

A Revision of *Tephrosia* Pers. (Leguminosae-Papilionoideae) in Thailand

CHORTIP KANTACHOT¹, SAKULTALA NINKAEW² AND PRANOM
CHANTARANOETHAI^{2*}

¹ Department of Biological Sciences, Faculty of Science, Ubon Ratchathani University,
Ubon Ratchathani 34190, THAILAND

² Applied Taxonomic Research Center, Department of Biology, Faculty of Science, Khon Kaen University,
Khon Kaen 40002, THAILAND

* Corresponding Author: Pranom Chantaranothai (chantaranothai@gmail.com)

Received: 17 July 2014; Accepted: 28 August 2014

Abstract.— The genus *Tephrosia* Pers. (Leguminosae-Papilionoideae) is presently known by eight species from Thailand viz. *T. coccinea*, *T. kerrii*, *T. pumila*, *T. purpurea*, *T. vestita* including three introduced species, *T. noctiflora*, *T. villosa* and *T. vogelii*. Based on a thorough survey of taxonomic literature and collected specimens at herbaria were consulted and also fieldworks in the country. *T. pumila* subsp. *aldabrensis* (Drummond & Hemsley) Bosman & de Haas and *T. purpurea* var. *laxa* Craib, are reduced to be a synonym of *T. pumila* and *T. purpurea*, respectively. A key to the species, descriptions, distribution and ecology data and specimens examined are provided.

KEY WORDS: Leguminosae, revision, *Tephrosia*, Thailand

INTRODUCTION

Tephrosia Pers. (*nom. cons.*) is a large genus in the family Leguminosae, subfamily Papilionoideae comprising *c.* 350 species which is mainly distributed in tropical and subtropical regions (Schrire, 2005). Six species, nine taxa, were listed in the Florae Siamensis Enumeratio (Craib, 1928) and four species in the Thai Plant Names (The Forest Herbarium Royal Forest Department, 2001). However, no key to species is available for Thailand. Moreover, many specimens have since been collected from different parts of Thailand, which deserve in depth study. In view of these facts it was considered necessary to carry out a taxonomic revision of the genus.

MATERIALS AND METHODS

This revision is based on herbarium specimens collected from Thailand and neighbouring countries as extant in the herbaria viz. AAU, ABD, BCU, BK, BKF, BM, E, K, KKU, P, PSU, QBG, SING and TCD (Thiers, 2014) and those of the type specimens, supplemented by field study. All available recent floras, journals and other related literature have been consulted. Key has been prepared for identification of all species, including distributional and ecological data are also provided. Most specimens cited have been seen, except some types have not been seen are indicated by *n.v.*

TAXONOMIC TREATMENT

TEPHROSIA

Pers., Syn. Pl. 2: 328. 1807, *nom. cons.*; Wight & Arn., Prodr. Fl. Ind. Orient. 1: 209. 1834; Miq., Fl. Ind. Bat. 1(1): 292. 1855; Baker in Hook.f., Fl. Brit. Ind. 2: 110. 1876; Trimen, Handb. Fl. Ceyl. 2: 30. 1894; Gagnep. in Lecomte, Fl. Indo-Chine 2(3): 269. 1916; Ridley, Fl. Malay Penins. 1: 581. 1922; Backer & Bakh.f., Fl. Java 1: 593. 1963; Gillett, Fl. Trop. East Afr., Papil.: 157. 1971; Bosman & de Haas, Blumea 28(2): 436. 1983; Rudd in Dassan. & Fosberg, Rev. Fl. Ceyl. 7: 145. 1991; Lôt & Vidal in Morat, Fl. C.L.V. 30: 159. 2001; Wei Zhi & Les Pedley in Wu, Raven & Hong Deyuan, Fl. China 10: 190. 2010. — *Cracca* L., Sp. Pl.: 752. 1753; Kuntze, Rev. Gen. Pl. 1: 173. 1891, *non* Medik. 1789, *nec* Benth. 1853. Type: *T. villosa* (L.) Pers., based on *Cracca villosa* L., *non* (Michx.) Pers.

Perennial herbs or shrubs. *Leaves* spirally arranged, imparipinnate; leaflets opposite or subopposite; stipules present; stipellae absent. *Inflorescence* terminal, axillary or leaf-opposed; bracts present; bracteoles absent. *Flowers* papilionaceous. *Calyx* campanulate; teeth 5, connate at base, subequal or upper 2 connate or lower 2 longer. *Corolla*: standard obovate, oblong, elliptic to orbicular; keel and wings obovate, oblong to elliptic. *Stamens* diadelphous (9+1), vexillary filament short and free; anthers uniform. *Disk* annular, lobed. *Ovary* sessile; style much curved, usually often dorsally flattened, with or without hairs in its upper half. *Pods* legume, linear falcate (retrofalcate in *T. villosa*), flat, many-seeded.

Key to the species

1. Petioles more than 2 cm long; pedicels more than 1 cm long **8. *T. vogelii***
1. Petioles less than 2 cm long; pedicels less than 1 cm long **2**
2. Flowers at least 1.5 cm long **3**
2. Flowers less than 1.5 cm long **5**
3. Flower white **6. *T. vestita***
3. Flower orange, pinkish orange, pink or purple-red **4**
4. Twigs quadrangular; petioles more than 4 mm long; staminal tube more than 9 mm long **2. *T. kerrii***
4. Twigs terete; petioles less than 4 mm long; staminal tube less than 9 mm long **1. *T. coccinea***
5. Calyx teeth at least 4 mm long; pod retrofalcate **7. *T. villosa***
5. Calyx teeth less than 4 mm long; pod linear falcate **6**
6. Inflorescences less than 10 cm long; flowers congested **4. *T. pumila***
6. Inflorescences more than 10 cm long; flowers scattered **7**
7. Leaflet apices mucronate or acuminate; seeds 9–10, reticulately ridged **3. *T. noctiflora***
7. Leaflet apices obtuse or emarginate; seeds 5–7, smooth **5. *T. purpurea***

1. *Tephrosia coccinea* Wall., Pl. Asiat. Rar. 1(3): 49, pl. 60. 1829-1830 & Cat. no. 5633. 1831-1832. Type: Myanmar, *Wallich* 5633 (holotype K-W). — *T. tinctoria* Pers. var. *coccinea* Baker in Hook.f., Fl. Brit. Ind. 2: 112. 1876. — *T. siamensis* Drumm. in Hosseus, Bot. Centralbl. Beih. 28(2): 400. 1911. Type: Siam, Nakontai (Thailand, Phitsanulok, Nakhon Thai), 23 Dec. 1905, *C.C. Hosseus* 726. Type: not located.

