

บทที่ 3

ผลการศึกษา

ทบทวนพืชสกุลเข็มขาว (วงศ์เข็ม) ในภาคตะวันออกเฉียงเหนือของไทยและ ส.ป.ป. ลาว
เพื่อการอนุรักษ์และการใช้ประโยชน์

PAVETTA

L., Sp. Pl.: 110. 1753 & Gen. Pl. ed. 5, 48. 1754; Hook.f., Fl. Brit. Ind. 3: 149. 1880; King & Gamble, J. Asiat. Soc. Beng. 73: 83. 1904; Ridl., Fl. Mal. Pen. 2: 99. 1923; Pitard in Lecomte, Fl. Gén. I.-C. 3: 330. 1924; Bremek. In Fedde, Repert. Spec. Nov. Regni Veg. 37: 12. 1934; Kannijilal, Fl. Assam 3: 71. 1939; Backer & Bakh.f., Fl. Java 2: 323. 1965; Matthew, Mat. Fl. Tamilnadu Carnatic: 235. 1981 & Fl. Tamilnadu Carnatic 3(2): 732. 1983; Wong in Ng, Tree Fl. Mal. 4: 386. 1989; Wood in Grierson and Long, Fl. Bhutan 2(2): 800. 1999.

About 340 species in the tropics and sub-tropics, 25 species in Thailand.

Shrubs or treelets. *Leaves* opposite, petiolate, entire, often with scattered bacterial nodules; stipules interpetiolar, ovate or triangular, apex acuminate, cuspidate or aristate, usually connate at base. *Inflorescence* terminal on lateral branches, corymbose cyme, very compound and trichotomously branched, rarely reduced to subcapitulate; flowering branches leafless or leafy, with 1-6 leaf nodes, usually overtopping the main non-flowering stem. *Bracts* leaf-like, lower ones connate at base, upper ones smaller, free at base. *Calyx* cup-shaped, 4-lobes, lobes dentate or triangular, sometimes persistent on mature fruit. *Corolla* usually fragrant, white or yellowish green, hypocrateriform; tube long, slender with 4 spreading lobes, contorted, twisted in bud. *Stamens* 4; filaments very short, inserted between the lobes at mouth of the corolla tube; anthers longitudinally spirally contorted at dehiscence, dorsifixed, linear, base sagittate, apex apiculate. Ovary 2 locular; style filiform, slender, long-exserted; stigma obscurely 2-lobed. Fruits a black, more or less globose, usually shining drupaceous berry, glabrous or sparsely pubescent, with 1-2 seed. *Seeds* semi-globose with one face flattened.

KEY TO THE TAXA

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|---|---|
| 1. Calyx and ovary glabrous | 2. <i>P. graciliflora</i> var. <i>graciliflora</i> |
| 1. Calyx and ovary hairy | |
| 2. Domatia in axils of lateral nerves present, covered with dense hairs | 5. <i>P. sylvatica</i> |
| 2. Domatia in axils of lateral nerves absent | |
| 3. Calyx lobe triangular | 4. <i>P. Pitardi</i> |
| 3. Calyx lobe dentate | |
| 4. Stipule sub quadrangular or ocrea-like | |
| 5. Lower surface of leaf densely tomentose | 6. <i>P. tomentosa</i> var. <i>tomentosa</i> |
| 5. lower surface of leave sparsely tomentose | 7. <i>P. tomentosa</i> var. <i>glabrescens</i> |
| 4. Stipules triangular | |

