Notes on *Clitoria* (Leguminosae) in Southeast Asia

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ABSTRACT. New infraspecific taxa of two species of *Clitoria* subg. *Neurocarpum* sect. *Tanystyloba* (Leguminosae) from Southeast Asia are described. New taxa include: *Clitoria hanceana* var. *latifolia* (Thailand), variety *petiolata* (Cambodia), and variety *thailandica* (Thailand); and *Clitoria macrophylla* var. *sericea* (Thailand) and variety *stipulacea* (Thailand). *Clitoria hanceana* var. *hanceana* (China) and *C. macrophylla* var. *macrophylla* (Burma, Vietnam) are circumscribed. The circumscription of *Clitoria hanceana* var. *laureola* (Vietnam) is emended with the exclusion of two of the four syntypes.

The Botanical Survey of India is sponsoring a taxonomic treatment of the genus *Clitoria* (Leguminosae) that will include Indian and closely related taxa of Southeast Asia from Pakistan to China to Malaysia. The treatment of two species, *C. hanceana* Hemsley and *C. macrophylla* Wallich ex Bentham, presents taxonomic problems. Aubréville & Leroy (1979) published a treatment of *Clitoria* for the Flora of Cambodia, Laos, and Vietnam in which they recognized two varieties of *C. hanceana* and no varieties for *C. macrophylla*. They cited very few herbarium collections, as herbarium vouchers of *Clitoria* from Southeast Asia are limited in major collections. Both *C. hanceana* and *C. macrophylla* have broad ranges of distribution with morphological variance that appears geographically segregated. Examination of specimens from a broader geographical area indicates that more varieties are involved. Field studies are needed on both of these species.

Fantz (1979) assigned both species to subgenus *Neurocarpum* (Desvaux) Baker sect. *Tanystyloba* Fantz. The objectives of this paper are to validate the new taxa and to provide lectotypification for those taxa for which the original author did not designate a holotype. Additional vouchers will be cited in my article to be published in the *Bulletin of the Botanical Survey of India*.

Typification for some names involves duplicate specimens deposited in different herbaria of the only collection cited by the original author. Some taxonomists argue that since the original author cited only one collection, one must currently designate one of these known specimens as a holotype and the others as isotypes. Other taxonomists argue that with two or more specimens available (syntypes), any designation of one specimen to serve as a nomenclatural type by a current author must be designated as a lectotype, not a holotype. Article 7.3 of the Code (Greuter et al., 1988) states "A holotype is the one specimen or illustration used by the author or designated by him as the nomenclatural type." Because the original author did not designate one specimen as the type, the present author must conclude from evidence available which of these specimens will best serve as the nomenclatural type. The treatment here follows the latter interpretation, and the specimen selected is designated as "lectotype" in accordance with Article 7.5 of the Code (Greuter et al., 1988), and duplicates are designated as isolectotypes.

CLITORIA HANCEANA

Clitoria hanceana Hemsley, J. Linn. Soc. 23: 187. 1887. TYPE: [China. Gwangdong:] In incultis secus amnem "North River," circ. 200 millipas, a Cantone, 23 July 1864, *Sampson 11364* (lectotype, selected here, K-hb. Hance; isolectotype, BM).

Aubréville & Leroy (1979) incorrectly cited *Hance 11364* as the type and treated the specimen at BM as the holotype and the one at K as the isotype. This species was originally reported by Hance (1878) as *C. macrophylla* Wallich, a misidentification. Hance cited one collection, *Sampson 11364*, but did not indicate the location of this collection. Hemsley (1887) recognized its distinction from *C. macrophylla* and described the new species, named in honor of Hance, citing the specimens in Hance's herbarium at BM and K. Hemsley (1887) described the petals, including the clawed wings and keel, and the ovary. Vouchers of *Clitoria* commonly have their large flowers glued to the herbarium sheet, thus the wings and keels, and especially the ovary, are obscured from observation, as in the specimen at BM. The specimen at K contains a dissected flower in its packet, thus it more closely matches

the original description by Hemsley. The specimen at K should be treated as the nomenclatural type because it is the main specimen upon which Hemsley apparently based his description. Five varieties are recognized.

