

## *Pourthiaea* (Rosaceae) Distinct from *Photinia*

Hiroyuki IKETANI<sup>1)</sup> and Hiroyoshi OHASHI

Biological Institute, Faculty of Science, Tohoku University,  
Sendai, 980 JAPAN

カマツカ属 (バラ科) とカナメモチ属

池谷祐幸<sup>1)</sup>, 大橋広好

東北大学理学部生物学教室 980 仙台市青葉区荒巻字青葉

(Received on July 6, 1991)

*Pourthiaea* and *Photinia* are considered distinct from each other based on anatomical differences in the fruit, although the former is usually included in the latter. The lectotype of *Pourthiaea* and necessary new combinations in the genera are proposed.

*Pourthiaea* (Sorbeae; Maloideae; Rosaceae) was described by Decaisne in 1874, but Schneider (1906) treated it as a section of *Photinia*. Nakai (1916) resurrected it and the genus has usually been accepted in Japan (e.g., Ohwi 1953, 1965, Kitamura and Murata 1979, Kitagawa 1983, Ohashi 1989). *Pourthiaea* differs from *Photinia* mainly in its deciduous leaves and warty peduncles and pedicels, especially in the fruiting stage, but these two genera have been united in *Photinia* by many authors (e.g., Schneider 1906, Rehder 1940, Hutchinson 1964, Yü 1974, Kalkman 1988), because both have corymbose or paniculate inflorescences and a partly fused hypanthium and carpels.

When Decaisne (1874) established *Pourthiaea*, he described the heterogeneous structure of the pulp as another important diagnostic character in addition to the ones mentioned above. This difference in the anatomical structure of the fruit has, however, not been re-examined since. We

studied the anatomical structures of the fruit of selected members of the tribe Sorbeae (Iketani and Ohashi 1991) and discovered that *Pourthiaea* has distinct pulp structure. The pulp of *Pourthiaea* has clusters of stone cells, surrounded by parenchymatous cells, only in the center. This pattern appears only in *Pourthiaea* among the Maloideae and may be the "chair hétérogène" in the description by Decaisne (1874). This type of pulp structure is perhaps an autoapomorphy. Such characters as deciduous leaves and warty peduncles and pedicels are considered also apomorphic. We, therefore, think that *Pourthiaea* must be derived from *Photinia* and should be separated from it as a distinct genus. The following new combinations are proposed.

***Pourthiaea*** Decne. in *Nouv. Arch. Mus. Hist. Nat. Paris* **10**: 146 (1874). Focke in *Engler & Plantl. Nat. Pfl.-fam.* **3**(3): 26 (1888). Nakai in *Bot. Mag. Tokyo* **30**: 24 (1916). Ohwi, *Fl. Jap.* 667 (1953); l. c. ed. *Engl.* 549 (1965). Kitamura and Murata,

Col. I11. Woody Pl. Jap. **2**: 25 (1979). Kitagawa, Ohwi, New Fl. Jap. 880 (1983). Ohashi in Satake et al., Wild Fl. Jap. Wood. **1**: 222 (1989).

*Photinia* sect. *Pourthiaea* (Decne.) Schneider, I11. Handb. Laubh. **1**: 708 (1906). Rehder, Man. Trees Shrubs ed. 2, 384 (1940). Yü and Kuan in Acta Phytotax. Sin. **8**: 226 (1963). Vidal in Adansonia **5**: 222 (1965); in Fl. Camb. Laos et Vietnam **6**: 36 (1968). Kuan and Yü in Fl. Reip. Pop. Sin. **36**: 217 (1974).

Lectotype: *Pourthiaea villosa* (Thunb. ex Murray) Decne. (lectotype designated here for the first time).

***Pourthiaea arguta*** (Lindl.) Decne. var. ***salicifolia*** (Decne.) Iketani et Ohashi, comb. nov.

*Pourthiaea salicifolia* Decne. in Nouv. Arch. Mus. Hist. Nat. Paris **10**: 148 (1874).

