The Genus *Spatholobus* Hassk. (Leguminosae-Papilionoideae) in Thailand

**SAKULTALA NINKAEW AND PRANOM CHANTARANOTHAI***

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

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

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**Abstract.**— The genus *Spatholobus* Hassk. in Thailand is presented. Eight species are enumerated and described, viz. *S. acuminatus*, *S. ferrugineus*, *S. gyrocarpus*, *S. harmandii*, *S. littoralis*, *S. parviflorus*, *S. pottingeri* and *S. suberectus*. A key to the species, photographs, ecological and distributional information are provided.

**KEY WORDS: Revision, Spatholobus, Leguminosae, Thailand**

**INTRODUCTION**

*Spatholobus* Hassk. is a genus of woody climbers of the tribe Phaseoleae (Leguminosae-Papilionoideae) with ca. 29 species that are mainly distributed in tropical and subtropical Asia. This genus was established by Hasskarl in 1842 with one species, *S. littoralis* (Ridder-Numan and Wiriadinata, 1985), and is closely related to the *Butea*, *Kunstleria* and *Meizotropis* genera but differs in the number of leaflets and the shape of the pod and the flower (Ridder-Numan, 1998). In Thailand, *Spatholobus* is listed in only two checklists, those by Craib (1928) and The Forest Herbarium, Royal Forest Department (2001) with six and four species, respectively. Therefore, a description and key to the species of the genus *Spatholobus* in Thailand are provided herein along with ecological and distributional data.

**MATERIALS AND METHODS**

Specimens from field collections in Thailand and dried specimens from AAU, ABD, BCU, BK, BKF, BM, C, CMU, E, K, KKU, PSU, QBG (Thiers, 2013) and the Biology Herbarium, Chiang Mai University were consulted. All field collection specimens were deposited at KKU.

**TAXONOMIC TREATMENT**


Woody climber. *Leaves:* alternate, pinnately trifoliolate; stipules stipellae present; leaflets opposite. *Inflorescence:* an axillary or terminal panicle; bract and bracteole present. *Flowers:* 3–12 mm long, white, pink, red or crimson. *Calyx:* cup-

**Key to the species**

1. Lateral leaflets symmetric .................................. 2
2. Lateral leaflets asymmetric .................................. 4
2. Flowers arranged in a fascicle; leaf margin crenate; inflorescence 15–25.5 cm long ........................................ 5. *S. littoralis*
3. Inflorescence with tertiary branches; both leaflet surfaces dull brown ........................................ 1. *S. acuminatus*
3. Inflorescence with secondary branches; upper leaflet surface blue-green, lower leaflet surface dull brown ........................................ 4. *S. harmandii*
4. Flowers arranged in a fascicle ............... 5
4. Flowers not arranged in a fascicle ............ 7
5. Calyx at most 1/2 of the flower; pedicel 1–1.5 mm long ........................................ 6
5. Calyx at least 1/2 of the flower; pedicel 1.6–3 mm long ............... 8. *S. suberectus*
6. Inflorescence 6–15 cm long; both leaflet surfaces pubescent dull brown ........................................ 2. *S. ferrugineus*
6. Inflorescence 16–40 cm long; upper leaflet surface silvery pilose, lower leaflet surface silvery sericeous .............................. .............................. 6. *S. parviflorus*
7. Leaf margin crenate; peduncle brownish pubescent; pedicel 0.5–1.5 mm long ............... .............................. 3. *S. gyrocarpus*
7. Leaf margin entire; peduncle glabrous; pedicel 1.6–2.5 mm long .............................. .............................. 7. *S. pottingeri*

4.7–10 by 2–4 cm, base obtuse, apex acute or acuminate, margin entire, upper surface glabrous, lower surface pubescent; both leaflet surfaces dull brown; lateral veins 6–8 pairs; stipules triangular, 2–3 by 1–2 mm, densely pubescent; stipels acicular, 1–2 mm long, sparingly pubescent. Inflorescence: axillary or terminal; panicles with tertiary branches, 7.3–15 cm long; peduncle silvery pubescent; pedicels 2–5 mm long, densely pubescent; bracts triangular, 1–1.2 by 0.8–1 mm, glabrous or sparingly pubescent. Flowers: 7–8 mm long, white, not arranged in a fascicle. Calyx: 4.8–5.1 mm long, 5-lobed. Corolla: standard ovate, 6.5–7 by 5–6 mm, base obtuse or truncate, apex obcordate; wing petals elliptic or oblong, 5–5.2 by 2–2.5 mm, base oblique, apex obtuse; keel petals ovate or elliptic, 6.2–6.5 by 2–2.1 mm, base attenuate, apex obtuse. Stamens: filaments 6.5–7 mm long; anthers elliptic, 0.2 mm long. Ovary: obovate, densely pubescent; style 2–2.3 mm long. Pods: obovate or ovate, 7–10 by 1.7–2.1 cm, brown pubescent.


