A Note on Photinia and Pourthiaea (Rosaceae) of Taiwan

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The genus *Photinia* in the sense of Schneider\(^1\) of Taiwan was already revised by Li (1951)\(^3\). There he enumerated all of its members previously known to the island except *Ph. Kudoii*, and added some critical notes to each of them. His treatment was much suggestive especially regarding that of *Pourthiaea Benthamiana*, *P. kankoensis* and *Photinia serrulata*-group, so that it seemed not to be room for additional corrections. As my study was promoted, however, my reexamination resulted in some differences from his classification. In this paper I intend to offer my opinion on these plants of Taiwan.

The materials on which the present study was based were mainly from the Herbarium of Kyoto University (KYO), of the National Taiwan University (TAI), and of Tokyo University (TI). I am much indebted herewith to the curators of these herbaria. Furthermore I like to express my cordial thanks to Prof. S. Kitamura of Kyoto University for his constant guidance, and to Dr. C. E. DeVol and Mr. M. T. Kao of the National Taiwan University for their kind helps and encouragement through the course of this study.

**Delimitation of the Genera Photinia and Pourthiaea**

*Photinia* and *Pourthiaea* represent Rosaceous trees or shrubs with simple leaves, corymbose inflorescences and pomes. Sepals are persistent, styles being adnate at the base and 2–4-fid at the apex. Whether we accept these two genera or regard *Pourthiaea* as a section of *Photinia* would depend upon our personal views. Anyhow the diagnostic characters for distinction between these two groups *Photinia* or Sect. *Photinia* and *Pourthiaea* or Sect. *Pourthiaea* are summarized in the following key. Here I merely follow to the current taxonomists of Japan, adopting two genera, *Photinia* and *Pourthiaea*.

- Leaves not deciduous; inflorescence corymbose-paniculate with smooth peduncles
  - [Photinia]
- Leaves deciduous; inflorescence corymbose or umbel-like with much warty peduncles
  - [Pourthiaea]

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Distr. Central and South China through Taiwan to the Philippines.

The typical form of Ph. serrulata is characterized by the corymbs completely glabrous even at the earliest stage and the leaves minutely serrated all over the margin. According to hairiness of floral parts and serration of leaves the following forms are acceptable.

A. Inflorescence glabrous at any stage; leaves serrated

B. Floral parts glabrous except ovaries at the apex ............... f. serrulata

BB. Petals villose at the base, calyx and pedicel villose or not... f. lasiopetala

AA. Inflorescence more or less villose with caducous hairs; leaves nearly entire

B. Neither calyx nor pedicel villose; leaves roundish at the base .......... f. dephniphyloides

BB. Calyx and pedicel villose; leaves cuneate at the base....... f. ardisiifolia

f. serrulata—Ph. serrulata var. aculeata Lawrence, Gentes Herb. 8: 80 (1949).

Specim. exam. Pref. Hualien: around Mt. Chingshui, limestone gravelly ridges, 1150-1650m alt., T. Shimizu & M. T. Kao 11925 (KYO, SHIN, TAI, T); Taroko, Tausai to Tabito, 700m alt., Fukuyama & T. Suzuki 16321 (TAI), Namakoyama, Taroko, S. Suzuki 8891 (TAI), Gukutsu, E. Matsuda s.n. (T); Pref. Taichung: Onoue to Tonbura, Suzuki 2694 (TAI); Mt. Ammashan, alt. 1100-2300m, T. S. Liu et al. 115 (TAI); Pref. Chiayi: Arizan to Nitak, G. Nakahara s.n. (T).

The type specimen of var. aculeata is sterile branches from a limestone cliff of Pref. Hualien, the leaves of which, Lawrence described, are strongly aculeate and are considered as not representing a juvenile foliage form of the typical one. Contrariwise Li mentioned that "the type of var. aculeata has serrations that are not sharp but are similar to those of most other specimens". Around the limestone area of Pref. Hualien there is found Ph. serrulata rather frequently. I preferably regard var. aculeata only as a variant of the typical Ph. serrulata occurring here around.

f. lasiopetala (Hayata) T. Shimizu, comb. et st. nov.—Ph. lasiopetala Hayata, Ic. Pl. Formos. 6: 17, f. 1 (1916); Kameh., l. c. 265, f. 209; Li, l. c. 233; Liu, l. c. 436, f. 370 (1960).