*Photinia salicifolia* (Decne.) Schneid. I11. Handb. Laubh. **1**: 709 (1906).

*Photinia arguta* Lindl. var. *salicifolia* (Decne.) Vidal in Adansonia **5**: 229 (1965); in Fl. Camb. Laos et Vietnam **6**: 50 pl. 7: 8–10. (1968); in Fl. Thailand **2**(1): 41 (1970). Kuan & Yü, l.c. 254 (1974).

***Pourthiaea beauverdiana*** (Schneid.) Hatusima var. ***brevifolia*** (Card.) Iketani et Ohashi, comb. nov.

*Photinia beauverdiana* Schneid. var. *brevifolia* Card. in Lecomte, Not. Syst. **3**: 378 (1918). Wils. in J. Arn. Arb. **8**: 120 (1928). Kuan and Yü, l.c. 244 (1974).

***Pourthiaea benthamina*** (Hance) Nakai var. ***glabrescens*** (Card.) Iketani et Ohashi, comb. nov.

*Photinia benthamina* var. *glabrescens* Card. in Lecomte, Not. Syst. **3**: 375 (1918). Vidal in Fl. Camb. Laos et Vietnam **6**: 46 (1968).

***Pourthiaea benthamina*** var. ***obovata*** (Li) Iketani et Ohashi, comb. nov.

*Photinia benthamina* var. *obovata* Li in J. Arn. Arb. **2**: 208 (1914). Kuan and Yü, l.c. 252 (1974).

***Pourthiaea benthamina*** var. ***salicifolia*** (Card.) Iketani et Ohashi, comb. nov.

*Photinia benthamina* var. *salicifolia* Card. in Lecomte, Not. Syst. **3**: 376 (1918). Vidal in Fl. Camb. Laos et Vietnam **6**: 47 (1968). Kuan and Yü, l.c. 252 (1974).

***Pourthiaea bergerae*** (Schneid.) Iketani et Ohashi, comb. nov.

*Photinia bergerae* Schneid. I11. Handb. Laubh. **1**: 709 (1906); in Fedde, Repert. Nov. Sp. **3**: 153 (1906). Kuan and Yü, l.c. 247 (1974).

***Pourthiaea blinii*** (Lévl.) Iketani et Ohashi, comb. nov.

*Cotoneaster blinii* Lévl. Cat. Pl. Yunnann **229** (1917).

*Photinia blinii* (Lévl.) Rehd. in J. Arn. Arb. **17**: 335 (1936). Kuan and Yü, l.c. 249 (1974).

***Pourthiaea callosa*** (Chun ex Kuan) Iketani et Ohashi, comb. nov.

*Photinia callosa* Chun ex Kuan in Acta Phytotax. Sin. **8**: 229 (1963). Kuan and Yü, l.c. 246 (1974).

***Pourthiaea fokiensis*** (Franch.) Iketani et Ohashi, comb. nov.

*Photinia glabra* Hemsl. var. *fokiensis* Franch. in Bull. Soc. Bot. France **46**: 207 (1920).

*Photinia fokiensis* (Franch.) Franch. ex Card. in Bull. Mus. Hist. Nat. Paris **26**: 570 (1920). Kuan and Yü, l.c. 246 (1974).

***Pourthiaea hirsuta*** (Hand.-Mazz.) Iketani et Ohashi, comb. nov.

*Photinia hirsuta* Hand.-Mazz. Symb. Sin. **7**: 481 (1933). Kuan and Yü, l.c. 260 (1974).

***Pourthiaea hirsuta*** var. ***lobulata*** (Yü) Iketani et Ohashi, comb. nov.

*Photinia hirsuta* var. *lobulata* Yü in Acta Phytotax. Sin. **8**: 231 (1963).

***Pourthiaea impressivena*** (Hayata) Iketani et Ohashi, comb. nov.

*Photinia impressivena* Hayata, Ic. Pl. Formos.

5: 67 (1915). Kuan and Yü, l.c. 248 (1974).