6. Outside of stipules glabrous

7. Both surface of leaf hairy

7. Upper surface of leaf glabrous

6. Outside of stipules hairy

3. *P. petiolaris*

8. *P. sp. A*

1. *P. aspera* var. *breviflos*

1. *pavetta aspera* Craib var. *breviflos* Craib, Fl. Siam. Enum. 2: 166. 1934

Shrub 1-3 m high; branchlets sparsely scabrate. *Leaves*: petiole 5-8 mm long, scabrate; blade ovate, lanceolate or narrowly elliptic, 5-8.5 by 2-5 cm, thinly chartaceous, sparsely or densely scabrate midrib on upper surface, densely scabrate, sparsely scabrate lateral nerves and nervelets on lower surface; base cuneate, apex acute to acuminate, margin entire; lateral nerves 5-8 pairs; stipules triangular, 3-4 mm long, aristate, scabrate outside, sericeous inside. *Inflorescences* terminal; peduncle densely scabrate; bracts 5-6 by 1.5-2 cm; pedicels 2-4 mm long, scabrate. *Calyx*: tube 0.5-0.8 mm long, scabrate; lobes dentate, 0.1-0.2 mm long, scabrate. *Corolla*: tube 1-2 cm long, glabrous outside, pilose more than half of the tube inside; lobes 4-5 mm long, sparsely pilose. *Stamens*: filaments 0.8-1 mm long, anthers 4-5 mm long. *Style* 3-3.5 cm long; stigma 3-4 mm long; ovary 0.8-1 mm long, densely scabrate. *Fruits* unknown.

Thailand.— NORTHERN: Chiang Mai; NORTH-EASTERN: Sakon Nakhon; SOUTH-EASTERN: Chon Buri; SOUTH-WESTERN: Prachuap Khiri Khan; PENINSULAR: Surat Thani.

Distribution.— Endemic.

Ecology.— Moist evergreen and dry evergreen forests, alt. up to 800 m.

Vernacular.— Khao san noi (ข้าวสารน้อย), Khao san lek (ข้าวสารเล็ก), Khem khao (เข็มขาว).

Specimens examined.— *BGO Staff* 76 (QBG) & 693 (QBG); *A.F.G. Kerr* 10887 (BK, BM, K) & 13389 (K); *J.F. Maxwell* 71-419 (BK).

2. *Pavetta graciliflora* var. *graciliflora* Wall. ex Ridl., Fl. Mal. Pen. 2: 100. 1923; Craib, Fl. Siam. Enum. 2: 167. 1934; Bremek. In Fedde, Repert. Spec. Nov. Regni Veg. 37: 102. 1934; Wong in Ng, Tree Fl. Mal. 4: 387. 1989. Type: Thailand, *Finlayson* in Hb Wall. Cat. No 6178 (K). _____ *P. petiolaris* Wall. Cat. No. 6186?

Tree up to 8 m high; branchlets glabrous. *Leaves*: petiole 0.5-1.5 cm long, glabrous; blade lanceolate, 7.5-24 by 3.3-8.5 cm, chartaceous, glabrous on upper surface, glabrous or sparsely pubescent on lower surface; base cuneate, apex acute, margin entire, slightly undulate; lateral nerves 6-8 pairs; stipules triangular, 4-5 mm long, aristate or needle-like, glabrous, ridged outside, glabrous inside. *Inflorescences* terminal, lax; peduncle glabrous; bract 2-7 by 0.5-1.5 cm; pedicels 3-6 mm long, glabrous. *Calyx* tube 0.4-0.5 mm long, glabrous; lobes dentate, 0.1-0.2 mm long, glabrous. *Corolla*: tube 1.2-2 cm long, glabrous outside, pilose less than half of the tube inside; lobe 4-6 mm long. *Stamens*: filaments 0.8-1 mm long, anthers 5-6 mm long. *Style* 3.5-4.5 cm long; stigma 4-5 mm long; ovary 1.2-1.5 mm long, glabrous. *Fruits* 5-6 mm diam., glabrous.

Thailand.— NOTHERN: Sukhothai, Phitsanulok; NORTH-EASTERN: Phetchabun, Loei, Nong Khai;

EASTERN: Chaiyaphum, Nakhon Ratchasima, Roi Et, Maha Sarakham; SOUTH-EASTERN: Trat; PENINSULAR: Nakhon Si Thammarat, Trang, Satun.

Distribution.— Myanmar, Laos, Cambodia, Vietnam, Peninsular Malaysia.

Ecology.— Along evergreen and mixed deciduous forests, alt. 0-650 m.

Vernacular.— Khen Kliang (เข็มนกคี่ยง) (Eastern), Khem Khao (เข็มนขาว), Khem dong (เข็มนคง), Khem paa (เข็มนป่า).

