

A CLASSIFICATION ON THE SECTION TUBERCULATA OF CAMELLIA

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Abstract

Within the recent thirty years, the tuberculate-fruit *Camellia* increased from only one species to 17 species, all of them concentrated on the southwest China, the centre is located at Guizhou Province, about 10 species were found from this province, and the remainder scattered in Hunan, Hubai, Sichuan, Yunnan and Guangxi, and forming a completed areal. The numerous species of tuberculate-fruit *Camellia* being found, once more proved that the southwest region of China is the cradle of the genus *Camellia*. In this paper 4 new species are reported, and a key is prepared.

Keywords genus *Camellia*, section *Tuberculata*, *Camellia leyeensis*, *Camellia acutisepala*, *Camellia atuberculata*, *Camellia hupehensis*

At the end of sixth decade of this century, only one species of tuberculate-fruit *Camellia* was known to the plant taxonomists. Until the publication of "A Taxonomy of the Genus *Camellia*" in 1981 by the senior author, six species belonging to the section *Tuberculata* were reported. Since then, within the later ten years, more than 10 species were discovered, and in this paper 17 species of tuberculated *Camellia* are published.

Systematically, the section *Tuberculata* is closely related to the section *Pseudocamellia*. The morphological characters of the flower between the two sections is very similar, but the former characterized by wrinkled pericarp and accompanying by the united filaments. Geographically the species of *Tuberculata* confined to the south-west part of China, especially concentrated at Guizhou province, about ten species are found on this region, and the remainder scattered on its periphery, such as Guangxi (4), Yunnan (1), Xichuan (2), Hubei (2) and Hunan (1). Its areal is nearly coincide with that of *Pseudocamellia*, but the later has smaller areal and more westward, found from Yunnan (2), Xichuan (3)

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and Guizhou (2) only, and not found in Hubei, Hunan and Guangxi.

The characters for the classification of the section are as follows:

1. The indumentum presented on the ovaries or not is an important character, and used as an evidence for different subsections. About ten known species belong to the glabrous ovary subsection, and the other seven species belong to the hairy subsection.

2. In most species the petals are ovate, but some of them are oblong, the shape and dimension of the petals are important for classification.

3. The shape and dimension of the bracts and sepals are important, most of them are ovate with rounded apex, but some species have acute bracts and sepals; as well as the shape of the leaves would be considered.

4. Generally the flowers are white, exceptional with reddish flowered are presented in some species, such as *C. rubituberculata* Chang et Ye and *C. rubimuricata* Chang et Xu.

5. The pericaps are wrinkled and fold unexceptionally, most of them are thin and woody in nature. The thickened pericarps were found in *C. pyxidiacea* xu et al and *C. leyeensis* Chang et Zhong.

6. The seeds are usually covered with indumentum, more than 10 species with hairy seed-coat are reported from the known 15 species.

The section *Tuberculata* is an advanced group, the petals usually united at the base, the size of the flower is smaller, the number of the stamens become fewer, and the wrinkled and fold pericarps are advanced characters also.

Key to Species of Sect. *Tuberculata*

1. ovary hairy, seeds pilose or pubescent.....Subsect. *Tuberculata* Chang
 2. Sepals oval, acute, styles 3~5.
 3. Leaves oblong, thinly coriaceous, styles hairy, flowers 4 cm in diameter 1. *C. tuberculata* Chien
 3. Leaves narrow lanceolate, thickly coriaceous, styles glabrous, flowers 5 cm in diameter..... 2. *C. lipingensis* Chang
2. Sepals roundish, apex round, styles 3 or rarely 4.
 4. pericarps thin 1~2 mm thick, leaves lanceolate longer than 10 cm, sharply serrate.
 5. Leaves lanceolate or oblong 8~12 cm long, lateral nerves 6~7 paired not impressed.....3. *C. rhytidocarpa* Chang et Liang
 5. Leaves elliptical lanceolate 11~16 cm long, lateral nerves 11~13 paired strongly impressed..... 4. *C. rhytidophylla* Li et Yaa