1. Clitoria hanceana var. **hanceana.**

Stem internodes 2–4 cm long, strongly flexuous. Leaves trifoliolate, subsessile, leaflets narrow, 5–9 cm long, 2–3.5 cm wide, lower surface sericeous. Petiole 0.3–1 cm long, shorter than 1–2-cm-long rachis. Stipules 5–8 mm long. Inflorescence of lax pseudoracemes, 1–3 per axil; peduncles 5–15 mm long. Calyx tube 8–10 mm long.

Variety *hanceana* is recognized by its subsessile leaves borne from strongly flexuous branches with narrow leaflets, sericeous below, and shortened leaf rachis. This variety is endemic to China.

2. Clitoria hanceana var. **laureola** Gagnepain in Lecomte, Fl. Indochine 2: 313. 1916. TYPE: Cochinchina. *Pierre s.n.* (lectotype, designated by Aubréville & Leroy (1979), P not seen).

Stem internodes 1.5–4 cm, flexuous. Trifoliolate leaves subsessile, leaflets narrow, 4–9 cm long, 1.5–3(–3.5) cm wide, lower surface sericeous. Petiole shorter than rachis, 0.3–1.3 cm long; rachis 1–1.8(–2.3) cm. Stipules 4–7 mm. Inflorescences 3–8 per axil, fascicled in axillary glomerules up to 1 cm diam., highly bracteated; inflorescence axis 5–7 mm long, peduncles 2–4 mm long with rachis internodes of 1–2 mm; flowers crowded, numerous. Calyx tube short, 5–7(–8) mm long.

Gagnepain (1916) cited four collections of this variety. Collections by Pierre and Thorel bear the name *Clitoria laureola* on the herbarium voucher. There are several unnumbered Pierre collections from Cochinchina. All of those I examined bear glomerate inflorescences. The Godefroy collection lacked the name *C. laureola*, and the Massie collection has not been located. Gagnepain distinguished the variety by the glomerulate inflorescences and vegetative features, such as longer bracteoles, longer petioles, and somewhat narrower, lanceolate leaflets. His diagnostic characters either break down or do not agree with all of the cited collections. Only the first characteristic described (glomerate inflorescences) was not variable; only the Pierre collections bear this characteristic. Aubréville & LeRoy (1979) designated a collection at P as the lectotype. Two specimens (F 540296, K) of *Pierre s.n.* (Cochinchine, ad Chóben prope Baria, Oct. 1866) were examined, and these may be isolectotypes. Specimens with nonglomerate inflorescences, including the Thorel and Godefroy collections, are excluded in the emended circumscription of this variety known only from Vietnam, not all of Cochinchina.

3. Clitoria hanceana var. **latifolia** Fantz, var. nov. TYPE: Thailand. Central: Petchaburi prov., June 1868, *Pierre 72* (holotype, E; isotype, K).

Varietas nova *Clitoria hanceana* optime distinguitur foliis latis trifoliolis et rhachibus elongatis.

Stem internodes elongated, 4–9 cm long, weakly flexuous. Leaves trifoliolate, subsessile, leaflets broad, 6–14 cm long, 4–8 cm wide, moderately sericeous below. Petiole shorter than rachis, 0.3–0.9 cm long; rachis (2–)2.5–3.7 cm long. Stipules 6–8 mm long. Inflorescence of lax racemes, 1–3 per axil. Calyx tube 8–9 mm long.

This variety is distinguished by its broad leaflets. The specimen at E has flowers and younger leaves, whereas the specimen at K lacks flowers but bears more mature leaves. The variety is endemic to Thailand.

4. Clitoria hanceana var. **petiolata** Fantz, var. nov. TYPE: Cambodia. Strung-streng, Me Kong Exp., 1866–68, *Thorel s.n.* (holotype, BM; isotypes, E, F 540762).

Varietas nova *Clitoria hanceana* optime distinguitur foliis petiolatis elongatis.