Specimens examined.— *Adisai* 476 (BK); *Haniff* 2739 (K); *C. Hambhanon* 76 (BKF); *R. Geesink*, *T. Hattink*, *C. Phengkhai* T-6835 (BKF, C); *R. Geesink*, *T. Hattink* & *C. Charoenphol* 7357 (BKF); *A.F.G. Kerr* 5821 (BK, BM, K), 5913 (BK, BM, K), 13980 (BK, BM) & 18082 (K); *J.F. Maxwell* 76-308 (BK) & 84-499 (BKF); *Y. Paisooksantivatana* & *J. Sadakorn* 1290-83 (BK); *P. Sangkhachand* 1062 (BK); *S. Sutheesorn* 1017-82 (BK); *C. Puff* & *W. Ueachirakans* 890811-1/3 (BKF); *P. Sangkhachand* 1062 (BK); *S. Sutheesorn* 2161 (BK); *J. Thangthong* 317 (KKU), 318 (KKU), 319 (KKU), 320 (KKU) & 321 (KKU); *Wallich* 6178 (K).

3. ***Pavetta petiolaris*** Craib, Bull. Misc. Inform., Kew 1932(9): 432. 1932 & Fl. Siam. Enum. 2: 169. 1934; Bremek. In Fedde, Repert. Spec. Nov. Regni Veg. 37: 102. 1934. Type: Thailand, Chiang Mai, Doi Angka, E. slope, Mae Ka Pak drainage, alt. 1,450 m, *H.B.G. Garrett* 504 (K 2-sheets, L, TCD!).

Shrub 1-5 m high; branchlets sparsely scabrous. *Leaves* with petiole 1-1.5 cm long; blade oblong or lanceolate, 10-14 by 3-5 cm, chartaceous, sparsely scabrous midrib on upper surface, sparsely pubescent midrib and lateral nerves on lower surface, densely pubescent in axils of lateral nerves on lower surface; base cuneate, apex acuminate, margin entire, glabrous; lateral nerves 6-8 pairs; stipules triangular, 4-5 mm long, acute, without ridge, glabrous outside, sericeous inside. *Inflorescences* terminal, dense, with more than 50 flowers; peduncle sparsely scabrous; bract 4-6 by 1.5-2 cm; pedicels 3-5 mm long, sparsely scabrous. *Calyx*: tube 0.3-0.5 mm long, sparsely scabrous; lobes dentate, 0.1-0.2 mm long, sparsely pubescent. *Corolla*: tube 1.2-1.5 cm long, glabrous outside, pilose more than half of the tube inside; lobes 4-5 mm long, pilose at base. *Stamens*: filaments xx mm long, anthers xx mm long. *Style* 2.7-3 cm long; stigma 4-5 mm long; ovary 1-1.2 mm long, sparsely pubescent. *Fruits* 5-6 mm diam., sparsely scabrous.

Thailand.— NORTHERN: Chiang Mai, Phrae, Phitsanulok; NORTH-EASTERN: Loei; EASTERN: Nakhon Ratchasima; SOUTH-WESTERN: Uthai Thani, Kancharaburi; SOUTH-EASTERN: Prachin Buri.

Distribution.— India, Lao, Indonesia.

Ecology.— In moist evergreen forests, alt. 600-1,000 m.

Vernacular.— Khem phae (เข็มนแพะ), Ya khao san (หญ้าขาวสาร) (Northern); Bue-khli (บือคคี่) (Karen-Mae Hong Son).

Specimens examined.— *C. Chermisiriwathana* 880 (BK); *H.B.G. Garrett* 504 (K 2-sheets, L, TCD); *A.F.G. Kerr* 5777 (BK, BM, K); *A. Kostermans* 86 (BK); *P. kumphet*, *S. Watthana* & *W. Pongamornkul* 418 (QBG); *Pradit* 787 (BK); *S. Sutheesorn* 2469 (BK), 2997 (BK) & 3307 (BK); *J. Thangthong* 328 (KKU); *S. Watthana* & *T. Riyupun* 964 (QBG); *Winit* 1672 (BK, K).

