

REVISION OF GENUS *DOCYNIA* DECNE. (ROSACEAE) IN INDIA

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ABSTRACT

The revisionary studies of the genus *Docynia* Decne. in India, recognises three taxa viz. *Docynia hookeriana* Decne., *D. indica* (Colebrooke ex Wall.) Decne., *D. indica* var. *griffithiana* (Decne.) Ghora described from Eastern Himalaya. They are described here with indication of their types and specimens studied.

Keywords : *Docynia*, India, Taxonomy.

INTRODUCTION

The genus *Docynia* Decne. was described by Decaisne (1874) with *Docynia indica* (Wall.) Decne., *D. griffithiana* Decne. and *D. hookeriana* Decne. mainly from Indian subcontinent, viz. Khasia and Eastern Himalaya. Wallich (1831) described Colebrooke's collection from Bangladesh as *Pyrus indica* Wall. and later this was transferred by Decaisne (1874) under *Docynia*. Hooker (1878), Grierson (1987) treated *Docynia* Decne. as a distinct genus and recognised two species in *Docynia* Decne. viz. *D. indica* (Wall.) Decne. (= *D. griffithiana* Decne.) and *D. hookeriana* Decne. from Eastern Himalayan region. Some taxonomists treated *D. griffithiana* Decne. as a synonym of *D. indica* (Wall.) Decne. Later Ghora (2005) treated *D. griffithiana* Decne. as a variety, viz. *D. indica* (Wall.) Decne. var. *griffithiana* (Decne.) Ghora. During the revisionary studies of the genus in India, the specimens of the *Docynia* present in Central National Herbarium (CAL), BSHC, ASSAM and also the cards from Kew Herbarium mentioning the distribution together with Wallich herbarium sheets, microfiche sent from Kew Herbarium (K) and type sheets of the relevant species available were examined. The relevant literatures including protologues were studied. The taxonomic treatment of the genus *Docynia* Decne. in India is presented here.

DOCYNIA

Decne. in Nouv. Arch. Mus. Paris 10: 131. t. 14. 1874; Hook. f., Fl. Brit. India 2: 369. 1878; C.B. Clarke in J. Linn. Soc. 25: 20. 1887; Gamble, Man. Ind. Timb. 320. 1887; Brandis, Ind. Trees, 289. 1906; C.K. Schneid. Fedde. Repert. Nov. Sp. Reg. Veget. III. S. 179. 1906; Kanjilal & Das, Fl. Assam, 2: 210. 1938; Haridasan & Rao, For. Fl. Meghalaya, 1: 345. 1985; Mabberley, Pl. Book 191. 1986; Grierson, Fl. Bhutan 1(3): 603. 1987.

Small tree, young branches whitish tomentose, stem spiny, modified into branches at maturity. Leaves simple, young leaves lobed or lobulate, mature leaves ovate-lanceolate, margin serrate or serrulate, entire or repand, white woolly or glabrous beneath. Stipules small, linear lanceolate, red, woolly on both surfaces, subulate. Petioles white tomentose. Flowers in axillary umbel. Bracts linear. Hypanthia clavate or globose. Sepals 5. Petals 5. Stamens 40-50. Carpels 5, ovary 5-celled; styles 5, united at base, ovules 3. Fruit pome, pyriform, round or ovoid, pulp hard, 4-5 cm in diam., 5-celled usually with 3 seeds in each, calyx persistent in fruit.

The genus *Docynia* Decne. includes 5 species distributed in Eastern Himalaya, Nepal, Bhutan, W. China (Mabberley, 1987). In India two species with an additional variety are found to grow wild, viz. *D. hookeriana* Decne., *D. indica* (Wall.) Decne., and *D. indica* (Wall.) Decne. var. *griffithiana* (Decne.) Ghora.

Type: Meghalaya: "Khasia, regio temp. alt. 5000 pds.", *Hooker & Thomson* 511 (Holotype- K).