Subshrub to 45 cm tall; twigs terete, tomentose. **Leaves:** petioles 1–3 mm long; stipules 1–2 mm long; rachis (2.5–) 4–7 cm long. **Leaflets:** (1–) 2–6 pairs, elliptic or obovate, entire, opposite; petiolules 1–2 mm long; lamina 4–5 by 1–2 cm, apex acuminate, retuse to emarginate, base cuneate, margin entire; lower surface with silver tomentose hairs; lateral veins 13–16 pairs. **Pseudoracemes:** terminal and axillary, (7–) 9–13 cm long; bracts similar to vegetative leaves; pedicels 4–6 mm long. **Calyx:** cup 2 mm long; teeth 2–3 mm, apex acuminate. **Corolla:** orange or pinkish orange; standard obovate to orbicular, 15–20 by 12–15 (–18) mm, outer pubescent, apex retuse, margin entire; wings oblong, (11–) 15–18 mm long, apex acuminate, base attenuate, margin entire; keel oblong, 12–18 mm long, base attenuate, margin entire. **Staminal tube:** 5–8.5 mm long. **Ovary:** pubescent, with 10–13 ovules. **Pods:** cylindric, linear falcate, 5–7.5 cm long. **Seeds:** reniform to rectangular, 4–5 by 3–6 mm, smooth.

Distribution.— Vietnam (Cochinchina).

Ecology.— Rocky places in diptreocarp forest, alt. 100–540 m.

Vernacular.— Dap ruesi (ดาดรูเอซี).

Specimens examined.— NORTH-EASTERN: Loei [Phu Kradueng National Park, 12 Aug. 1989, *S.N.* 20, *Din* 151 (BKF); Phu Tong, 27 Mar. 1924, *Kerr* 8830 (ABD, BK, BM, K); Phu Ruesa National Park, 24 Sept. 2004, *Sawai* 676 (KKU), 1 Oct. 1987, *Thaithong et al.* 281 (BCU), 12 Dec. 1966, *Umpai* 319 (BK)]; Nong Khai [Nong Dern, Chamong waterfall, 10 Aug. 2004, *Nielsen, Niyomdham, Jonganurak, Hemrath & Rithipheth* 1638 (AAU, K, SING, TCD); Bungkla, 8 Dec. 1996 *Niyomdham* 4892 (BKF); Phu Wua Wildlife Sanctuary, 9 Aug.

2004, *Nielsen, Niyomdham, Jonganurak, Hemrath & Rithipheth* 1592 (AAU, SING)]; Sakon Nakhon [Phu Phan National Park, 12 Feb. 1999, *Leeratiwong* 99-44 (KKU), 3 Jul. 1999, *Leeratiwong* 99-81, 1 Aug. 1999, *Leeratiwong* 99-82, 12 Aug. 1999, *Leeratiwong* 99-97 (PSU), 6 Aug. 2007, *Nielsen, Jonganurak, Hemrath & Rithipheth* 1529 (AAU, SING)]; Khon Kaen [Phu Wiang, 9 Sept. 2004, *Sawai* 657, 9 Sept. 2004, *Leeratiwong* 94-4 (KKU), 16 Sept. 1994, *BGO. Staff* 1598 (QBG)]; EASTERN: Chaiyaphum [Pa Hin Ngam, 3 Sept. 1993, *Suddee* 159, 6 Sept. 1993, *Suddee* 129 (BCU); Si Sa Ket [Kantharalak, 19 Aug. 1976, Maxwell 76-550 (AAU, BK)]; CENTRAL: Saraburi [3 Jun. 1923, *Kerr* 7071 (ABD, BK, BM, K)]; PENINSULAR: Surat Thani [3 Jun. 1923, *S.N.* (BK)]; Phuket [Chaiyapheen, 20 Jul. 1973, *Smitinand* 7071 (BKF)].

2. *Tephrosia kerrii* J.R. Dumm. ex Craib, Bull. Misc. Inform., Kew 1912(3): 149. 1912. Type: Thailand, Chiang Mai, Doi Suthep, 960 m, 4 Sept. 1910, *A.F.G. Kerr* 1382 (holotype K, isotypes BM, P, TCD).

Shrub 1–3 m; twigs quadrangular, tomentose. **Leaves:** petioles (3–) 5–10 mm long; stipules 7–9 (–11) mm long; rachis 6.5–11 (–15) cm long. **Leaflets:** 4–8 pairs, elliptic or ovate, entire, opposite-subopposite; petiolules 2–4 mm long; lamina 4.5–7 by 1–2.5 cm, apex acute, base cuneate, margin entire; lower surface with silver tomentose hairs; lateral veins 12–18 pairs. **Pseudoracemes:** terminal and axillary, (4.5–) 6–10 (–16) cm long; bracts similar to vegetative leaves; pedicels 3–6 (–8) mm long. **Calyx:** cup 2–4 mm long; teeth 1–5 mm long, apex acute to acuminate. **Corolla:** purple-red or pink;

standard obovate to elliptic, 20–25 by (22–) 24–32 mm long, outer densely pubescent, apex retuse to emarginate, margin entire; wings obovate to oblong, 12–18 mm long, apex acute, base attenuate, margin entire; keel obovate, 12–18 mm long, base attenuate, margin entire. **Staminal tube:** 10–16 mm long. **Ovary:** pubescent, with 10–13 ovules. **Pods:** cylindric, linear falcate, 7–10 cm long. **Seeds:** reniform to rectangular, 2–3 by 2 mm, smooth.

Distribution.— China (Yunnan), Laos, Vietnam.

Ecology.— Evergreen forest, alt. 200–1,620 m.

Vernacular.— Sa keng (สะเค็ง).

Specimens examined.— NORTHERN: Mae Hong Son [Kiew Lom, 16 Jan. 1983, *Koyama, Terao & Thawatchai* T-32597 (BKF)]; Chiang Mai [Doi Langka, 16 Nov. 1933, *Garrett* 830 (BM); Khun Mae Tawn, 13 Sept. 1938, *Garrett* 1080 (K, TCD); Doi Chaing Dao, 7 Nov. 1922, *Kerr* s.n. (ABD, BM); Doi Suthep-Pui National Park, 22 Dec. 1920, *Kerr* 4681 (ABD, BK, BM, K); Pah, 16 Dec. 1997, *Maxwell* 97-1493 (BKF); Doi Nang Ka, 1 Nov. 1930, 22 Sept. 1949, *Ploenchit* 136 (BKF), *Put* 3286 (ABD, BK, BM, K); Mae Taeng, *Maxwell* 01-669 (BKF), 24 Oct. 1979, *Shimizu, Toyokuni, Koyama, Yahara & Santisuk* T-20746, *Shimizu, Toyokuni & Wongprasert* T-20710 (BKF), 28 Oct. 1958, *Sørensen, Larsen & Hansen* 5958 (E, SING); Mae Taman, 20 Oct. 1988, *Santisuk* 6834 (BKF); Phrao, 12 Dec. 1998, *Konta & Khao-Iam* 4453 (BKF); Doi Suthep, 17 Sept. 1994, *Soradad* 221 (BKF), 4 Sept. 1910, *Kerr* s.n. (K), 27 Oct. 1987, *Maxwell* 87-1212 (CMU), 28 Oct. 1912, *Larsen* 5958 (BKF), 28 Oct. 1995, *S.N.* 5378 (BKF); 2 Dec. 1997, *Maxwell* 97-1428 (BKF), 30 Nov. 2001]; Chiang Rai [Wiang Pa Pao, 12 Dec.