4. Pavetta pitardii Bremek. in Fedde, Repert. Spec. Nov. Regni Veg. 37:83. 1934. *P. indica* L. var. *canescens* Pitard in Lecomte, Fl. Gén. I. —C. 3: 332. 1924. Type: Veitnam, Langbian Mnts, A. Chevalier 2267 (P). _____ *P. tomentosa* Roxb. ex Sm. Var. *canescens* Craib, Fl. Siam. Enum. 2: 170. 1934.

Shrub or tree 1-12 m high; branchlets densely pubescent. *Leaves*: petiole 0.8-1.2 cm long, densely pubescent; blade elliptic or obovate, 11-12 by 6-7 cm, coriaceous, densely scabrous on upper surface, densely pubescent on lower surface; base cuneate, apex acute, margin entire, recurved, densely pubescent; lateral nerves 6-12 pairs; stipules triangular, 5-6 mm long, acuminate or aristate, glabrous outside, densely sericeous inside. *Inflorescences* terminal or axillary; peduncle densely pubescent; bract 2-4 by 1.2-4 cm; pedicels 3-5 mm long, densely scabrous. *Calyx*: tube 0.4-0.5 mm long; lobes triangular, 0.4-0.5 mm long, densely pubescent. *Corolla*: tube 0.8-1 mm long, glabrous outside, pilose more than half of the tube inside; lobes 6-7 mm long, hirsute at tip on outside, densely pilose at base inside. *Stamens*: filaments 0.8-1 mm long, anthers 5-6 mm long. *Style* 1.5-2 cm long; stigma 3-4 mm long; ovary 0.8-1 mm long, densely scabrous. *Fruits* 4-5 mm diam., sparsely to densely scabrous.

Thailand.— NORTHERN: Chiang Mai, Lampang, Tak, Nakhon Sawan; NORTH-EASTERN: Mukdahan, Khon Kaen; EASTERN: Nakhon Ratchasima, Surin, Ubon Ratchathani; SOUTH-WESTERN: Kanchanaburi, Prachup Khiri Khan; CENTRAL: Suphan buri, Krung Thep Maha Nakhon; PENINSULAR: Surat Thani.

Distribution.— Laos, Cambodia, Vietnam.

Ecology.— In dry dipterocarp, pine and evergreen forests, alt. 200-1,400 m.

Vernacular.—

Specimens examined.— *BGO Staff* 1852 (QBG); *D.J. Collins* 1600 (BK, K); *A.F.G. Kerr* 12848 (BK, BM, K) & 21520 (BK, K); *M.C. Lakshnakara* 864 (BK, K); *A. Marcan* 371 (BM, K); *J.F. Maxwell* 97-538 (CMU) & 98-710 (CMU); *Put* 254 (BK, BM, K), 2785 (BK, BM, K) & 4060 (BK, BM, K); *Sanchai* 651 (BK); *P. Sangkhachand* 46 (BK); *Serm* 86 (QBG); *S. Suthesorn* 248 (BK) & 1178 (BK) & 1178 (BK); *J. Thangthong* 329 (KKU); *M. van de Bult* 459 (CMU).

5. pavetta sylvatica Blume, Bijdr. Fl. Ned. Ind. 16: 953. 1826; DC., Prodr. 4: 491. 1830; Korth. In Ned. Kruidk. Arch. II 2: 265. 1851; Miq., Fl. Ned. Ind. 2: 270. 1856 & Ann. Mus. Bot. Lugd. 4: 199. 1868. Type: West Java, Gunung Seribu, *Blume* 843 (L). _____ *P. pauciflora* Ridl., Journ. Asiat. Soc. Straits LXXXVI: 297. 1922 & Fl. Mal. Pen. 2: 101. 1923. Type: Peninsular Malaysia, Selengor, Batu Caves, *Ridley* xx.