KEY TO THE SPECIES

- 1a. Fruit globose; leaves ovate to lanceolate, margin serrulate to distantly serrate or entire, glabrous above, densely white woolly beneath or veins pubescent only; calyx tube globose; pedicels 10-25 mm long 2. *D. indica*
- 1b. Fruit oblong to elliptic or sometimes pyriform; leaves lanceolate or spiny lobulate, margin crenate to denticulate, glabrous on both surfaces; calyx tube turbinate or pyriform, pedicels 5-10 mm long 1. *D. hookeriana*

1. *Docynia hookeriana* Decne. in Nouv. Arch. Mus. Paris 10: 131. t. 15. 1874; Hook. f., Fl. Brit. India 2: 369. 1878; Kanjilal & Das, Fl. Assam 2: 211. 1938; Shastri & al., Wealth Ind. 3: 97. 1952.

Popular names: Soh-Phoh-Heh, Dieng-Soh-Pho (Khasi).

Small tree, up to 1.2 m high; branches spreading, glabrous, pubescent when young. Leaves 8.5-13 x 2.5-5 cm, lanceolate, base cuneate to round, apex long acuminate, margin usually denticulate or spiny serrate with lobes, rarely entire, glabrous on both surfaces, tomentose on veins and on midrib only beneath; veins 6-7 pairs; petioles 1.5-3.2 cm long, glabrous. Stipules 5-6 mm long, filiform, glabrous. Flowers usually solitary, or very few in umbel, 2.5-3 cm in diam. Bracteoles 3-5 x 1 mm, lanceolate, glabrous, deciduous. Pedicels 5-8 mm long (10 mm in fruit), glabrous. Hypanthia turbinate or pyriform. Sepals 5, 6-7 x 1-2 mm, obovate, white. Stamens many, filaments 8-9 mm long, filiform, anther lobes 1 x 1 mm, yellowish. Styles 5, 10-11 mm long, united at base, with woolly up to middle half from base, ovary 10 x 7 mm, tomentose, 5-celled. Fruit (Pome) 2-4 x 1.3-2.3 cm, oblong to ellipsoid or fusiform, tomentose to pubescent.

Flowering : Feb.-Mar. *Fruiting* : Oct.-Nov.

Distribution: India: Grows up to 1520 m. altitude (Assam, Meghalaya).

Uses: Fruits are edible and wood is used for making drums and tomtom.

Representative specimens : Meghalaya: Shillong, Khasi hills, June 1918, H.G. Carter 876(CAL); Khasia, 16 June 1885, 1824 m, C.B. Clarke 38306A; *Sine prop. loc., s.l. s.n.* (CAL acc. no. 561349).

2. *Docynia indica* (Wall.) Decne. in Nouv. Arch. Mus. Paris 10: 131. t. 14. 1874; Hook. f., Fl. Brit. India 2: 369. 1878; C.B. Clarke in J. Linn. Soc. 25: 20. 1887; Gamble, man. Ind. Timb. 320. 1902; Brandis, Ind. Trees 289. 1906; Kanjilal & Das, Fl. Assam, 2: 211. 1938; Shastri & al., Wealth Ind. 3: 96. 1952; Deb in Bull. Bot. Surv. India 3: 258. 1961; Biswas in Fl. Darj. 321. 1966; Balakrishnan, Fl. Jowai 1: 190. 1981; Haridasan & Rao in For. Fl. Meghalaya 1: 345. 1985; Grierson in Fl. Bhutan 1(3): 603. 1987; Hajra & al., Fl. Arunachal Pradesh 1: 417. 1996; Chauhan & al. in Fl. Nandapha, 159. 1996 & in Fl. Manipur 1: 347. 2000. *Pyrus indica* Colebr. ex Wall., Pl. As. Rar. 2: 56. t. 173. 1831; Roxb. [Hort. Beng. 38. 1814] Fl. Ind. 2: 511. 1832; Kurz, For. Fl. Brit. Burma 1: 441. 1877. *Cydonia indica* (Wall.) Spach, Suite Buff. 2: 158. 1834; Wenzig in Linnaea, 12. 1974. *Eriolobus indica* (Wall.) C.K. Schneid., Ill. Handb. Laubholzk. 1: 730. 1906; Cowan & Cowan, N. Beng. 61. 1929. *Docynia griffithiana* Decne. Nouv. Arch. Mus. Paris, 10: 131. 1874. *D. indica* (Wall.) Decne. var. *griffithiana* (Decne.) Ghora in Bull. Bot. Surv. India 47(1-4): 149-150. 2005. (Fig. 1)