1998, *Konta & Khao-Iam* 4455 (BKF)]; Nan [Bo Kluae, 11 Nov. 1995, *Maxwell* 1250 (BKF)]; Lampang [Muang, 6 Dec. 1996, *Maxwell* 96-1635 (BKF)]; Sukhothai [Khao Luang National Park, 13 Sept. 1994, *Niyomdham* 3933 (BKF)]; NORTH-EASTERN: Phetchabun [Nam Nao National Park, 8 Nov. 2005, *Sawai* 964 (KKU); 5 Jan. 1960, *Smitinand* 6301 (BKF)]; Loei [Phu Kradueng National Park, 13 Dec. 1997, *Smitinand* 1921, 21 Sept. 1969, *Phusomsaeng* 97, 5 Sept. 1988, *Pooma* 61 (BKF); Phu Hin Rong Kla National Park, 9 Oct. 1987, *Sridith* 47 (BCU), 30 Oct. 1987, *Sridith* 71 (BCU); Pah Dang, 20 Sept. 2000, *Wongprasert* 009-26 (BKF); Phu Ruea National Park, 1 Oct. 1987, *Thaithong et al.* 283 (BCU)]; EASTERN: Ubon Ratchathani [Khong Chiem, 14 Sept. 2001, *Maxwell* 01-401 (BKF)]; SOUTH-WESTERN: Kanchanaburi [Tham Than Lod National Park, 8 Nov. 1979, *Shimizu, Toyokuni, Koyama, Yahara & Niyomdham* T-22058 (BKF)].

3. *Tephrosia noctiflora* Bojer [Hort. Maur.: 93. 1837, *nom. nud.*] ex Baker in Oliver, Fl. Trop. Afr. 2: 112. 1871. Type: Zanzibar, *Bojer* s.n. (K). — *Cracca noctiflora* (Baker) Kuntze, Rev. Gen. Pl. 1: 175. 1891. — *T. hookeriana* Wight & Arn. var. *amoena* Prain in King, J. Asiat. Soc. Bengal 66(2): 85. 1897. Type: Peninsular Malaysia, Malacca, Bukit Sabukor, Aug. 1889, *Derry* 270 (lectotype SING), chosen by Bosman & de Hass (1983). Figs. 1A & 1B.

Shrub to 1 tall, twigs terete, tomentose. **Leaves:** petioles 10–12 mm long; stipules (5–) 7–9 mm long; rachis 7–10 cm long. **Leaflets:** (5–) 6–9 pairs, obovate, entire, opposite-subopposite; petiolules 1–2 mm long; lamina 2–4 by 0.4–0.7 cm, apex



FIGURE 1. A-B. *Tephrosia noctiflora*; C. *T. purpurea*; D. *T. vestita*.

mucronate, acuminate, base cuneate, margin entire; lower surface with hairs; lateral veins (8–) 9–13 pairs. **Pseudoracemes**: terminal and axillary, 26–34 cm long; bracts triangular; pedicels (2.5–) 3–4 mm long. **Calyx**: cup 2–3 mm long; teeth 1–2 mm long, apex acute to acuminate. **Corolla**: purple, white or yellow; standard ovate to elliptic, 5–7 by 6–9 mm long, outer densely pubescent, apex truncate to emarginate, margin entire; wings obovate to oblong, 5–8

mm long, apex acute, base attenuate, margin entire; keel obovate, 4–6 mm long, base attenuate, margin entire. **Staminal tube**: 4–6 mm long. **Ovary**: pubescent, with 9–10 ovules. **Pods**: cylindrical, linear falcate, 4.5–5 cm long. **Seeds**: rectangular, 2–3 by 2 mm, with ridges.

Distribution.— Native to Africa, but introduced to Sri Lanka, India, Taiwan, peninsular Malaysia, West Java, Sabah.

Ecology.— Disturbed places.

Vernacular.— Kham dok kao (ครามดอกขาว).

Specimens examined.— SOUTH-WESTERN: Prachuap Khiri Khan [Pa-Klang-Ao Forest Park, 14 Aug. 1994, *Jonganurak* 65 (CMU)]; SOUTH-EASTERN: Chon Buri [Khao Khieo, 8 Aug. 1976, *Maxwell* 76-482 (AAU)]; PENINSULAR: Songkhla [Hat Yai, 29 Oct. 1986, *Maxwell* 86-834 (BKF, CMU)].

4. *Tephrosia pumila* (Lamk.) Pers., Syn. 2: 330. 1807. — *Galega pumila* Lamk., Enc. Meth. 2: 599. 1786. Type: Madagascar, *Lamarck* s.n. (P n.v). — *T. purpurea* (L.) Pers. var. *pumila* (Lamk.) Baker in Hook.f., Fl. Br. Ind. 2: 113. 1876. — *T. pumila* (Lamk.) Pers. subsp. *aldabrensis* (Drummond & Hemsley) Bosman & de Haas, *Blumea* 28(2): 463. 1983, **syn. nov.** — *T. aldabrensis* Drummond & Hemsley, J. Bot. 54, suppl. 2: 11. 1916. Type: Aldabra Is., 1906, *Dupont* 11 (lectotype K chosen by Brummitt, 1967). — *T. purpurea* (L.) Pers. var. *ciliata* Craib, Fl. Siam. Enum. 1: 384. 1928. Type: Thailand, Bangkok, 16 Aug. 1926, *A.F.G. Kerr* 11022, (holotype K, isotype BM). — *T. pumila* (Lamk.) Pers. var. *ciliata* (Craib) Brummitt, Bot. Soc. Brot. Ser. 2, 41. 261. 1967. — *T. pumila* (Lamk.) Pers. var. *aldabrensis* (Drummond & Hemsley) Brummitt, Bot. Soc. Brot. 2, 41. 260. 1967. — *T. purpurea* (L.) Pers. var. *angustata* Miq., Fl. Ind. Bat. 1(1): 297. 1855. Type: Java, *Horsfield* 41 (K).