Shrub 2-5 m high.; branchlets glabrous. *Leaves*: petiole 1-3.5 cm long; blade lanceolate or oblanceolate, 9.5-14 by 2.5-4.6 cm, coriaceous, glabrous on upper surface, domatia and densely pubescent in axils of lateral nerves on lower surface, sparsely scabrous on lower surface; base cuneate, apex acute or acuminate, margin entire, sparsely scabrous; lateral nerves 6-8 pairs; stipules triangular, 5-7 mm long, acute or mucronate, triangular-ridged, glabrous both outside and inside. *Inflorescences* axillary, rarely terminal, lax, with less than 30 flowers; peduncle glabrous; bract 2-3.5 by 0.5-2 cm; pedicels 5-10 mm long, sparsely scabrous. *Calyx*: tube 0.2-

0.3 mm long, glabrous; lobes dentate, 0.1-0.2 mm long, glabrous. *Corolla*: tube 1.5-1.8 mm long, glabrous outside, sparsely pilose more than half of the tube inside; lobe 5-6 mm long, sparsely pilose at base. *Stamens*: filaments 0.8-1 mm long, anthers 6-7 mm long. *Style* 2.5-3.5 cm long; stigma 4-5 mm long; ovary 1-1.5 mm long, glabrous. *Fruits* 5-6 mm diam., glabrous, fruiting pedicel 1.5-2.5 cm.

Thailand.— NORTHERN: Sukhothai, Kamphaeng Phet; NORTH-EASTERN: Loei; SOUTH-EASTERN: Chanthaburi; PENINSULAR: Chumphon, Phuket, Nakhon Si Thammarat, Trang, Songkhla.

Distribution.— Myanmar, Peninsular Malaysia, Indonesia.

Ecology.— In evergreen and dry evergreen forests, alt. 250-800 m.

Vernacular.—

Specimens examined.— *Haniff* 2558 (K); *A.F.G. Kerr* 15547 (BK, BM, K, TCD) & 15764 (K); *Kiah* 24365 (BK, K); *J.F. Maxwell* 75-783 (BK); *J. Sudakorn* 132 (BK); *M. Tagawa, K. Iwasuki & N. Fukuoka* T-6732 (BKF); *J.Thangthong* 335 (KKU), 336 (KKU) & 337 (KKU); *Tippan* 206 (BK).

6. *Pavetta tomentosa* Roxb. ex Smith var. ***tomentosa*** in Rees, Cycl. 26: 2 1819; DC., Prodr. 4: 490. 1830; Wight & Arnot, Prodr., Fl. Ind.: 431. 1834; Ridl., Fl. Mal. Pen. 2: 100. 1923; Craib, Fl. Siam. Enum. 2: 170. 1934; Bremek. in Fedde, Repert. Spec. Nov. Regni Veg. 37: 113. 1934; Matthew, III. Fl. Tamilnadu Carnatic 2: 343. 1982, Fl. Tamilnadu Carnatic 3(2): 733. 1983, III. Fl. Palni hills: 394. 1996 & Fl. Palni hills: 621. 1999. Type: ____ *P. indica* L. var. *tomentosa* (Roxb ex Smith) Hook.f., Fl. Brit. Ind. 3: 150. 1880; King & Gamble, Mal. Fl. Mal. Pen. no. 15: 83. 1904; Brandis, Ind. Trees: 387. 1906; Pitard in Lecomte, Fl. Gén. I.-C. 3: 332. 1924; Wood in Grierson & Long, Fl. Bhutan 2(2): 801. 1999. ____ *Ixora tomentosa* Roxb., [Hort. Beng.: 11. 1814, *nom. nud.* ex] Fl. Ind. 1: 396. 1820; Wight, Ic. Pl. Ind. Or. 1(10): pl. 186. 1839; Kurz, For. Fl. Burma 2: 19. 1877. ____ *P. tomentosa* Roth, Nov. Pl. Ind. Or.: 89. 1821; Wall. Cat. no. 6173A. 1831-1832. ____ *Ixora tomentosa* var. *roxburghii* Kurz, For. Fl. Burma. 2: 19. 1877. ____ *P. tomentosa* var. *roxburghii* (Kurz) Bremek. in Fedde, Repert. Spec. Nov. Regni Veg. 37: 114. 1934. ____ *P. velutina* Wall. Cat. no. 6174, *nom. nud.* ____ *P. mollis* R. Br. in Wall. Cat. no. 6179, *nom. nud.*