**Distribution.**— Borneo (Sarawak).

**Ecology.**— Evergreen forest, alt. 50-100 m.

**Vernacular.**— Thao sam bai hok (สาหร่ายใบหอก), Yan uat (ยานอวด).


*Butea ferruginea* (Zoll. & Mor.) Blatter, J. Ind. Bot. Soc. 8: 136. 1929.

Woody climber. Leaves: petiolo 4–9 cm long; rachis 1–1.5 cm long; petiolules 5–7 mm long; terminal leaflet ovate, oblong or elliptic, 12–19.5 by 6.5–16 cm, base cuneate, apex cuspidate, margin entire, both surfaces brownish pubescent; lateral veins 7–8 pairs; lateral leaflets asymmetric, elliptic, oblong or ovate, 6.9–15 by 4.5–12.5 cm, base oblique, apex cuspidate, margin entire, both surfaces brownish pubescent; lateral veins 8–9 pairs; stipules triangular, 4–4.5 by 1–1.2 mm, densely pubescent. Inflorescence: axillary; panicles with tertiary branches, 6–15 cm long; peduncle silvery pubescent; pedicels 2–3 mm long, densely pubescent; bracts lanceolate, 2–4 by 1 mm, densely pubescent; bracteoles acicular, 0.5–0.6 mm long. Flowers: 6–8 mm long, red, arranged in a fascicle. Calyx: 4.2–5 mm long, 5-lobed. Corolla: standard reniform, 5–5.5 by 6.5–7 mm, base cuneate, apex obcordate; wing petals elliptic or oblong, 7–7.2 by 2–2.1 mm, base oblique, apex acute; keel petals ovate or elliptic, 6.2–6.5 by 2–2.1 mm, base oblique, apex obtuse. Stamens: filaments 6.5–7 mm long; anthers elliptic, 0.1 mm long. linear or oblong, densely pubescent; style 2–2.3 mm long. Pods: ovate, 7–9.5 by 1.8–2 cm, brown pubescent.


**Distribution.**— Malay Peninsula, Sumatra, Java, Borneo.

**Ecology.**— Evergreen forest, alt. 10-100 m.

**Vernacular.**— Chang haek (ช้างแหก).

Woody climber. *Leaves*: petioles 11–13 cm long; rachis 2–4 cm long; petiolules 6–7 mm long; terminal leaflet obovate, 17.5–26 by 8.3–16 cm, base cuneate, apex obtuse, margin crenate, upper surface glabrous, lower surface pubescent; lateral veins 8–9 pairs; lateral leaflets asymmetric, elliptic or oblong, 9.0–17.5 by 5.5–10.6 cm, base oblique, apex cuspidate, margin crenate, upper surface glabrous, lower surface pubescent; lateral veins 7–8 pairs; stipules triangular, 7–8 by 3–4 mm, densely pubescent; stipels acicular, 3 mm long. *Inflorescence*: axillary; panicles with tertiary branches, 20–41 cm long; peduncle brownish pubescent; pedicels 0.5–1 mm long, densely pubescent; bracts triangular, 5–7 by 1–2 mm, densely pubescent; lateral bracts triangular, 0.8–0.9 by 0.6–0.7 mm, densely pubescent; bracteoles acicular, 0.5–0.6 mm long. *Flowers* 3–5 mm long, red, not arranged in a fascicle. *Calyx*
1.4–2.3 mm long, 5-lobed. **Corolla:** standard reniform, 2–3 by 3–5 mm, base obtuse, apex emarginate; wing petals elliptic or oblong, 2–2.5 by 1–1.5 mm, base oblique, apex emarginate; keel petals ovate or elliptic, 1–2.5 by 1–2.5 mm, base oblique, apex obtuse. **Stamens:** filaments 2–3.5 mm long; anthers oblong, 0.1 mm long. **Ovary** elliptic; style 1–2 mm long. **Pods** elliptic or narrowly ovate, 7.7–8 by 1–1.7 cm, brown pilose.