Prostrate herb 20–30 cm; twigs terete, pubescent. **Leaves:** petioles (3–) 4–8 mm long; stipules (1–) 2–4 mm long; rachis 1.5–4 cm long. **Leaflets:** (2–) 3–4 (–5) pairs, obovate or elliptic, entire, opposite; petiolules 1 mm long or subsessile; lamina 1–2 by 0.3–0.6 cm, apex obtuse, emarginate, base cuneate, margin entire;

both surfaces pubescent; lateral veins 5–7 pairs. **Pseudoracemes:** terminal and axillary, 0.3–1 cm long; bracts triangular to linear triangular; pedicels 3–4 mm long. **Calyx:** cup 1–1.5 mm long; teeth 1.5–3 mm long, apex acute to acuminate. **Corolla:** purple or pink; standard orbicular to elliptic, 3–6 by 3–5 mm long, outer densely silver pubescent, apex retuse, margin entire; wings oblong, 3–5 mm long, apex acute to obtuse, base attenuate, margin entire; keel oblong, 2.5–4.5 mm long, base attenuate, margin entire. **Staminal tube:** 4–5 mm long. **Ovary:** pubescent, with (6–) 9–11 ovules. **Pods:** cylindrical, linear falcate, 2.5–3.5 cm long. **Seeds:** rectangular, 1.5–2 by 1.5 mm, smooth.

Distribution.— China, Java, Timor, Lesser Sunda islands, Australia.

Ecology.— Open grassy areas and sandy seashore, alt. 0–310 m.

Vernacular.— Kham lek (ครามเล็ก).

Specimens examined.— NORTHERN: Chiang Mai [Sanpatong, 11 Mar. 1988, *Lertkusol* 4 (BCU), 12 Mar. 1988, *Lertkusol* 5 (BCU); Dec. 1957, *van Steenis* 19627 (K)]; Phitsanulok [Namtok Chat Trakan National Park, 19 Sept. 1996, *Pooma* 1327 (BKF)]; Nakhon Sawan [Bueng Boraphet, 31 Aug. 1999, *Norsangsri* 5 (QBG)]; NORTH-EASTERN: Khon Kaen [Ubol Ratana Dam, 12 Aug. 1977, *Na Songkla et al.* 239 (BCU)]; EASTERN: Buri Ram [Ban Kruat, 4 Oct. 1984, *Murata, Phengklai, Mitsuta, Nagamasu & Nantasan* T-37515 (AAU)]; SOUTH-WESTERN: Kanchanaburi [25 Nov. 1957, *Burkill* 1254 (K)]; Phetchaburi [7 Nov. 1926, *Kerr* 11062 (ABD, BK, BM, E, K)]; Prachuap Khiri Khan [Hua Hin, 5 Nov. 1927, *Kerr* 13445 (ABD, BK, BM, K), 10 Nov 1918, *Kerr* 16179 (AAU, ABD, BK, BM, K)]; CENTRAL: Lop Buri [23 Sept. 1971,

Murata, Iwatsuki & Phengkhai T-14809 (AAU, K); Saraburi [Muang, 8 Sept. 1974, Maxwell 74-897 (AAU, BK)]; Krung Thep Maha Nakhon [25 Sept. 1978, Chantaranothai 68 (BCU)]; Samut Prakan [29 Oct. 1961, Panturatana 108 (CMU)]; SOUTH-EASTERN: Chon Buri [Koh Si Chang, 7 Nov. 1992, Maxwell 92-694 (AAU)].

5. *Tephrosia purpurea* (L.) Pers., Syn. 2: 329. 1807. — *Cracca purpurea* L., Sp. Pl.: 752. 1753. Type: Herb. Hermann vol. 1, fol. 37 (BM *n.v.*). — *Galega purpurea* (L.) L., Syst. Nat. ed. 10, 2: 1172. 1759 & Sp. Pl. ed. 2, 2: 1063. 1763. — *Galega colonila* Ham., Trans. Linn. Soc. 13: 545. 1822. Type: Rheedee, Hort. Mal. 1: 103, t. 55. 1678. — *T. colonila* (Ham.) Benth., Gen. Index to Trans. Linn. Soc.: 101. 1866. — *T. hamiltonii* Drumm. ex Gamble, Fl. Madras 1(2): 317, 320. 1918. Type: India, Deccan, Wight 898 (K *n.v.*). — *Cracca villosa* L. β *purpurea* (L.) Kuntze, Rev. Gen. Pl. 1: 174. 1891. — *Galega diffusa* Roxb. [Hort. Beng.: 57. 1814, *nom. nud.* ex] Fl. Ind. 3: 387. 1832. Type: plate in Roxburgh's unpublished icons (K *n.v.*). — *T. diffusa* (Roxb.) Wight & Arn., Prodr. Fl. Ind. Orient. 1: 213. 1834. Fig. 1C.

Herb or shrub to 1 m; twigs terete, pubescent. **Leaves**: petioles 8–15 (–20) mm long; stipules (3–) 4–6 mm long; rachis (4.5–) 5–9 cm long. **Leaflets**: 5–9 pairs, obovate and elliptic, entire, opposite-subopposite; petiolules 1–2 mm long; lamina 1.2–2 by 0.5–0.8 cm, apex obtuse, emarginate, base cuneate, margin entire; lower surface pubescent; lateral veins (6–) 7–9 pairs. **Pseudoracemes**: terminal and axillary, 5–14 (–20) cm long; bracts similar to vegetative leaves; pedicels 3–6 mm long.

Calyx: cup 1–2 mm long; teeth (1–) 2–3 mm long, apex acute to acuminate. **Corolla**: purple or reddish purple; standard obovate to elliptic, 3–4 by 2–4 (–5) mm, outer densely silver pubescent, apex obtuse to emarginate, margin entire; wings oblong, 3–4 mm long, apex acute to obtuse, base attenuate, margin entire; keel oblong, 3–4 mm long, base attenuate, margin entire. **Staminal tube**: 3–4 (–6) mm long. **Ovary**: pubescent, with 5–7 ovules. **Pods**: cylindric, linear falcate, 3–4.5 cm long. **Seeds**: rectangular, 3–4 by 2–3 mm, smooth.

subsp. *purpurea*

T. wallichii Grah. [ex Wall., *nom. nud.*] ex Fawcett & Rendle, J. Bot. 55: 35. 1917. Type: India, Segaoon (Segam) 31 Oct. 1831–32, Wallich 5640 (lectotype K-W!), chosen by Brummitt (1967). — *Cracca wallichii* (Grah. ex Fawcett & Rendle) Rydberg, N. Amer. Fl. 24(3): 180. 1923. — *T. purpurea* var. *elongata* Craib, Fl. Siam. Enum. 1(3): 384. 1928. Type: Thailand, Prachuap Khiri Khan, Sam Roi Yot (Sam Roi Yawt), 14 Jul. 1926, A.F.G. Kerr 10979 (holotype K, isotypes BM, BK). — *T. purpurea* var. *laxa* Craib, Fl. Siam. Enum. 1(3): 384. 1928, **syn. nov.** Type: Thailand, Tak (Raheng), Doi Tung Cha, c. 500 m, bamboo jungle, 18 Nov. 1920, A.F.G. Kerr 4611 (holotype K, isotypes BM, BK & TCD)

Distribution.— Nepal, India, Sri Lanka, China, Laos, Cambodia, Vietnam, Malaysia.