*Stranvaesia impressivena* (Hayata) Masamune in Ann. Report. Taihoku Bot. Gard. **2**: 127 (1932).

**Pourthiaea impressivena** var. **urceolocarpa** (Vidal) Iketani et Ohashi, comb. nov.

*Photinia lancilimum* Vidal var. *urceolocarpa* Vidal in Not. Syst. **13**: 299 (1948).

*Photinia impressivena* var. *urceolocarpa* Vidal in Fl. Camb. Laos et Vietnam **6**: 51 (1968). Kuan and Yü, l.c. 249 (1974).

**Pourthiaea moiorum** (Chev.) Iketani et Ohashi, comb. nov.

*Pyrus moiorum* Chev. in Rev. Bot. Appl. **22**: 375 (1942).

*Photinia moiorum* (Chev.) Vidal in Fl. Camb. Laos et Vietnam **6**: 48 (1968).

**Pourthiaea obliqua** (Stapf) Iketani et Ohashi, comb. nov.

*Photinia obliqua* Stapf in Curtis's Bot. Mag. **149**: t.9008 (1923), in nota. Kuan and Yü, l.c. 248 (1974).

**Pourthiaea parviflora** (Card.) Iketani et Ohashi, comb. nov.

*Photinia parviflora* Card. in Not. Syst. **3**: 378 (1918). Kuan and Yü, l.c. 248 (1974).

**Pourthiaea pilosicalyx** (Yü) Iketani et Ohashi, comb. nov.

*Photinia pilosicalyx* Yü in Acta Phytotax. Sin. **8**: 231 (1963). Kuan and Yü, l.c. 255 (1974).

**Pourthiaea podocarpifolia** (Yü) Iketani et Ohashi, comb. nov.

*Photinia podocarpifolia* Yü in Acta Phytotax. Sin. **8**: 230 (1963). Kuan and Yü, l.c. 254 (1974).

**Pourthiaea schneideriana** (Rehd. et Wils.) Iketani et Ohashi, comb. nov.

*Photinia schneideriana* Rehd. et Wils. in Sarg., Pl. Wils. **1**: 188 (1912). Kuan and Yü, l.c. 253 (1974).

**Pourthiaea tsaii** (Rehd.) Iketani et Ohashi, comb. nov.

*Photinia tsaii* Rehd. in J. Arn. Arb. **19**: 274 (1938). Kuan and Yü, l.c. 247 (1974).

**Pourthiaea villosa** (Murray) Decne. var. **chingshuiensis** (T. Shimizu) Iketani et Ohashi, comb. nov.

*Pourthiaea chingshuiensis* T. Shimizu in J. Fac. Tex. Sci. Techn. Shinshu Univ. **36**: 36 (1963).

*Photinia chingshuiensis* (T. Shimizu) Liu et Su in Fl. Taiwan **3**: 74 (1975).

**Pourthiaea villosa** (Murray) Decne var. **parvifolia** (Pritz.) Iketani et Ohashi, comb. nov.

*Pourthiaea parvifolia* Pritz. in Bot. Jahrb. **29**: 389 (1900).

*Photinia parvifolia* (Pritz.) Schneid. I11. Handb. Laubh. **1**: 711 (1906). Kuan and Yü, l.c. 258 (1974).

*Photinia villosa* (Murray) DC. var. *parvifolia* (Pritz.) P. S. Hsu et L. C. Li in Acta Phytotax. Sin. **18**: 264 (1980).

*Pourthiaea kankoensis* Hatusima in Bull. Exp. For. Kyushu Univ. **3**: 99 (1933).

**Pourthiaea villosa** (Murray) Decne var. **tenuipes** (P. S. Hsu et L. C. Li) Iketani et Ohashi, comb. nov.

*Photinia villosa* (Murray) DC. var. *tenuipes* P. S. Hsu et L. C. Li in Acta Phytotax. Sin. **18**: 264 (1980).