Shrub or tree 2-10 m high; branchlets angled, densely pubescent. *Leaves*: petiole 1-3 cm long, angled or slightly rounded, densely pubescent; blade elliptic, 8-15 by 4.5-9 cm, coriaceous, densely tomentose midrib and lateral nerves and leaf-surface sparsely pubescent on upper surface, densely tomentose on lower surface; base cuneate, apex obtuse or acute, margin entire, slightly undulate, sparsely scabrous; lateral nerves 10-12 pairs; stipules semi-triangular, covered along the margin, ocrea-like, 5-7 mm long, acute, linear-ridged, densely pubescent outside, sericeous inside. *Inflorescences* terminal, lax, densely pubescent, with up to 200 flowers; peduncle densely pubescent; bract 5-8 by 2.5-5 cm; pedicels 3-8 mm long, densely pubescent. *Calyx*: tube 0.7-0.8 mm long, sparsely pubescent; lobes dentate, 0.1-0.2 mm long, sparsely pubescent. *Corolla*: tube 6-12 mm long, glabrous outside, pilose less than half of the tube inside; lobes 5-7 mm long, pilose at base. *Stamens*: filaments 0.8-1 mm long, anthers 5-6 mm long. *Style* 2.5-3.5 cm long; stigma 4-6 mm long; ovary 1-1.2 mm long, densely pubescent. *Fruits* 5-6 mm diam., densely pubescent.

Thailand.— NORTHERN: Mae Hong Son, Chiang Mai, Chiang Rai, Nan, Lamphun, Lampang, Phrae, Tak, Sukhothai, Phitsanulok, Nakhon Sawan; NORTH-EASTERN: Phetchabun, Loei, Nong Bua Lam Phu, Nong Khai, Sakon Nakhon, Mukdahan, Kalasin, Maha Sarakham, Khon Kaen; EASTERN: Chaiyaphum, Nakhon Ratchasima, Surin, Ubon Ratchatani; SOUTH-WESTERN: Khanchanaburi; CENTRAL: Saraburi; SOUTH-EASTERN: Chonburi; PENINSULAR: Surat Thani.

Distribution.— India, Nepal, Myanmar, Laos, Cambodia, Vietnam, Peninsular Malaysia, Singapore.

Ecology.— In dry dipterocarp, mixed deciduous, hill evergreen, pie and dry evergreen forests, alt. 200-1,200 m.

Vernacular.— Khao san pa (ข้าวสารป่า), Khem phae (เข็มแพะ) (Chiang Mai).

Specimens examined.— *Adisai* 573 (BK); *BGO staff* 29 (QBG), 39 (QBG) & 711 (QBG); *S. Bunwong et al.* 172 (KKU) & 275 (KKU); *H.B.G. Garrett* 549 (K); *R. Geesink, D. Phanichapol & T. Santisuk* 5594 (C, K); *B. Jittahmmah* 140 (CMU); *Kasem* 151 (BK); *A.F.G. Kerr* 725 (BM, K), 12848 (BK) & 21520 (BK, BM); *F.H.W. Kerr* 98 (K); *M.C. Lakshnakara* 864 (BK); *K. Larsen & S. Larsen* 33913 (K) & 34028 (K); *S. Mattapha* 11 (KKU); *J.F. Maxwell* 72-298 (BK), 74-577 (BK), 75-411 (BK), 93-766 (CMU), 96-813 (CMU), 96-1250 (CMU), 97-575 (CMU) & 98-560 (CMU); *N. Morci* T232/1 (CMU); *B. Nimanong & S. Phusomsaeng* 301 (K); *Y. Paisooksantivatanan* Y 1633-85 (BK); *C. Plengkklai, M. Tamura, C. Niyomdham & B. Sangkhachand* 4196 (C, K); *R. Pooma* 1331 (CMU); *Pradit* 653 (BK); *Put* 4060 (BK); *J. Sadakorn* 565 (BK); *B. Sangkhachand* 976 (C, K); *P. Sangkhachand* 602 (BK), 965 (BK), 985 (BK), 1021 (BK) & 1532 (BK); *Sinchai* 651 (BCU); *G. Siridee* 17 (CMU); *K. Sridith* 139 (BCU); *P. Srisanga* 306 (QBG); *S. Suddee* 55 (BCU); *S. Suthesorn* 248 (BK), 661 (BK), 1178 (BK) & 2604 (BK); *O. Thaithong et al.* 13 (BCU); *J. Thangthong* 338 (KKU), 339 (KKU) & 340 (KKU); *Winai & Parinya* 387 (BK); *T. Winboonkoon* 309 (CMU); *C.F. van Beusekom & C. chareonpol* 2009 (C-2 sheets, K); *M. van de Bult* 9 (CMU); *Vanpruk* 185 (K); *Winit* 1735 (BK, K).