**Thailand.**— PENINSULAR: Phatthalung [Khao Pu Khao Ya National Park, 30 Jul. 1986, J.F. Maxwell 86-530 (AAU, BKF, CMU, PSU)].

**Distribution.**— Malay Peninsula, North Borneo, Philippines. **Ecology.**— Evergreen forest, alt. 300–400 m. **Vernacular.**— Thao manora (เถามโนราห์).

4. **Spatholobus harmandii** Gagnep., Notul. Syst. (Paris) 2(12): 368. 1913. Type: Laos, Champasak, Bassac, Harmand 42 (islectotype P!-online). Fig. 2A


**Butea harmandii** (Gagnep.) Blatter, J. Ind. Bot. Soc. 8: 136. 1929.


Woody climber. **Leaves:** petioles 1.2–13.5 cm long; rachis 0.4–3 cm long; petiolules 3–10 mm long; terminal leaflet oblong elliptic or obovate, 5–23.5 by 2–10 cm, base cuneate or obtuse, apex acuminate, margin entire, upper surface glabrous, blue-green, lower surface pubescent, dull brown; lateral veins 7–9 pairs; lateral leaflets symmetric, oblong, elliptic or obovate, 4–21 by 1.5–9.1 cm, base cuneate or obtuse, apex acuminate, margin entire, upper surface glabrous, blue-green, lower surface pubescent, dull brown; lateral veins 6–9 pairs; stipules narrowly triangular, 3–5 by 1 mm, densely pubescent; stipels acicular, 1–3 mm long. **Inflorescence:** axillary; peduncle silvery pubescent; panicles with secondary branches, 4.7–15 cm long; pedicels 2–3 mm long, densely pubescent; bracts triangular, 1 by 0.5 mm, densely pubescent; lateral bracts triangular, 0.9–1 by 0.3–0.4 mm, densely pubescent; bracteoles acicular, 0.5–0.6 mm long. **Flowers:** 5–9 mm long, crimson, not arranged in a fascicle. **Calyx:** 2.3–4.5 mm long, 5-lobed. **Corolla:** standard reniform, 5–5.5 by 6–7 mm, base cuneate, apex obcordate; wing petals spatulate or oblong, 4 by 2–2.1 mm, base oblique, apex obtuse; keel petals spatulate or elliptic, 4 by 2–2.2 mm, base oblique, apex obtuse. **Stamens:** filaments 3–5 mm long; anthers oblong, 0.2 mm long. **Ovary** linear; style 1–2.5 mm long. **Pods** ovate, 6.4–7.5 by 1.9–2.4 cm, brown pubescent. **Thailand.**— NORTH-EASTERN: Buengkan [Phu Wua Wildlife Sanctuary, 20 Oct. 2012, S. Ninkaew 132 (KKU)]; Udon Thani [Nong Saeng, W. Sidajium 39 (BKF); Phu Foi Lom, 8 Sept. 2012, S. Ninkaew 144 (KKU) & 145 (KKU)]; EASTERN: Si Sa Ket [8 Oct. 1984, G. Murata, C. Phengklai, S. Mitsuta, H. Nagamasu & N. Nantasarn T-49641 (AAU)]; CENTRAL: Nakhon Nayok [Khao Yai National Park, 14 Feb. 2001, A. Boonkongchart 42 (BKF), 27 Feb. 2000, P.

**Distribution.**— Myanmar, China, Laos, Vietnam, Northern Malay Peninsula.

**Ecology.**— Evergreen, dry evergreen and mixed deciduous forests, alt. 50-750 m.

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**Figure 2.** A. *Spatholobus harmandii*; B-C. *S. parviflorus*: B. flowers; C. habit (arrow).
Vernacular.— Thao khao mu (เดอะข้าวหมู), Thao man mu (เดอะมันหมู), Khruea mueai lueat (เครือเมื่อยเลือด), Pradong lueat (ประดงเลือด).

5. *Spatholobus littoralis* Hassk., Flora Beibl. 25 (2): 52. 1842. Type: Hassk. Hort. Bog. (n.v.). Fig. 3.


*Butea littoralis* (Hassk.) Blatter in J. Ind. Soc. 8: 136. 1929.