Tree erect, 3.6 to 7.6 m high, young branches whitish tomentose, stems, lower branches stout, spiny. Young leaves 3-4 lobed to lobulate, mature leaves 9.5-13.5 x 3.0-4.2 cm, ovate to lanceolate, base cuneate to cordate, apex abruptly long acuminate, margin argute serrulate or distantly serrate, glabrous above, young leaves densely white woolly beneath, glabrous at maturity; petioles 2-4 cm long, white tomentose. Stipules 6 x 1 mm, linear lanceolate, reddish, margin woolly or sometimes woolly on both surfaces. Inflorescence axillary, usually 3-flowered, umbel sessile. Bracts 5-6 x 1 mm, linear. Flowers pedicellate. Pedicels 10-25 mm long, tomentose. Hypanthia globose tomentose. Sepals 5, 1.0-1.5 x 0.6-0.7 cm, lanceolate, white villous on both surfaces. Petals 5, 14-20 x 10-11 mm, oblong-obovate, white fragrant. Stamens 45-50, filaments 8-9 mm long, filiform, anther yellowish. Styles 5, 10-11 mm long, long woolly from base up to half of the length, united only at base forming a cone, ovary 10 x 7 mm, woolly. Pomes 1.6-1.8 x 2-5 cm, globose, pubescent, glabrous at maturity, green with orange spots, crowned by the calyx lobes, usually 5-celled, cells 3-seeded. (Fig. 1, Plate-2).