- 4. Pericarps 4~13 mm thick, leaves elliptic, oblong or obovate.
- 6. Flowers white, leaves elliptic or obovate 3~5. 5 cm wide, pericarps 4-5 mm thick.
- 7. Leaves smaller, 4~5 cm long, elliptic, apex obtuse..... 5. *C.leyeensis* Chang et Zhong
- 7. Leaves obovate 10 cm long, apex acute 6. *C.anlungensis* Chang
- 6. Flowers red, leaves oblong 2.5~3 cm wide, apex acute, pericarps 1-1.3 cm thick 7. *C.rubituberculata* Chang
- 1. Ovary glabrous, seeds hairy or glabrous Subject. *Nudicarpa* Chang
- 8. Bracts and sepals oval, apex acute.
- 9. Bracts and sepals with acute apex, seeds hairy.
- 10. Leaves thinly coriaceous, elliptic base round, styles 4~5, sepals membranaceous crisp..... 8. *C.acutiperulata* Chang et Ye
- 10. Leaves coriaceous oblong, styles 3, sepals coriaceous 9. *C.acutisepala* Chang
- 9. Bracts roundish apex round, sepals oval, apex acute, seeds hairy or glabrous.
- 11. Leaves elliptic or oblong, lateral nerves nearly perpendicular to the midrib, serrate, capsules 3 cm in diam., pericarps 3 mm thick 10. *C.atuberculata* Chang
- 11. Leaves lanceolate, lateral leaves not perpendicular to the midrib, margin entire..... 11. *C.neriifolia* Chang
- 8. Bracts and sepals ovate, apex round.
- 12. Leaf-base cuneate, blades obovate-lanceolate, apex acute, sharply serrate..... 12. *C.obovatifolia* Chang
- 12. Leaf-base subround or obtuse, blades elliptic al or ovate-lanceolate, apex caudate or acuminate.
- 13. Leaves 2.5~4 cm wide, apex acuminate, seeds hairy, branchlets glabrous.
- 14. Flowers white, petals obovate.
- 15. Capsules 2 cm in diam., pericarps 1.6 mm thick, leaves oval, lateral nerves 10-12 paired..... 13. *C.litchi* Chang
- 15. Capsules 3 cm in diam., pericarps 3~7 mm thick, leaves obovate or elliptic, lateral nerves 8~10 paired 14. *C.pyxidiacea* Xu et al.
- 14. Flowers red, pericarps 2~3 mm thick, petals oblong..... 15. *C.rubimuricata* Chang et Xu
- 13. Leaves smaller, 2~2.5 cm wide, apex caudate, seeds hairy or glabrous, branchlets glabrous.
- 16. Leaves hairy on the lower surface, flowers 2 cm long, sepals 7-8 mm long, styles 4, about 1 cm long, seeds hairy

- 16. *C. parvimuricata* Chang
 16. Leaves ovate or lanceolate, lower surface glabrous, flowers 4 cm
 long, sepals 1.5 cm long, styles 3, 2 cm long, seeds glabrous.....
 17. *C. hupehensis* Chang

1 *Camellia leyeensis* Chang et Zhong, sp. nov.

Subgen. *Camellia*, Sect. *Tuberculata*, Subsect. *Tuberculata*

Frutex circ. 2 m altus, ramulis glabris gemmis sparse pubescentibus. Folia coriacea elliptica 4.5~6 cm longa, 3~3.5 cm lata, apice subacuta vel obtusa, basi subrotunda vel late cuneata, supra viridia nitidula, subtus flavo-viridia, glabra nervis lateralibus utrinsecus circ. 6, supra inconspicuis subtus visibilibus, venulis utrinque inconspicuis, margine acriter serrulata, petiolis 4~5 mm longis. Flores ignoti. Capsula globosa 2~2.5 cm in diam., pericarpio rhitidomo lignifero 4~5 mm crasso, pedicelis brevissimis, sepalis persistentibus tenuiter coriaceis subrotundatis circ. 1 cm longis albobescentibus, seminibus pubescentibus.

Guangxi; Leye County, Ya-an Plantation, near the mountain top, alt. 1150m, Y.C. Zhong 890806, typus (SYS).

A *C. anlungensi* Chang differt foliis ellipticis minoribucapsula minore, a *C. rhitidocarpa* Chang et Liang foliis ellipticis pericarpio crassiore recidit.

2 *Camellia acutisepala* Chang sp. nov.

Subgen. *Camellia*, Sect. *Tuberculata*, Subsect. *nudicarpa*

Frutex vel arbor parva, ramulis glabris, gemmis glabris. Folia coriacea obovato-oblonga vel oblonga 8~12 cm longa 2.2~4.3 cm lata, apice acuta vel acuminata basi cuneata, supra atro-viridia nitida, subtus concolora glabra, nervis lateralibus utrinsecus 5~7 supra visibilibus, subtus elevatis, venulis inconspicuis, margine 1/2 superioe acriter serrata, petiolis 6~8 mm longis. Flores albi 1~2-flori axillares, subsessiles, bracteis coriaceis 4~5 ovoideis 3~7 mm longis, apice obtusis glabris, sepalis 5~6 coriaceis ovatis 1.4~1.7 cm longis, apice acutis leviter pubescentibus, petalis 5~6 obovato-oblongis 2~2.5 cm longis, staminibus 1.5 cm longis, filamentis liberis, ovariis 3-1ocularibus glabris, stylis 3 liberis 1.5~2 cm longis. Capsula subglobosa 2~2.5 cm in diam., pericarpio rhytidomo 1.5 mm crasso glabro, semina pubescentia.