Ecology.— On sunny places, along roads, open grasslands or waste places, dipterocarp-oak forest, alt. 0–700 m.

Vernacular.— Khram pa (ครามป่า), Cha khram (เจ้าคราม), Cha khram dok daeng (เจ้าครามดอกแดง).

Specimens examined.— NORTHERN: Mae Hong Son [Mae Sanam, 27 Dec. 1978,

- Niyomdham, Suangtho & Sangkhachand* 153 (AAU, BKF, K); Pang Mu, 8 Jul. 1958, *Smitinand* 4617 ((BKF); Khun Yuam, 6 Sept. 1974, *Larsen & S. Larsen* 34187 (AAU)]; Chiang Mai [2 Feb. 1905, *Hosseus* 376 (K), 12 Oct. 1978, *Brun, Bjornland & Schumacher* 393 (AAU)]; Doi Suthep-Pui National Park, 22 Dec. 1920, *S.N.* (BK); 6 Jul. 1909, *Kerr* 710 (BK, K TCD); Doi Inthanon National Park, 18 Jan. 1988, *Phengklai et al.* 6576 (AAU, BKF); Doi Tao, 23 Oct. 1987, *Maxwell* 87-1321 (BKF) & 87-1625 (CMU); Thep Phanom, 19 Oct. 1989, *Maxwell* 89-1274 (CMU); Ban Huay Gayo, 12 Oct. 1989, *Maxwell* 89-1227 (CMU); *S.N.* (K); 2 Apr. 1915, *Winit* 147 (BK, BM, K)]; Lamphun [Doi Khun Tan National Park, 31 Aug. 1984, *Maxwell* 84-961 (BKF)]; Lampang [Doi Khun Tan National Park, 31 Aug. 1994, *Maxwell* 94-961 (BKF)]; Thoen, 7 Sept. 1991, *Smitinand* (BKF)]; Tak [Prachoo Luang, 18 Nov. 1920, *Kerr* 4611 (ABD, BM, E, K, TCD); *Smitinand* 417 (BCU, BK)]; Sukhothai [Muang Gow, 3 Nov. 1971, *Maxwell* (BK)]; Phitsanulok [Bang Rakam, 27 Jan. 1973, *Murata* T-17257 (AAU, BKF)]; Nakhon Sawan [14 Oct. 1974, *Larsen & S. Larsen* 34524 (AAU); Bua Yai, 17 Oct. 2008, *Norsaengsri* 4299 (QBG); 23 Sept. 1971, *Murata, Iwatsuki & Phengklai* T-14828 (AAU, K), 27 Jan. 1973, *Murata* T-16552 (AAU, BKF), 5 Mar. 1958, *Sørensen, Larsen & Hansen* 1925 (E)]; NORTH-EASTERN: Nong Khai [Nong Dern, 10 Aug. 1904, *Nielsen, Niyomdham, Jonganuruk, Hemrath & Rithipheth* s.n. (K); Nong Sung, 28 Jun. 2003, *Chantaranonthai et al.* s.n. (KKU)]; Sakon Nakhon [Phu Phan National Park, 23 Oct. 1975, *Sutheesorn* s.n. (BK)]; Khon Kaen [Khon Kaen University, 15 Oct. 1976, *Rogers* E13 (AAU), 9 Sept. 1990, *Chantaranonthai et al.* 90/24 (K, KKU, TCD), 31 May 2002, *Chantaranonthai* 8 (KKU), 11 Aug. 1975, *Homchurn* 72 (BCU), 27 Aug. 1978, *S.N.* (KKU), 20 Sept. 1984, *S.N.* (KKU)]; EASTERN: Chaiyaphum [12 Aug. 1972, *Larsen, S. Larsen, Nielsen & Santisuk* 31732 (AAU); Thep Sathit, 4 Oct. 1989, *S.N.* (BCU)]; Nakhon Ratchasima [Dan Koon Tod, 4 Oct. 1984, *Maxwell* 03-340 (BKF); Khao Yai, 20 Jul. 1963, *Larsen* 10647 (AAU)]; Buri Ram [Ban Kruat, 4 Oct. 1984, *Murata, Phengklai, Mitsuta, Nagamasu & Nantasan* T-37515 (AAU, BKF); Khao Phanom Rung, 3 Oct. 1984, *Murata, Phengklai, Mitsuta, Nagamasu & Nantasan* T-37347 (BKF); 15 Mar. 1958, *Sørensen, Larsen & Hansen* 2122 (E, SING)]; Roi Et [18 Aug. 1963, *Pradit* 439 (BK); 10 Jun. 1983, *Paisooksantivatana* s.n. (BK)]; EASTERN: Nakhon Ratchasima [Lat Bua Kao, Oct. 1916, *Kloss* s.n. (K)]; SOUTH-WESTERN: Kanchanaburi [Sai Yok Noi, 1 Oct. 1987, *Na Songkla* 523 (BCU); Erawan, 3 Jul. 1974, *Larsen & S. Larsen* 34041 (AAU, BKF, K); 10 Oct. 1971, *Murata, Iwatsuki & Chaiglom* T-16191 (AAU, BKF)]; Ratchaburi [15 Aug. 1966, *Larsen, Smitinand & Warncke* 1620 (AAU), 22 Aug. 1971, *Maxwell* 71-506 (AAU, BK); Huai Yang, 9 Aug. 1966, *Larsen, Smitinand & Warncke* 1341 (AAU); Chombueng, 21 Aug. 1982, *Shimizu, Konta, Wongprasert & Sangkhachand* T-28672 (BKF)]; Phetchaburi [Cha-am, 19 Sept. 2002, *Puudjaa* 1129 (BKF); Huai Sai, 12 Sept. 1993, *Niyomdham* 5881 (BKF); 7 Nov. 1920, *Kerr* 11062 (BK); Kaeng Kra Chan National Park, 3 Aug. 1995, *Larsen, S. Larsen, Tange, Moran & Puudjaa* 45383 (AAU)]; Prachuap Khiri Khan [Hua Hin, 5 Nov. 1927, *Kerr* 13445 (AAU, BK), 6 Dec. 1928, *Kerr* 14121 (BK), 8 Nov. 1928, *Kerr* 16121 (ABD, BK, BM, K); Kao Tao, 9 Nov. 1928, *Marcan* 2439 (AAU, ABD, BM, K); Sam Roi Yot, 1 Dec. 1964,