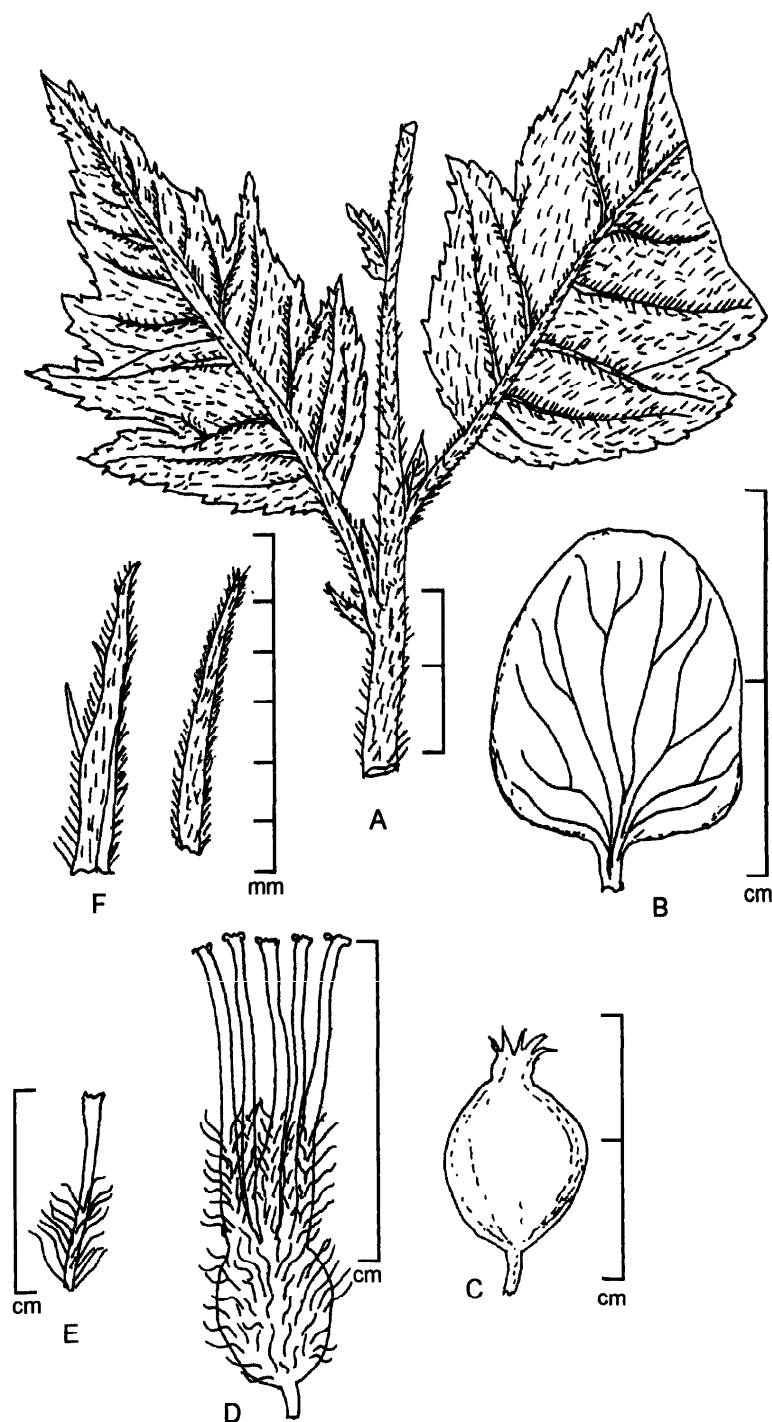


Fig. 1. *Docynia indica* (Wall.) Decne. A. Habitat; B. Petal; C. Fruit; D. Pistil; E. Single style; F & G. Stipules. [U. Kanjilal 2473 (CAL)].

Popular names: Indian crab apple, false quince (Eng.); Soh-Phoh, Dieng-Soh-Poh (Khasi); Likung (Lepcha); Mehul, Passy (Nepal).

KEY TO THE VARIETIES

- 1a. Leaf margin distantly serrate, glabrous above, densely white woolly beneath when young, glabrous at maturity
- 1b. Leaf margin usually entire, repand, rarely crenate in apical part, glabrous above, tomentose beneath on veins only

... a. var. *indica*

... b. var. *griffithiana*

2a. var. indica

Pyrus indica Colebr. ex Wall., Pl. As. Rar. 2: 56. t. 173. 1831.

Type: Bangladesh: 'in montosis Sylhet Bengalae Orientalis', *Colebrooke s.n.* (K).

Cydonia indica (Wall.) Spach, l.c. *Eriolobus indica* (Wall.) C.K. Schneid. L.c.

Flowering: Feb.-Mar. *Fruiting*: Sept.- Dec.

Distribution: India: Grows wild at 1200-2000 m. altitude (Sikkim, Meghalaya, Assam, Manipur, Nagaland, Arunachal Pradesh, West Bengal: Darjeeling).

Nepal, Bhutan, Myanmar, China; also cultivated for fruits.

Note: The fruit has harsher and austere taste, in a less degree than English Crab Apple and has a little flavour of quince.

Uses: The fruit (pome) is acidic, eaten raw or cooked, stewed. Light brown wood is used for tool handles and branches for walking sticks.

Representative specimens examined: Sikkim: Sureil, 25 Mar. 1908, *Ribu* 679 (CAL); *Dr. S.K. Mukherjee* 2107 (CAL acc. no. 553696); Yoksam, 1700 m, 16 May 1960, *H. Hara, H. Kanai & al* 6459. West Bengal: Kalimpong, 1520 m, March 1875, *s.l.* 1121D (CAL acc. no. 153558); Kalimpong, 1520 m, *G.S. Gamble ? s.n.*; Kalimpong, 1520 m, March 1875, *Gamble* 671 (CAL acc. no. 153560). Darjeeling, *J.D. Hooker s.n.* Assam: *Kurz s.n.* (CAL acc. no. 153569). Meghalaya: Humid corner of the north of Markasa market, Nongston area, Khasi & Jaintia Hill dist., 18 June 1958, *G. Panigrahi* 16414 (two sheets); Khasi Hills, 1520 m, *Kurz* 417; Khasi hills, Jowai Road, Mar. 1918, *H.G. Carter* 776; Khasi Hills, Nongpum, June 1920, *H.G. Carter* 1941 (two sheets); *sine prop loc.*, *s.l. s.n.* (CAL acc. no. 153581); Khasi Hills, Laitumkhra, 1520 m, 5 Sept. 1913, *U. Kanjilal* 2473; Shillong, *s.l.* 22 (CAL); 1824 m, *s.l. s.n.* (CAL acc. no. 153565); Jowai, May 1879, *s.l. s.n.* (CAL acc. no. 153574); Khasi, May 1874, *s.l. s.n.* (CAL acc. no. 153575); Shillong, 10 Apr. 1959, *H. Deka* 18319 (two sheets). Manipur: Kanpopki, 1033.6 m, 16 Aug. 1953, *D.B. Deb* 954; Bishenpur, 1520 m, Feb. 1906, *A. Meebold* 5617a; Mao, 1824-2128 m, 22Feb. 1882, *G. Watt* 6157. Nagaland: Kohima, 1886, *D. Prain s.n.* (CAL acc. no. 153583); Naga Hill, Aug. 1846, *s.l. s.n.* (CAL acc. no. 153582). Arunachal Pradesh: Kameng F.D. (NEFA), Kolatang North, 12 May 1958, *G. Panigrahi* 15446. (all at CAL)

