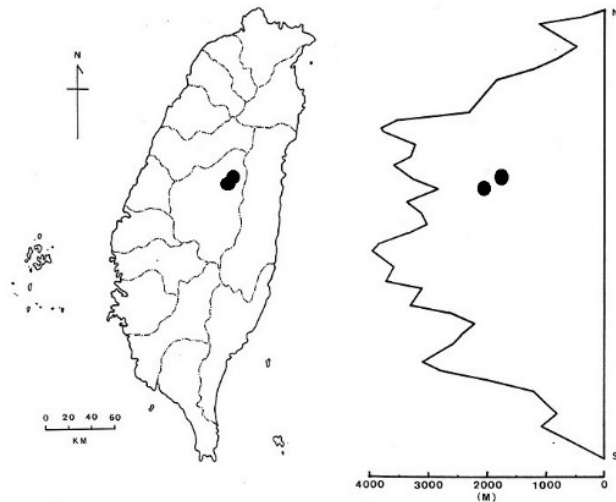


Fig. 2. *Camellia chinmeii* S.L. Lee & T.Y.A. Yang. **A.** Ms. Chin-Mei Hung stood in front of the tree of *C. chinmeii* in field; **B.** flower; **C.** fruit opening with the seeds inside; **D.** fruit; **E.** style and stigma; **F.** stamens; **G.** perules, petals and stamens, from left to right. (Photos, A, B, C, D taken by Shih-Lin Lee, and E, F, G taken and arranged by Yi-Fu Wang)

**Table 1.** Morphological characteristics of *Camellia chinmeii*, and allied species, *C. brevistyla* and *C. confusa*

Character	<i>C. brevistyla</i>	<i>C. confusa</i>	<i>C. chinmeii</i>
Leaf	elliptic-oblong	elliptic to broad elliptic	oblong or elliptic
Leaf size	3.6-7 x 2-2.8 cm	7-13.5 x 2.8-6 cm	3.5-5.5 x 1.5-3 cm
Flower position	axillary	axillary	terminal or axillary
Flower (in diameter)	3 cm	4-6 cm	2.5-3.5 cm
Petals (number)	5	5	4-5
Stamens (number)	50-70	60-90	28-48
Filaments	connate at base	free from each other	free from each other
Style	1-1.5 mm	5-12 mm	6-7 mm
Fruit	ovoid to globose	ovoid	globose
Fruit size (length)	1.0-2.5 cm	1.7-2.5 cm	0.8-1.2 cm
Fruit size (diameter)	1.0-2.0 cm	2.0-3.0 cm	0.7-1.0 cm

**Fig. 3.** Distribution map of *Camellia chinmeii* in Taiwan.

slightly connate, radially expanding, anthers versatile; styles 6–7 mm long, connate 1/2–2/3 from base, glabrous, stigmas 3 or sometimes 2, ovary locules 2 or 3, tomentose. Fruit a capsule, dark brown, globose, beaked or not, ca. 8–12 mm long, 7–10 mm in diameter, sparsely hairy; seeds 1 or 2, brown.

Flowering October to December; fruits maturing four months later.

Distribution and ecology: Endemic to Taiwan. *Camellia chinmeii* mainly occurs in mountainous areas between 2000 and 2350 m on gentle slopes in forests on Mt. Weishangshan, Nantou County, in central Taiwan.

Etymology: The specific epithet, *chinmeii*, honors Ms. Chin-Mei Hung, wife of the first author, who first recognized *Camellia chinmeii* as a new taxon in 2010; she passed away during a field trip on 6 December 2014.

Notes: *Camellia brevistyla* has 50–70 white filaments fused half way to form a short tube, the upper half of the filaments curve inward. *Camellia chinmeii* has 28–48 filaments free to the base and radially expanding, but the flowers and leaves obviously differ from those of *C. confusa*.

The population of *Camellia chinmeii* appears to be old. After tracking the population for three years we

never found plants less than 10 years old. There was little evidence of pests or disease. In the wild, the species of *Camellia* rarely mix. In northern Taiwan, three different species of *Camellia* grow on the same mountain, but at different elevations. They never mix or overlap. On another mountain in southern Taiwan, *C. caudata*, and *C. henchunensis* grow near each other, but are never mixed.

The radiating yellow stamens of *Camellia chinmeii* appear to be significantly different from the half-fused stamens of *C. brevistyla*. According to T.-L. Ming (KUN, 1998), such camellias with distinct morphology and stable populations should be recognized as distinct species.

Other specimen examined TAIWAN: Nantou County, Jenai Township, Mt. Weishangshan, T.Y.A. Yang, S.L. Lee, C.M. Chao & C.H. Chu 24550, 21 Dec. 2016 (BM, E, HAST, K, PPI, TAI, TAIF, TNM), 24551, 21 Dec. 2016 (TNM), 24552, 21 Dec. 2016 (TAIF, TNM), 24553, 21 Dec. 2016 (TNM), 24554, 21 Dec. 2016 (TNM), T.Y.A. Yang, S.L. Lee, C.M. Chao & C.H. Chu 25367, 12 Nov. 2018 (A, K, PPI, TAI, TNM), 25368, 12 Nov. 2018 (TNM), C.C. Liao, S.L. Lee & C.M. Hung 39, 14 Nov. 2014 (KUN, TAIF, TNM), C.C. Liao, S.L. Lee & C.M. Hung 38, 14 Nov. 2014 (TNM), C.C. Liao, S.L. Lee & C.M. Hung 33, 4 Oct. 2014 (E, TNM).

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