Sangkhachand, 1116 (BKF, K), 14 Jul. 1926, *Kerr* 10979 (ABD, BK, BM, E, K); Klong Wan, 20 Oct. 1964, *Chermrivathana* 96 (BK); Khao Ta Mong Lai, 23 Aug. 1982, *Shimizu, Konta, Wongprasert & Sangkhachand* T-28738 (BKF, SING); Bang Saphan, 20 Aug. 1967, *Fukuoka* T-14658 (AAU)]; CENTRAL: Chai Nat [6 Nov. 1988, *Paisooksantivatana* s.n. (BK)]; Saraburi [Kang Koi, 4 Oct. 1926, *Lakshanakara* 228 (AAU, ABD, K); Na Pra Lan, 6 Oct. 1979, *Shimizu, Toyokuni, Koyama, Yahara & Santisuk* T-17982 (BKF); Muang, 30 Jun. 1974, *Maxwell* 74-644 (AAU)]; Nakhon Pathom [Kumpangsang, 26 Feb. 1988, *Jeungsamemjat*]; Krung Thep Maha Nakhon [Bang Na, 19 Sept. 1969, *Maxwell* (BK); 26 Jun. 1919, *Kerr* 3717 (BM, K), 7 Aug. 1920, *Kerr* 4382 (ABD, BM, K, TCD), 16 Aug. 1926, *Kerr* 11022 (ABD, BK, K); 1 Aug. 1922, *S.N.* 926 (BK)]; SOUTH-EASTERN: Prachin Buri [Khao Yai National Park-Kong Keo, *Larsen, Smitinand & Warncke* 184 (AAU, SING); Kabin Buri, *Murata, Phengklai, Mitsuta, Nagamasu & Nantasan* T-37058 (BKF); 2 Aug. 1966, *Larsen, Smitinand & Warncke* 1116 (AAU)]; Chon Buri [Sriracha, Sept. 1914, *Collins* 522 (ABD, K, TCD); Nov. 1926, *Collins* 1480 (ABD, K); Koh Rong Nang, 13 Feb. 1999, *Phengklai* 11468 (BKF); Koh Klung Badan, 24 Jan. 2000, *Phengklai* 12515 (BKF); Sriracha, 8 Aug. 1976, *Maxwell* 76-482 (AAU, BK); Koh Khram, 21 Oct. 1999, *Phengklai et al.* 12032 (BKF)]; Chanthaburi [Khlung, 9 Nov. 1971, *Sutheesorn* 2029 (BK)]; PENINSULAR: Surat Thani [Koh Samui, 15 Feb. 2005, *Chayamarit, Suphuntee, Inthachup & Thanaros* N54 (BKF); 9 Sept. 1931, *Put* 4176 (AAU, ABD, BK, BM, E, K); 9 Sept. 1931, *S.N.* 4176 (K)]; Phuket [*Larsen, S. Larsen, Nielsen & Santisuk* 31508 (AAU,

BKF, SING)]; Songkhla [Suan Toon, 16 Sept. 1980, *Samla* 7 (PSU); Suan Toon falls, 5 Oct. 1984, *Maxwell* 84-293 (BKF, PSU); Hat Yai, 14 Jan. 1971, *Umpai* (BK), 10 Jun. 1992, *Larsen, S. Larsen, Renner, Niyomdham, Ueachirakan & Sirirugsa* 42793 (AAU)]; Pattani [4, Sept. 1928, *Kerr* 7732 (BK)]; Yala [4 Sept. 1923, *Kerr* 7732 (ABD, BK, BM, K); Sadao, 7 Nov. 1986, *Maxwell* 86-859 (AAU, BKF, CMU, PSU)].

6. *Tephrosia vestita* Vogel in Meyen, Nov. Act. Nat. Curr. 19 suppl. 1: 15. 1842. Type: Meyen s.n. (B†); China, Macao, *Callery* 25 in *Gaudichaud* s.n. (1836-37) (neotype P, isoneotype P), chosen by Lôt & Vidal (2001). — *Cracca vestita* (Vogel) Kuntze, Rev. Gen. Pl. 1: 175. 1891. — *T. repentina* Drumm. & Craib ex Craib, Bull. Misc. Inform., Kew 1912(3): 150. 1912. Type: Thailand (Siam), Sriracha, Nawng Kaw, 18 Sept. 1911, *A.F.G. Kerr* 2053 (holotype K, isotypes BM, K & TCD). Fig. 1D.

Shrub 1–3 m tall; twigs terete, tomentose. **Leaves:** petioles 5–12 (–18) mm long; stipules (2–) 3–7 mm long; rachis (4.5–) 6–12 cm long. **Leaflets:** 3–6 pairs, elliptic or obovate, entire, opposite-subopposite; petiolules 1–3 mm long; lamina 2–5 (–6) by 1.2–2.5 cm, apex acute, acuminate or mucronate, retuse, base cuneate, margin entire; lower surface tomentose; lateral veins 11–15 pairs. **Pseudoracemes:** terminal and axillary, 1.5–5 (–11) cm long; bracts similar to vegetative leaves; pedicels 2–4 mm long. **Calyx** cup 2–3 mm long; teeth 1–3 mm, apex acute to acuminate. **Corolla:** white; standard orbicular, oblong to elliptic, 15–20 (–23) by (8–) 10–15 mm, outer densely pubescent, apex retuse to obtuse, margin entire; wings obovate, (10–) 12–16 mm

long, apex obtuse to retuse, base attenuate, margin entire to undulate; keel elliptic, (14–) 15–17 (–20) mm long, base attenuate, margin entire. **Staminal tube:** (4–) 7–10 mm long. **Ovary:** pubescent, with (8–) 11–13 ovules. **Pods:** cylindric, linear falcate, 6–9 cm long. **Seeds:** reniform, 4–5 by 2–3 mm, smooth.

Distribution.— Vietnam (Cochinchina), peninsular Malaysia (Perak).

Ecology.— Dipterocarp forest and open rocky-sandy areas, 0–600 m.

Vernacular.— Dan ratchasi (ด่านราชสีห์); Tuan ok yan (ถั่วโหนดขน).