Guangxi; vicinity of Nanning, Liangfongjiang Bot. Gard, by the side of the highway, S.Y. Liang 7904270, typus (SYS).

A *C. acutiperrulata* Chang et Ye foliis obovato-oblongis basi cuneatis, bracteis obtusis, sepalis coriaceis, ovariis 3-10cularibus differt.

3 *Camellia atuberculata* Chang, sp. nov.

Subgen. *Camellia*, Sect. *Tuberculata*, subsect. *nudicarpa*

A *C. obovatifolia* Chang foliis oblongis, nervis lateralibus a costa perpendicularis, ovariis 4-locularibus, stylis 4 differt.

Frutex vel arbor parva, ramulis glabris. Folia coriacea oblonga 7~11 cm longa 3~4.5 cm lata, apice subacuta vel subobtusata, basi late cuneata, supra in sicco viridia nitidula, subtus leviter viridia glabra atro-punctata, nervis lateralibus utrinsecus 7~9 parce a costa 90° diovaricatis inconspicuis, margine remote serrulata, dentis 2~4 mm remotis, petiolis 5~8 mm longis. Flores albi ad apicem ramulorum dispositi sessiles; bracteis 4~5, semirotundis vel rotundis 4~7 mm longis pubescentibus, sepalis 5~6 ovatis 1.5 cm longis apice acutis pubescentibus, petalis 6~7 obovatis-oblongis 2.5~3 cm longis subglabris vel exterioribus 1~2 ad costam pubescentibus, staminibus liberis, ovariis 4-locularibus, glabris, stylis 4 glabris 1.5~2 cm longis. Capsula compressa globosa 2.5~3 cm in diametro, pericarpio tuberculato 2~3 mm crasso, 4-valvato-dehiscens, semina singularia glabra.

Guizhou; Chishui, Guizhou Agricultural College Forestry Flora Division 75309, typus (SYS).

4 *Camellia hupehensis* Chang, sp. nov.

Subgen. *Camellia*, Sect. *Tuberculata*, Subsect. *nudicarpa*

A *C. parvimurcata* Chang floribus majoribus, ovariis 3-locularibus, stylis multo longioribus, seminibus glabris differt,

Frutex, ramulis pubescentibus, gemmis puberulis. Folia coriacea longe ovata vel ovato-lanceolata 5~6.5 cm longa 1.7~2.5 cm lata, apice caudata vel acuminata, basi rotundata, supra in sicco atro-viridia nitidula, subtus leviter viridia glabra, nervis lateralibus utrinsecus 6~7 in sicco utrinque conspicuis, venulis inconspicuis, margine serrulata, petiolis 3~5 mm longis. Flores albi terminales sessiles, bracteis 5 late obovatis 5~10 mm longis villosis, sepalis 5~6, bracteiformibus 1~1.5 cm longis pubescentibus apice rotundatis, petalis 7 late obovatis 3~3.5 cm longis, 1.5~2 cm latis, extus albo-sericeis, basi connatis circ. 1 cm longis, staminibus 2~2.3 cm longis subliberis, ovariis 3-locularibus glabris, stylis 3 liberis 2 cm longis. Capsula globosa 1.5~2 cm in diametro, pericarpio 2 mm crasso tuberculato, seminibus glabris.

Hubei: West Hubei, B. L. Yang 002, typus (SYS).

山茶属瘤果茶组植物分类

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瘤果茶组植物在50年代仅有1种,1981年,在专著《山茶属植物的系统研究》里,记载了瘤果茶组6个种。此后10年间,瘤果茶组种类不断被发现,目前全组已知的凡17种,按子房是否具有毛被分为2个亚组,它集中分布于中国西南部各省,尤以贵州省最集中,在那里多达10种,其余的分散于云南、四川、湖南、湖北及广西。形成1个完整的分布区。本文就瘤果茶组17种,编出检索表,其中有4个新种。它们是乐业瘤果茶 *Camellia leyeensis* Chang et Zhong, sp. nov., 尖萼瘤果茶 *Camellia acutisepala* Chang et Ren, sp. nov., 拟瘤果茶 *Camellia atuberculata* Chang et Ren, sp. nov., 湖北瘤果茶 *Camellia hupehensis* Chang et Ren, sp. nov.

关键词 山茶属, 瘤果茶组, 乐业瘤果茶, 尖萼瘤果茶, 拟瘤果茶, 湖北瘤果茶