*This sign indicates the Herbarium of Shinshu University in Ueda of Japan.
Ph. lasiopetala was named so for the villose petals, which were the most important key character for its specific delimitation. Different from f. serrulata its calycines and pedicels are also villose with unicellular hairs being of same nature with those of petals. In my opinion, however, it is doubtful if such hairiness is meaningful for the specific character, for it is expected to be occurring polytopically. For example, one of the specimens from the Continent referable to Ph. serrata, “Prov. Hunan: Mt. Gakuroku, S. YAMAZAKI 5 (TI)”, bears also villose petals at the base though glabrous one other parts likewise in f. serrulata. In this respect I would treat Ph. lasiopetala as only a form of Ph. serrulata.

f. daphniphylloides (HAYATA) H. L. Li, l. c. 234, excl. syn. var. aculeata—Ph. daphniphylloides HAYATA, Ic. Pl. Formos. 7: 30, f. 23, pl. 4 (1918); KANEH., l. c. 263, f. 209 (1936).


No specimen strictly referable to Ph. daphniphylloides, which was characterized by large entire leaves, villose inflorescence and villose young shoot, was available to me except the type. Standing on the view that pubes on young shoot and inflorescence of Ph. serrulata-group are of less phylogenetic meaning as well as serration, Li’s treatment would be relevantly acceptable.

f. ardisii-folia (HAYATA) H. L. Li, l. c. 234; LIU, 439, f. 373 (1960).—Ph. ardisii-folia HAYATA, l. c. 65 (1915) & Ic. Pl. Formos. 9: 39 (1920); KANEH., l. c. 263, f. 208.


This form is known only from the type specimen, which shows that the young corymb together with pedicels, calycines and young shoot is rusty villose while the fruiting one is glabrous. The leaves are slender and nearly entire, acuminating towards the base.

Pourthiaea DECNE.

Mém. Fam. des Pomacées 146 (1874).—Photinia Sect. Pourthiaea SCHNEID., l. c. 708.

A. Adult leaves small, not over than 7 cm long, usually 1–5 cm long; inflorescence corymbose-fasciculate

B. Decumbent small tree, barks grey not blackish; flowers 1–3 in umbel-like inflorescence, pedicels and sepalles completely glabrous or very sparsely pilose; pomes 3 4 mm long ........................................... P. chingshuiensis

BB. Erect small tree; barks black or dark grey; flowers 5–10 in corymb, pedicles and sepals densely tomentose with caduceous hairs........... P. kankoensis

AA. Adult leaves large, 7–11 cm long; inflorescence compundly corymbose

B. Leaves o: rate-lanceolate regularly serrate, lamina decurrent towards 2–3 mm long petiole; styles 2-fid ........................................... P. lucida
BB. Leaves obovately or ovately oblong irregularly serrate, lamina cuneate or somewhat rounded at the base, petioles over than 5 mm long; styles 3- or 4-fid ............................. *P. Beauverdiana* var. *notabilis*

*P. chingshuiensis* T. SHIMIZU, Journ. Fac. Text. Sci. Technol., Shinshu Univ., No. 36, Ser. A (Biol.), No. 12, 36 (1963). (Fig. 1)

Specim. exam. Pref. Hualien : around Mt. Chingshui, sunny limestone gravelly ridges, 600-1400 m alt., T. SHIMIZU & M. T. KAO 11749 fl. (holotype in TAI; isotype in KYO, SHIN, TI); Mt. Chingshui, sunny limestone gravelly ridges; 1400-2100 m alt., T. SHIMIZU & M. T. KAO 11835 fl. (KYO, SHIN, TAI, TI); around Mt. Chingshui, limestone gravelly ridges, 800 m alt., T. SHIMIZU 12403 fr. (KYO, SHIN).

Distr. Northeastern part of Taiwan.