Stem internodes elongated, 3–10 cm, weakly to strongly flexuous. Trifoliolate leaves short-petiolate; leaflets narrow, 5–10 cm long, 2–4 cm wide, lower surface with pubescence thinly sericeous to strigose. Petiole subequal to longer than the rachis, 1.5–4 cm long; rachis 1–2.3 cm. Stipules (5–6–)8–10 mm. Inflorescence of lax racemes, nonglomerulate, 1–2 per axil; peduncles 3–5 mm.

Aubréville & Thorel (1979) included the type within variety *laureola* Gagnepain, from which it has been excluded in this treatment. Variety *petiolata* is distinct from variety *laureola* by the geographical isolation accompanied by the morphological characteristics of petiolate leaves with the petiole longer than the rachis, larger stipules, and lax racemes. This is the only variety of *C. hanceana* with leaves bearing an elongated petiole that is longer than the rachis.

This variety is endemic to Cambodia, a country that lacks any known collections of other varieties of *C. hanceana*.

5. Clitoria hanceana var. **thailandica,** var. nov. TYPE: Thailand. Northeast: Ban Chut Seng, Koret, 21 Mar. 1930, *Put 3074* (holotype, K; isotype, BM).

Varietas nova *Clitoria hanceana* optime distinguitur foliis brevipetiolatis et subter spisse pubescentibus et stipulis elongatis.

Stem internodes elongated, 3–9 cm, weakly flexuous. Trifoliolate leaves short-petiolate, leaflets narrow, 7–11 cm long, 2–4 cm wide, lower surface densely sericeous. Petiole shorter than the rachis, 0.5–2 cm long; rachis 1.5–2.5 cm long. Stipules 7–11 mm long. Inflorescences loose racemes, 1–2 per axil; peduncles 0.5–1.5 cm. Calyx tube 7–9 mm long.

Specimens of this taxon were annotated as variety *thailanensis* Fantz. Reviewers noted that "thailanensis" is an incorrect Latinization of Thailand, thus the epithet was corrected to follow recommendations.

This is most common variety occurring in Thailand, recognized easily by its short-petiolate leaves, elongated stipules, and the leaflets being narrow and densely sericeous below.

CLITORIA MACROPHYLLA

Clitoria macrophylla Wallich ex Bentham, Miquel Pl. Jungh. 2: 232. 1852. *Clitoria macrophylla* Wallich, Cat. no. 5345. 1831–1832. nomen nudum; not Hance (1878). TYPE: Burma. Pegu: Mount Prome, *Wallich Hb. 5345* (lectotype, selected here, K-Hb. Bentham; isolectotype, BM).

Wallich (1831) published this species without a description, citing it as number 5345. Bentham (1852) validated the name and cited "*C. macrophylla* Wall. Cat. n. 5345." Locality data were provided as "In montibus *Prome* et *Tavoy* (Wallich)." Two specimens of *Wallich 5345* are known (BM, K); a third specimen (Prome or Paong pong, *Wallich 5345B*) was filed within the type folder at K along with *Wallich 5345;* a fourth specimen, "Tavoy, *Wallich 5345H,*" is at BM. Bentham may or may not have studied all four specimens, although inclusion of all locality data (Mount Prome and Tavoy) imply that he probably did. Of the four possible syntype specimens known, the latter pair were eliminated as choices for the nomenclatural type because neither Wallich nor Bentham cited the letters. The specimen of *Wallich 5345* in Bentham's herbarium was selected as the lectotype because it was the more probable one Bentham studied and used for his description. The letters and different locality data indicate that specimens "B" and "H" were different collections made of the same taxon as number "5345," not duplicates of it. Therefore, *Wallich 5345B* and *5345H* are not recognized as isolectotypes.

1. Clitoria macrophylla var. **macrophylla.**

Suffrutescent herb with erect to lax stems, apex trailing to climbing, weakly twining. Leaves trifoliolate, leaflets 1.5–2.5 times longer than wide, 4.5–14 cm long, 2.5–6 cm wide, ovate, elliptic-ovate or occasionally lanceolate-elliptic, sparsely pubescent below with trichomes subappressed, scattered, primary nerves of 9–12(–15) pairs. Stipules 5–9 mm long, 2–4 mm wide. Petioles (4–)5–10 cm long. Calyx lobes 10–13 mm long. Legumes uncinate pubescent as juvenile becoming glabrate with scattered remnants as it matures.