Woody climber. *Leaves:* petioles 2.4–6 cm long; rachis 1.2–2.5 cm long; petiolules 5–7 mm long; terminal leaflet ovate or obovate, 10–16 by 5–7 cm, base cuneate, apex acute, margin crenate, upper surface glabrous, lower surface pilose; lateral veins 6–8 pairs; lateral leaflets symmetric, ovate, 9.8–15 by 3.3–7 cm, base cuneate, apex acute, margin crenate, upper surface glabrous, lower surface pilose; lateral veins 6–8 pairs. *Inflorescence:* axillary; panicles with tertiary branches, 15–25.5 cm long; peduncle brownish pubescent; pedicels 1.8–3 mm long, sparsely pubescent; two lateral bracts, triangular, 0.8–0.9 by 0.4–0.5 mm, densely pubescent; the fascicles with two bracts, triangular, 1–1.1 x 0.1 mm, densely pubescent; the flower with one bract, acicular, 0.8–0.9 mm long; bracteoles 2, acicular, 1–2 mm long. *Flowers:* 7–8 mm long, white, arranged in a fascicle. *Calyx:* 2.3–3.5 mm long, 4-lobed. *Corolla:* standard orbicular, 4.3–4.5 by 4.3–4.5 mm, base attenuate, apex obcordate; wing petals elliptic or oblong, 5–7 by 1–1.2 mm, base oblique, apex acute; keel petals ovate or elliptic, 4–4.5 by 1–1.5 mm, base oblique, apex obtuse. *Stamens:* filaments 4–5 mm long; anthers elliptic, 0.2 mm long. *Ovary:* linear; style 2.8–3 mm long. *Pods:* oblong, 7.5–10.5 by 2–3 cm, glabrous.

**Thailand.—** PENINSULAR: Yala [Kampang Pinang, 21 Jun. 1930, Kiah 24368 (BKF, K)].

**Distribution.**— Java, Philippines.

**Ecology.**— Brackish water, alt. sea level.

Vernacular.— Thao nam kroi (เถาน้ำกร่อย).

6. *Spatholobus parviflorus* (Roxb.) Kuntze, Rev. Gen. Pl. 1: 205. 1891. Fig. 2B, C.


*S. roxburghii* Benth. in Miq., Pl. Jungh.: 238. 1852, nom. superfl.


*S. parviflorus* (Roxb.) Hu, J. Arnold. Arbor. 5(4): 228. 1924.

Woody climber, sinistrorse. *Leaves:* petioles 8–11.7 cm long; rachis 1.5–3 cm long; petiolules 5–7 mm long; terminal leaflet obovate or ovate, 9.3–16.7 by 7.5–11.2 cm, base cuneate, apex acute or cuspidate, margin entire, upper surface pilose, lower surface sericeous; lateral veins 8–10 pairs; lateral leaflets asymmetric, ovate or elliptic, 8.3–15.8 by 5–8 cm, base oblique, apex obtuse or cuspidate, margin entire, upper surface pilose, lower surface sericeous; lateral veins 8–10 pairs; stipules triangular, 2–4 by 4–6 mm, densely pubescent; stipels narrowly triangular, 3–4 by 1–3 mm. *Inflorescence:* axillary; panicles with tertiary branches, 23–37 cm long; peduncle silvery pubescent; pedicels
1.8–2.2 mm long, bracts triangular 3–3.5 by 4–5 mm, densely pubescent; lateral bracts triangular, 0.5 by 3–4 mm, densely pubescent; bracteoles acicular, 1–3 mm long. Flowers: 8–12 mm long, white to pink, arranged in a fascicle. Calyx: 7.2–10.3 mm long, 4-lobed. Corolla: standard obovate or orbicular, 6–7 by 5–7 mm, base truncate, apex obtuse; wing petals oblong, 6.5–7 by 1.8–2 mm, base oblique, apex obtuse; keel petals spatulate, 4–5 by 2 mm, base oblique, apex obtuse. Stamens: filaments 6–7 mm long; anthers elliptic, 0.2 mm long. Ovary: linear; densely pubescent; style 4–5 mm long. Pods: ovate or obovate, 10–12 by 1.9–2.4 cm, silvery pubescent.


**FIGURE 3.** *Spatholobus littoralis* A. flowering branch; B. flower; C. pod.

**Distribution.**—India, Sri Lanka, Bangladesh, China, Myanmar, Laos, Cambodia, Vietnam.

**Ecology.**—Dipterocarp, mixed deciduous, dry evergreen and pine-oak forests, alt. 100-1,000 m.

**Vernacular.**—Kwang phu (กวางผู้), Khrua khao phu (เครือผู้), Ta lan khrua (ตลาดเครือ), Khrua khao khu (เครือช้าง), Chan khrua (ชนเค้า), Chang haek (ช้างแหก), Thu-ku-pho (ถู่กุ๊โพ๊ะ), Thao Thong lueai (เถาทองเลื้อย), Thao phan sai (เถาพันซ้าย).