The materials we collected around Mt. Chingshui in Pref. Hualien are very near to *P. kankoensis* or *P. parvifolia*. The former has been delimited by the smallest leaves among the Taiwan members of the genus. Although I could not examine the type specimen, both the original description and KANEHIRA's interpretation of *P. kankoensis* denote that it is an erect tree about 3 m high with leaves 3-4 cm long, calyx and inflorescence densely white tomentose with caducous hairs. Our materials also bear similarly small leaves 1-4 cm long. But they represent a decumbent tree flowers and peduncles of which are completely glabrous or else exceedingly sparsely pilose even at young stage. Inflorescences are umbel-like with very few flowers 1-3 (-5). Barks are grey in color. These are the characters for their distinction from...
P. kankoensis.

Li is of opinion that P. kankoensis is conspecific with Ph. parvifolia (=P. parvifolia). Much unfortunately there came to my hands no materials of Ph. parvifolia at all. Deducing from the original description of Pritzel\(^3\), the interpretations of Schneider\(^4\) and of Cardot\(^5\), however, I arrived at the conclusion that Ph. parvifolia was not same with P. kankoensis, and our materials mentioned above were nearer to Ph. parvifolia rather than P. kankoensis.

Ph. parvifolia was characterized by small caudately acuminated ovate leaves 3-4 cm \(\times\) 1.5-2 cm and elongated peduncles to be 4 cm long. Schneider's explanation and figure supplement that its peduncles are hairy at earlier stage but calyx glabrous. Consequently our materials are different from these explanations in their shorter peduncles 3-18 mm long and slenderer leaves 4-12 mm wide, though it remains questionable if Ph. parvifolia is a decumbent tree. This is reason why I offered a new specific name. The full description of the materials is as follows.

Frutex decumbens ramosus. Rami teretes glabri glaucescens ramuli juveniores dense pilosi. Folia chartacea obovato-lanceolata basi ducurrentia ad petiolis 10-40 mm longa 4-12 mm lata minute serrulata utrinque glabra praeter subtus costis sparse pilosis petiolata 3-5-fasciculata in breviramulis alternis in ramulis floriferibus, petiolis brevissimis ca. 1 mm longis purpureo-nigrescentibus pilosis. Inflorescentiae terminales 1-3-raro 5-floribus depositis in umbellis. Flores pedunculati, pedunculis glaucilibus 3-18 mm longis glabris vel sparse pilosis sursum glabrescentibus, calycebus glabris raro sparsissime pilosis 5-lobatis lobis triangulisibus irregulariter serrulatis ca. 1.5 mm longis intus pilosis, petalis albis glabris orbiculatis basi unguiculatis ca. 5 mm longis, staminibus filamentos subulatis ca. 20 in numero, ovarii apice dense pilosis, stilis glabrivis apice bifidis, stigmatibus capitatis. Poma anguste campanulata glabra 3-4 mm longa 2-3 mm in diametro.

This is a inhabitant of the northeastern limestone area of Taiwan. In Mt. Chingshui I could find it very frequently on open gravelly ridges or under the sparse forest on calcareous slopes.

P. kankoensis Hatus., Enshurin Hokoku, Kyushu Imp. Univ. 3: 99 (1933); Kaneh., l. c. 267, f. 214. — Ph. parvifolia (non E. Pritzel) Li, l. c. 233, quoad pl. ex Taiwan.

Specim. exam. Prof. Taipei: Taitum, 1000 m alt., Faurie 1865 (KYO); Mt. Daiton, T. Sato 326 (TJ); Mt. Shichisei, Hokutosho, Shichisei-gun, T. Nakamura 4356 (TAI); Mt. Shokannon, Hokutosho, Shichisei-gun, T. Nakamura 3937 (TAI); Sekitei, Sekitei-sho, Bunzan-gun, T. Nakamura 4339 (TAI); Sihoyan-zan, Togo-kei, Agyoku, Bunzan-gun, T. Suzuki 14665 (TAI); Siron, Rugyahu Haro, Rimogan, Bunzan-gun, T. Suzuki 17022 (TAI); Bako Kuru, Bunzan-gun, T. Suzuki & T.