Specimens examined.— NORTHERN: Mae Hong Son [Ma Sarung Ban Kung, 7 Nov. 1980, *YYP* 367-60 (BK)]; Chiang Mai [Ban Kon, 1 Nov. 1960 (BK); Doi Tohn, 24 Oct. 2005, *Maxwell* 05-597 (BKF); Doi Tao, 23 Oct. 1987, *Maxwell* 87-1252 (BKF); Ob Luang National Park, 10 Oct. 1996, *Maxwell* 96-1325 (BKF); Doi Suthep-Pui National Park, 11 Nov. 1939, *Kasin* 85 (BK)]; Lamphun [*S.N.* (BK)]; Lampang [Mae Ngow, 21 Sept. 1922, *Winit* 761 (ABD, BK, K)]; Sukhothai [Muang Gao, 6 Nov. 1971, *Maxwell* 71-745 (AAU, BK)]; Phitsanulok [Nakhonthai, 30 Dec. 1966, *Prayad* 652 (BK)]; NORTH-EASTERN: Phetchabun [Nam Nao National Park, 28 Jun. 2003, *Sawai* 273-0 (KKU); 9 Jan. 1960, *Smitinand* 6301 (K)]; Loei [Phu Kradueng National Park, 11 Nov. 1970, *Charoenphol, Larsen & Warncke* 4926 (AAU, K, SING), 11 Oct. 1967, *Prayad* 1017 (BK)]; Wang Saphung, 28 Aug. 1958, *Smitinand* 4791 (K); Sakon Nakhon [Phu Phan National Park, 14 Nov. 1984, *Shimizu, Toyokuni, Koyama, Yahara & Nantasan* T-50878, 12 Dec. 1998 (BKF), *Leeratiwong* 98-48 (KKU) & 98-55 (KKU), 5 Sept. 1999, *Leeratiwong* 99-129 (KKU, PSU) & 99-49 (PSU), 6 Aug. 1904, *Nielsen, Jonganuruk,*

Hemrath & Rithipheth s.n. (K)]; Maha Sarakham [Payakkhaphumpisai, 2 Oct. 1985, *Paisooksantivatana* y1632-85 (BK)]; Khon Kaen [9 Sept. 1990, *Chantaranothai, Parnell & Simpson* 90/22 (K), 27 Sept. 1990, *Chantaranothai, Parnell & Simpson* 90/421 (K), 18 Sept. 1975, *Rogers* (AAU); Waeng Yai, 2 Nov. 2005, *Wangwasit* 51102.5 (AAU)]; EASTERN: Chaiyaphum [Ban Lad, 11 Oct. 1965, *Sutheesorn* 565 (BK); Pa-Hin Ngam National Park, 4 Sept. 1993, *Suddee* 170 (BCU); Kaeng Khlo, 17 Sept. 1988, *Takahashi* T-63568 (BKF)]; Nakhon Ratchasima [Pakthongchai, 10 Nov. 1963, *Pradit* 518 (BK); Sakaerat Forest Research, 2 Nov. 1969, *Beusekom & Charoenphol* 2025 (AAU)]; Buri Ram [Khao Phanom Rung, 3 Oct. 1984, *Murata, Phengkklai, Mitsuta, Nagamasu & Nantasan* T-37253 (AAU); Surin [Rattaphum, 28 Oct. 1986, *Sadakorn* 708 (BK)]; SOUTH-WESTERN: Kanchanaburi [Khao Tawng, 19 Oct. 1930, *Kerr* 19778 (AAU, ABD, BK, BM, K); 10 Oct. 1971, *Murata, Iwatsuki & Chaiglom* T-16203 (AAU)]; Phetchaburi [8 Nov. 1931, *Marcan* 2729 (ABD, BM, K); Cha-am, 21 Sept. 1999, *Puudjaa & Cholkulchana* 668 (BKF)]; Prachuap Khiri Khan [Klong Wan, 21 Oct. 1964, *Chermsirivathana* 117 (BK); Hua Hin, 6 Nov. 1927, *Kerr* 13476 (ABD, BK, BM, E, K, TCD), 8 Nov. 1928, *Kerr* 16128 (BK, BM, K), 6 Nov. 1927, *Marcan* 2247 (ABD, BM, K), 7 Nov. 1927, *Marcan* 2276 (BK, BM, K), 9 Nov. 1928, *Marcan* 2444 (AAU, ABD, BM, E, K); Bang Saphan, 26 Dec. 1927, *Put* 1397 (ABD, BK, BM, K); Bang Saphan Yai, 8 Nov. 1987, *Taw* 83 (BKF); Klong Wan, 21 Oct. 1964, *Chermsirivathana* 119 (BK)]; CENTRAL: Lop Buri [Wat Khoi Klang, *Smitinand* s.n. (BKF)]; SOUTH-EASTERN: Chon Buri [Sriracha, Sept. 1913, *Collins* 211 (E, K, TCD), 29 Aug. 1926, *Collins* 1472 (ABD,

K), 18 Sept. 1911, *Kerr* 2053 (BM, E, K, TCD), 3 Sept. 1975, *Maxwell* 75-977 (AAU, BK), 19 Oct. 1975, *Maxwell* 75-1038 (AAU, BK), 15 Nov. 1926, *Put* 455 (ABD, BK, BM, K)]; Rayong [Ban Pa, 5 Oct. 1954, *Varikul* 5 (BCU)]; Chanthaburi [Makham, 22 Aug. 1966, *Larsen, Smitinand & Warncke* 1669 (AAU)]; PENINSULAR: Chumphon [Bang Son, 9 Jan. 1927, *Kerr* 11320 (AAU, ABD, BK, BM, E, K)]; Surat Thani [Chaiya, 2 Jun. 1967, *Boonyakiat* 8 (BCU)]; Satun [Tarutao National Marine Park, 22 Oct. 1999, *Congdon* C68 (AAU, PSU)]; Songkhla [Tepa, 24 Mar. 1928, *Kerr* 14753 (AAU, ABD, BK, BM, K), 23 Oct. 1993, *Larsen, Nørgaard, Pharsen, Puudjaa & Ueachirakan* 43933 (AAU, SING)]; Suan Dtoon falls, 5 Oct. 1984, *Maxwell* 84-285 (BKF, PSU)]; Hat Yai, 21 Oct. 1985, *Tongseedum* 38 (PSU)]; Muang, 15 Nov. 1985, *Obahmoon* 13 (PSU)]; Nov. 1915, *Vanpruk* 796 (K)]; 14 Jul. 1941, *Ward* 37535 (SING)]; Narathiwat [Su Ngai Ko Lok, 10 Sept. 1985, *Niyomdham et al.* 941 (BKF, K)].