*S. spirei* Gagnep. in Lecomte, Not. Syst. (Paris) 2: 370. 1913. Type: Laos, Khammouan, Tranninh Spire 1067 (P?).


Woody climber. **Leaves:** petioles 3.5–14 cm long; rachis 1–3 cm long; petiolules 3–5 mm long; terminal leaflet ovate or elliptic, 10–22 by 4–12 cm, base cuneate, apex
acute or emarginate, margin entire, upper surface glabrous, lower surface pilose; lateral veins 7–9 pairs; lateral leaflets asymmetric, elliptic or ovate, 2–20 by 2.5–10 cm, base cuneate, apex acute or emarginate, margin entire, upper surface glabrous, lower surface pilose; lateral veins 9–10 pairs; stipules triangular, 1.3–1.5 by 3–5 mm, densely pubescent; stipels narrowly triangular, 5–7 by 0.5 mm.

*Inflorescence*: axillary or terminal; panicles with tertiary branches, 12.5–28 cm long; peduncle glabrous or pilose; pedicels 1.8–2.5 mm long, bracts triangular, 2.5–4 by 3–5 mm, densely pubescent; bracteoles acicular, 0.2–0.3 mm long. *Flowers*: 5–9 mm long, dark red, not arranged in a fascicle.

*Calyx*: 2.5–4.2 mm long, 5-lobed.

*Corolla*: standard obovate or orbicular, 5–5.5 by 4–4.3 mm, base truncate, apex obtuse; wing petals elliptic or oblong, 4.5–7 by 1–1.2 mm, base oblique, apex obtuse; keel petals ovate or elliptic, 4–4.8 by 1–1.2 mm, base oblique, apex obtuse. *Stamens*: filaments 3.5–6.5 mm long; anthers elliptic, 0.2 mm long. *Ovary*: linear; sparingly pilose; style 2–2.3 mm long. *Pods*: oblong or elliptic, 10.3–11.5 by 2.3–2.5 cm, sparingly pilose.


**Distribution.**— Laos.

**Ecology.**— Dipterocarp, mixed deciduous and dry evergreen forests, alt. 500-1,400 m.

**Vernacular.**— Khruea khao phu (เครือเขาปู้).


Woody climber. *Leaves*: petioles 3.5–8 cm long; rachis 0.8–1.5 cm long; petiolules 3–6 mm long; terminal leaflet obovate, 5.5–10.5 by 2–5.6 cm, base cuneate, apex acute or acuminate, margin crenate, both surfaces pilose; lateral veins 5–7 pairs; lateral leaflets asymmetric, obovate, 4.9–11 by 2.5–5.2 cm, base oblique, apex acute, margin crenate, both surfaces pilose; lateral veins 5–8 pairs; stipules acicular, 0.5–0.6 mm long, sparingly pilose. *Inflorescence*: axillary or terminal; panicles with tertiary branches, 16–18 cm long; peduncle silvery pubescent; pedicels 1–1.5 mm long, bracts
lanceolate, 1.7–1.9 by 0.2–0.3 mm, densely pubescent; bracteoles acicular, 0.5–0.6 mm long. **Flowers:** 5–8 mm long, white, arranged in a fascicle. **Calyx:** 2.3–3 mm long, 4-lobed. **Corolla:** standard ovate, 2.4–2.6 by 4–4.3 mm, base cuneate, apex obcordate; wing petals elliptic or oblong, 4–5 by 1.2–2 mm, base oblique, apex emarginate; keel petals obovate or elliptic, 4.8–5 by 1.5–2 mm, base oblique, apex obtuse. **Stamens:** filaments 5–5.2 mm long; anthers elliptic, 0.2 mm long. **Ovary:** linear, densely pubescent; style 3 mm long. **Pods:** ovate, 8.7–9.5 by 3–3.2 cm, silvery pubescent.


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**Figure 4.** *Spatholobus suberectus* A. flowering branch; B. flower; C. calyx; D. standard; E. wing; F. keel; G. pod.

**Distribution.**—Southern China.

**Ecology.**—Dry evergreen and pine forests, alt. 900-1,500 m.

**Vernacular.**—Thao phan doi (เถาพันดอย).

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**LITERATURE CITED**