4) Schneider, C. K., 1. c. 711.

Distr. Northern part of Taiwan.

An erect shrub or subarborecent. Barks black or blackish grey. Leaves small 2-5 cm long. Flowers as well as inflorescences densely tomentose with caducous hairs. Inflorescences fasciculate, often rather corymbose. Fruits globose to 10 mm long and 7 mm in diameter. These are diagnoses for this species. Although Hatusima's description of P. kankoensis did not refer to the floral parts, dense hairiness of buds and pedicels, basing upon Kanehira's interpretation and the specimens I examined, is the most visible character for its distinction especially from Ph. parvifolia together with larger numbers of flowers (5-10) in an inflorescence.


Specim. exam. Pref. Taipei : Shinten, Faurie 79 (KYO); ibid., K. Odashima 13866 (KYO, TI); Shirin, Faurie 1649 (KYO); ibid., K. Odashima 17780 (KYO, TI); Urai, Faurie 80 (KYO); ibid., T. Somas s.n. (TI); ibid., s. leg. & s.n. (TI); ibid., S. Suzuki 3255 (TAI); ibid., G. Masumune s.n. (TAI); in silvis Hokuto Faurie 126 (KYO); Daihoku, T. Makino s.n. — Type of P. taiwanensis (TI); Taihoku, Suzuki s.n. (TAI); Kanka, E. Matsuda s.n. (TAI); Kankou, M. T. Kao 30138 (TAI); ibid., T. Nakamura 4212 (TAI); Geko-sanchi, Shinse-gun, K. Moris s.n. (TI); inter Sanchikou to Kangu, Liu et al. 30138 (TAI); Kangu, M. T. Kao 2917 (TAI); Matsuyama to Nanko, G. Masumume 2820 (TAI); Mt. Hekitan, Shinten-sho, Bunzun-gun, H. Shimizu 2267 (TAI); Wantan, Shinten-sho, Bunzun-gun, H. Shimizu 3279 (TAI); in silvis collis Sendyosan apud Taihoku, T. Suzuki 4414 (TAI); Suigench, Tomita-cho, Taihoku-shi, H. Shimizu 448 (TAI); ibid., S. Suzuki s.n., two sheets (TAI); Rokuchori, Taihoku-shi, H. Shimizu 385 (TAI); Keelung, S. Suzuki s.n. (TAI). Pref. Taitung : Compartement 114, Wushihken, T. S. Liu et al. s.n. (TAI). Pref. Chiai : Naimuho, S. Suzuki s.n. (TAI). Pref. Kaohsiung : Horai to Rokki, Rokki-sho, Kizen-gun, S. Okamoto s.n. (KYO); Rokkiri, T. Somas 986 (TI). Pref. Taitung : Daijurin to Shussuiha, J. Ohwi 431 (KYO). Pref. Pingtung : inter Kusukusu et Botansha, M. Tagawa 961 (KYO); Botanwan, E. Matsuda 81 (TI); Hengtsung, Y. Tashiro 32 (TI); in silvis montis Rohutu-zan, Koyun, T. Suzuki 6061 (TAI); Kunit, Hungchuen, H. Keng 1326 (TAI).
Distr. Lowland of the whole island of Taiwan.

This is the commonest *Pouzthiaea* species growing on mountain slopes all over the island. The bifid style and broadly ovate leaves regularly serrated are representing good key characters for its discrimination (Fig. 2, A).


Distr. The whole island of Taiwan and South China.

This is separable from the previous species by 3- or 4-fid styles and oblong leaves irregularly serrated (Fig. 2, B). My examination of the isotype specimens of *Ph. Fauriei* concluded that, as Li suggested, this was exactly referable here. The type of *Ph. Kudoii* is characterized by 4-fid styles and tomentose adult leaves beneath. However, hairiness of leaves of *Pouzthiaea* is a problem of degree. A specimen, "Kirai to Asahi, E. MATSUDA 80 (TI)", represents also much tomentose adult leaves beneath, its styles being 3-fid. *Ph. Kudoii* may be conspecific with the present species.

ヒマラヤ植物雑談