**Pourthiaea zhejiangensis** (P. L. Chiu) Iketani et Ohashi, comb. nov.

*Photinia zhejiangensis* P. L. Chiu in Acta Phytotax. Sin. **18**: 97 (1980).

We are grateful to Dr. D. E. Boufford (Harvard University Herbaria) for critically reading the manuscript.

#### Endnote

1) Present Address: Division of Breeding, Fruit Tree Research Station, Ministry of Agriculture, Forestry and Fisheries, Tsukuba, 305 Japan.

農林水産省果樹試験場育種部 305 茨城県つくば市藤本 2-1.

### References

- Decaisne M. J. 1874. Mémoire sur famille des Pomacées. *Nouv. Arch. Mus. Hist. Nat. Paris* **10**: 113–192. pl. 1–15.
- Hutchinson J. 1964. Rosaceae. *In* The genera of flowering plants **1**: 174–216. Oxford University Press, Oxford.
- Iketani H. and Ohashi H. 1991. Anatomical structure of fruits and evolution of the tribe Sorbeae in the subfamily Maloideae (Rosaceae). *J. Jpn. Bot.* **66**: 319–351.
- Kalkman C. 1988. The phylogeny of the Rosaceae. *Bot. J. Linn. Soc.* **98**: 37–59.
- Kitagawa M. 1983. Ohwi's new flora of Japan. Shibundo, Tokyo (in Japanese).
- Kitamura S. and Murata G. 1979. Rosaceae. *In* Coloured illustrations of woody plants of Japan **2**: 1–97. Hoikusha, Osaka (in Japanese).
- Kuan K. C. and Yü T. T. 1974. *Photinia*. *In* Yü T. T. (ed.), *Fl. Reip. Pop. Sinicae* **36**(1): 216–260.
- Ohashi H. 1989. Rosaceae. *In* Satake Y. et al. (ed.), *Wild flowers of Japan, Woody plants*. vol. **1**. Heibonsha, Tokyo (in Japanese).
- Ohwi J. 1953. *Flora of Japan. Rosaceae*, p. 621–670. Shibundo, Tokyo (in Japanese).  
——— 1965. *Flora of Japan*. ed. Engl. *Rosaceae*, p. 517–551. Smithsonian Institution, Washington, D.C.
- Nakai T. 1916. Praecursores ad floram sylvaticam Koreanam. VI. (Pomaceae). *Bot. Mag. Tokyo* **30**: 15–33.
- Rehder A. 1940. *Manual of cultivated trees and shrubs*. ed. 2. Rosaceae, p. 322–482. Macmillan, New York.
- Schneider C. K. 1906. *Illstriertes Handbuch der Laubholzkunde* vol. **1**. G. Fischer, Jena.
- Yü T.-T. (ed.), 1974. *Flora Reipublicae Popularis Sinicae*, vol. **36**, Rosaceae (1), Science Press, Peking (in Chinese).

### 要 旨

カマツカ属 (*Pourthiaea*) は Decaisne (1874) によって設立されたが、日本の研究者を除けばこの属が認められることは少なく、カナメモチ属の一節 (*Photinia* sect. *Pourthiaea*) として扱われることが多い。Decaisne (1874) はカマツカ属の特徴として、果肉が不均質であることを記載しているが、この形質はその後取り上げられることはなく、落葉性であることと果柄にいぼ状突起があることの2形質のみがカナメモチ属との区別点として認識されてきた。筆者らはバラ科ナシ亜科ナナカマド連 (Rosaceae, Maloideae, Sorbeae) における果実の解剖学的形質とその進化について研究を行なったが (Iketani and Ohashi 1991), その結果カマツカ属においては、果肉は塊状に集合した石細胞とそれを取り囲む柔組織よりなることが判明した。このような形質はナナカマド連の他の属ではみられないものであり、固有派生形質であると推定される。この結果より、カマツカ属はカナメモチ属より派生した単系統群であると推定され、カナメモチ属とは別属として扱うのが妥当であると考えられる。カマツカ属としての必要な新組合せをここに発表した。