7. *Tephrosia villosa* (L.) Pers., Syn. Pl. 23: 329. 1807, non (Michx.) Pers., no. 17. 1807. — *Cracca villosa* L., Sp. Pl.: 752. 1753. Type: Sri Lanka (Ceylon), Herb. *Hermann* vol. 1, fol. 31 (BM *n.v.*). — *Galega villosa* (L.) L., Syst. Nat. ed. 10, 2: 1172. 1759. — *Galega hirta* Buch.-Ham., Trans. Linn. Soc. London 13: 546. 1822. Type: India, Mysore, *Buchanan-Hamilton* s.n. (BM *n.v.*). — *Galega incana* Roxb., [Hort. Beng.: 57. 1814 ex] Fl. Ind. ed. 2, 3: 385. 1832. Type: India, *Roxburgh's* unpublished icons, t. 1630 (lectotype K *n.v.*), chosen by Brummitt (1967). — *T. incana* (Roxb.) Wight & Arn., Prodr. Fl. Ind. Orient. 1: 212. 1834. — *T. hirta* (Buch.-Ham) Thwaites, Enum. Pl. Zeyl.: 91. 1859.

Herb 20–50 cm tall; twigs terete, sericeous. **Leaves:** petioles (6–) 9–14 mm long; stipules 3–5 mm long; rachis (4.5–) 6–8 cm long. **Leaflets:** 5–8 (–9) pairs, elliptic or obovate, entire, opposite-subopposite; petiolules 1–2 mm long; lamina 2–3.5 by 0.3–0.5 cm, apex acute, acuminate, mucronate, base cuneate, margin entire; lower surface tomentose; lateral veins (5–) 6–8 pairs. **Pseudoracemes:** terminal and axillary, (4–) 8–12 cm long; bracts similar to vegetative leaves; pedicels sessile or 1–2 mm long. **Calyx:** cup 2–3 mm long; teeth 4–6 mm, apex acute to acuminate. **Corolla:** reddish purple, purple or pink; standard elliptic or ovate, 4–6.5 by 7–9 mm, outer densely pubescent, apex truncate to retuse, margin entire; wings obovate, 3–7 mm long, apex obtuse, base attenuate, margin entire to undulate; keel elliptic, 2–3 mm long, base attenuate, margin entire. **Staminal tube:** 3–4 mm long. **Ovary:** pubescent, with 6–7 ovules. **Pods:** cylindrical, retrofalcate, 2.5–5 cm long. **Seeds:** rectangular, 3–4 by 1.5–2 mm, smooth.

Distribution.— Africa (native), India, Sri Lanka.

Ecology.— Cultivated as ornamental plant. Vernacular.— Khram kon (ครามขน).

Specimens examined.— NORTH-EASTERN: Khon Kaen [Ta-Pra, 19 Nov. 1968, *Umpai* 380 (BK)]; SOUTH-EASTERN: Chon Buri [Sichang, 20 Oct. 2004, *Seelanan et al.* 439 (BCU), *Seelanan et al.* 563 (BCU)].

8. *Tephrosia vogelii* Hook.f., Niger Fl.: 296. 1849. Type: Nigeria, on the Niger River (Quorra River), *Vogel & Fernando Po* s.n. (syntype K), *Vogel* s.n. (syntype K).

Treelet to 2 m tall; twigs terete, tomentose. **Leaves:** petioles 24–26 mm long; stipules 10–12 mm long; rachis 12.5–17 cm long. **Leaflets:** 7–10 pairs, elliptic, obovate, entire, opposite; petiolules 2–4 mm long; lamina (4.5–) 5.5–8 by 1.2–2 cm, apex mucronate, base cuneate, margin entire; lower surface tomentose; lateral veins 9–11 pairs. **Pseudoracemes:** terminal, 10–12 cm long; bracts similar to vegetative leaves; pedicels (14–) 20–22 (–28) mm long. **Calyx:** cup 5–7 mm long; teeth 3–5 mm, apex acute, acuminate to obtuse. **Corolla:** lilac or white, standard orbicular, 28–31 by 18–24 mm, outer densely pubescent, apex retuse, margin entire; wings obovate to oblong, 20–25 mm long, apex obtuse, base attenuate, margin entire; keel elliptic, 22–27 mm long, base attenuate, margin entire. **Staminal tube:** 15–20 (–29) mm long. **Ovary:** pubescent, with 12–16 ovules. **Pods:** cylindrical, linear falcate, 7–12 cm long. **Seeds:** reniform, 4–7 by 3–5 mm, smooth.

Distribution.— Africa (native), India, Sri Lanka, peninsular Malaysia (Pahang).

Ecology.— Cultivated as a fish poison.

Vernacular.— Khram ton (ครามต้น).

Specimens examined.— NORTHERN: Chiang Mai [Doi Suthep, 15 Nov. 1988, Maxwell 88-1321 (BKF)].

ACKNOWLEDGEMENTS

The authors are grateful to the curators and staff of herbaria cited for the use of plant specimens. We would like to thank Assist.Prof. Charan Leeratiwong and Mr. Wattana Tanming for the photographs.

LITERATURE CITED

- Bosman, M.T.M., De Haas, A.J.P. 1983. A Revision of the Genus *Tephrosia* (Leguminosae-Papilionoideae) in Malesia. *Blumea* 28: 421–487.
- Brummitt, R.K. 1967. New and Little Known Species from the Flora Zambesiaca Area XX *Tephrosia*. *Boletim da Sociedade Broteriana Ser. 2.* 41: 219–393.
- Craib, W.G. 1928. *Florae Siamensis Enumeratio*. Vol. 1. part 3. The Siam Society, Bangkok.
- Linnaeus, C. 1753. *Species Plantarum*. Ed. 1, 2: 714, 752. *Holmiae*, p. 561.
- Lôc, Phan Ke, Vidal, J.E. 2001. *Tephrosia*. In: *Flore du Cambodge du Laos et du Viêt Nam*, Morat, Ph. (Ed.), vol. 30. *Museum National d'Histoire Naturelle*, Paris.
- Persoon, C.H. 1807. *Synopsis Plantarum* 2: 238–330. Paris.
- Schrire, B.D. 2005. Tribe Milletieae. In: *Legumes of the World*, Lewis, G., Schrire, B., Mackinder, B. & Lock, M. (Eds.). The Royal Botanic Gardens, Kew, London.
- The Forest Herbarium Royal Forest Department. 2001. *Thai Plants Names Revised Tem Smitinand*. Revised Edition, Prachachon Ltd., Bangkok.
- Theirs, B. 2014. [continuously updated]. *Index Herbariorum: A global directory of public herbaria and associated staff*. New York Botanic Garden's Virtual Herbarium. <http://sweetgum.nybg.org/ih/>. February 7, 2014.