The following specimens present in Kew Herbarium (K) are recorded from Kew cards of CAL herbarium sent from Kew: Sikkim: *J.D. Hooker s.n.* West Bengal: Darjeeling, *J.D. Hooker s.n.*; above Kalimpong, 1520 m, Mar. 1875, *Gamble* 1121A; Mungga near Kalimpong, 11 Nov. 1875, *Gamble* 229. Assam: S.W. Corner of Ape Tani Valley, 14 Apr. 1965, *Coix & Hutchinson* 335; *Kurz s.n.* Nepal: Tapejung-Heydewa-Garhi Dama, *Hara & al.* 631818.

Bhutan: Near Punakka, *Griffith* 2081.

China: Poneshee (Yunnan Expedition), 26 Mar. 1868, *Anderson s.n.*

2b. var. griffithiana (Decne.) Ghora in Bull. Bot. Surv. India 47(1-4): 149-150. 2005.

Docynia griffithiana Decne. Nouv. Arch. Mus. Paris, 10: 131. 1874.

(Fig. 2)

Type: Himalaya Oriental, *Griffith* 2082 (Holotype-K. photo CAL ! Isotype- East Himalaya, Bhutan, *Griffith* 2082 (CAL acc. no. 153663 !).

Tree erect, 3 to 7 m high; branches tomentose, leaves 9-12 × 3-4 cm, base cuneate, apex long acuminate, margin entire, repand, sometimes crenate in apical part, glabrous above, tomentose beneath on veins only; petioles 2-3.5 cm long, tomentose. Stipules 6 × 1 mm, linear, woolly on both surfaces. Inflorescence umbel, usually 2-3-flowered. Bracts 5-6 × 1 mm, linear. Flowers pedicellate. Hypanthia globose. Sepals 5, 10-13 × 3-4 mm, lanceolate, villose on both surfaces. Petals 5, 15-20 × 10-11 mm, obovate, white. Stamens up to 50, filaments 7-8 mm long. Styles 5, 9-10 mm long, woolly from base to half, united at base. Ovary woolly. Pome 1.5-1.8 × 2-5 cm, globose, pubescent to puberulous, glabrous at maturity, 5-celled, cells 3-seeded.



Fig. 2. *Docynia indica* (Wall.) Decne. var. *griffithiana* (Decne.) Ghora.: A. Habit; B. Sepal :
[G. Watt. 6781 (CAL. acc. no.153586)]

Flowering & Fruiting : Feb.-Dec.

Distribution: India (Manipur, West Bengal); Bhutan.

Representative specimens examined : Manipur: Ligli village, 1520 m, 7 Jan. 1882, G. Watt 5052 (CAL acc. no. 153585); Khongui valley, 1216-1520 m, 27 Apr. 1882, G. Watt 6781 (CAL acc. no. 153586).

West Bengal: Darjeeling Lloyd Botanic Garden, 1976 m, 17 Apr. 1961, Indo-Russian Expedition to E. Himal. & N. Bengal, *s.l.* 118(CAL).

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भारत में वंश डोसिनिआ डेक्ने (रोजेसी) का पुनरीक्षात्मक अध्ययन

छवि घोरा

सार संक्षेप

भारत में वंश डोसिनिआ डेक्ने (1874) (रोजेसी) के तीन टैक्सा : डोसिनिआ हुकेरिएना डेक्ने, डोसिनिआ इंडिका डेक्ने, डोसिनिआ इंडिका प्रभेद ग्रिफिथिएना (डेक्ने) का पूर्वी हिमालय से पुनरीक्षात्मक अध्ययन में उनके प्ररूप, वर्णन, नमूनों के अध्ययन आदि प्रस्तुत किए गए हैं।