Variety *macrophylla* is recognized by its broader leaflets with scattered, appressed trichomes below, elongate petioles, shorter calyx lobes, and glabrate fruits. Phenology is poorly noted by collectors, as dates are lacking or reported only by year. Flowering and fruiting are reported to occur in mid-July to late August. This variety has been collected in India (1836–1838) several times by Helfer, but does not appear to occur there presently. It is commonly collected in Burma, and two collections are known from Vietnam.

2. Clitoria macrophylla var. **sericea** Fantz, var. nov. TYPE: Thailand. [Central Province]: Hua Wai, Nakawn Sawan, 30 Aug. 1931, *Put 4085* (holotype, K; isotype, BM).

Varietas novas *Clitoria macrophylla* optime distinguitur foliis trifoliolatis, brevipetiolatis et subter sericeis, foliolis elongatis, brevistipulis et brevistipellis. Thailanensis.

Suffrutescent herb, stems trailing to climbing. Leaves trifoliolate, leaflets elongated, 2–4 times longer than wide, (5–)6–15 cm long, 2–6 cm wide, oblong or lanceolate, elliptic-oblong, oblong-lanceolate to oblanceolate-oblong, moderate to densely sericeous below, primary lateral veins of 12–18 pairs. Stipules 7–11 mm long, 2–4 mm wide; stipels 5–8 mm long. Petioles 2–6.5 cm long. Calyx lobes 11–15 mm long. Legume uncinate pubescent, rarely glabrate. The holotype has the best display of flowering and fruiting material, one of which is typically lacking in other vouchers. However, the leaves are more immature; the leaflets are characteristically sericeous, but not as elongated as in other specimens,

although oblong in shape; stems are less flexuous than in several specimens, but similar in bearing shorter internodes and petioles than the typical variety; fruits are somewhat immature being flatter, turgid only around the seeds, but conspicuously uncinate pubescent when viewed at higher magnifications. *Put 1850* was selected as a paratype because it has turgid mature fruits, more flexuous stems, and more mature elongated leaves that become broader. *Marcan 2419* was added as a paratype because it was collected the same day from the same locality as *Put 1850*. The type and paratypes provide a typical range of characters for this variety, commonly collected with flowers and fruits in July and August, rarely with only fruit in November–December. This endemic to Thailand is distributed in the North, Northeast, and Central Provinces.

Paratypes. THAILAND. [**Central Province**]: Sai Yok, Kanburi, 3 Aug. 1928, *Put 1850* (BM, K); Sai Yok, Kanburi, 300 m, 3 Aug. 1928, *Marcan 2419* (K).

3. Clitoria macrophylla var. **stipulacea** Fantz, var. nov. TYPE: Thailand. [North Providence]: Lampoon, Me Lee, 1,200 ft., 7 Aug. 1915, *Winit 360* (holotype, E; isotype, K).

Varietas novas *Clitoria macrophylla* optime distinguitur foliis trifoliolis et/vel unifoliolis, brevipetiolatis et subter sericeis, foliolis, elongatis, longistipulis et longistipellis.

Subshrub to suffrutescent herb, stems scrambling. Leaves trifoliolate and unifoliolate, leaflets 1.5–3 times longer than wide, 5–16.5 cm long, 3–6.5 cm wide, elliptic-oblong to oblong-lanceolate, primary lateral veins of 12–16 pairs, sericeous below. Stipules (9–)13–18 mm long, 4–5 mm broad, stipels 7–16 mm long. Petioles 2–5 cm long on trifoliate leaves, 4–9 cm long on unifoliate leaves; rachis 2–4 cm long. Calyx lobes 12–15 mm long. Legume uncinate pubescent.

This variety is distinguished by the prescence of unifoliolate leaves and the elongated, conspicuous stipules and stipels. It is infrequently collected from late May to early July. Endemic to the the North Province of Thailand, collected from the "papeh" and deciduous dipterocarp jungle/forests.

Paratypes. THAILAND. [**North Providence**]: Doi Pha Dam between Hang Dang and Bo Luang, 18°17′N, 98°30′E, 600 m, 5 July 1968, *Larsen et al. 2123* (E, K).

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