7. *Pavetta tomentosa* Roxb. ex Smith var. *glabrescens* (Kurz), Craib, Fl. Siam. Enum. 2: 171. 1934: Bremek. in Fedde, Repert, Spec. Nov. Regni Veg. 37: 114. 1934. _____ *Ixora tomentosa* Roxb. var. *glabrescens* Kurz, Forest Fl. Burma 2: 19. 1877. Type: Myanmar, ???

Shrub 30-100 cm high; branchlets densely pubescent. *Leaves*: petiole 1-2 cm long, densely pubescent; blade elliptic, 10-18 by 4-6 cm, coriaceous, sparsely tomentose midrib, lateral nerves, veinlets and leaf-surface on both surfaces; base cuneate, apex obtuse or acute, margin entire, sparsely pubescent; lateral nerves 10-13 pairs; stipules semi-triangular, covered along the margin, ocrea-like, 5-7 mm long, acute, needle-like, sparsely tomentose outside, densely sericeous inside. *Inflorescences* terminal, lax; peduncle sparsely tomentose; bract 7-10 by 2-4 cm; pedicels 3-8 mm long, sparsely tomentose. *Calyx*: tube 0.7-0.8 mm long, sparsely tomentose; lobes dentate, 0.1-0.2 mm long, sparsely pubescent. *Corolla*: tube 6-10 mm long, glabrous outside, pilose more than half of the tube inside; lobes 6-7 mm long, sparsely pilose at base. *Stamens*: filaments 0.8-1 mm long, anthers 5-6 mm long. *Style* 2.5-3.5 cm long; stigma 4-6 mm long; ovary 1-1.2 mm long, densely tomentose. Fruits 5-6 mm diam.

Thailand.— NORTH-EASTERN: Sakon Nakhon; EASTERN: Ubon Ratchatani; SOUTH-WESTERN: Ratchaburi, Prachuap Khiri Khan.

Distribution.— Myanmar, Cambodia.

Ecology.— Along streams or waterfalls in dry dipterocarp forests, Alt. 50-200 m.

Vernacular.— Khem (ເຂັ້ມ), Khem pa (ເຂັ້ມປ່າ).

Specimens examined.— *P. Chantaranonthai et al.* 157 (KKU); *D.J. Collins* 1598 (BK); *M.C. Lakshnakara* 70 (BK); *J. Thangthong* 341 (KKU).

8. *Pavetta* sp. A

Shrublet to shrub 30-50 cm high; branchlets sparsely scabrous. *Leaves*: petiole 8-10 mm long, sparsely scabrous; blade obovate, 7.5-9 by 3.6-4 cm; chartaceous, glabrous on upper surface, sparsely pubescent on lower surface; base cuneate, apex acute, margin entire, with 6-8 pairs of lateral nerves; stipules triangular, 3-5 mm long, cuspidate, sparsely scabrous outside, sericeous inside. *Inflorescences* terminal or axillary; bract 1.5-2.5 by 0.5-1 cm; pedicels 3-6 mm long, sparsely scabrous. *Calyx*: tube 0.2-0.3 mm long, sparsely scabrous; lobes dentate, 0.2-0.3 mm long, sparsely scabrous. *Corolla* white, tube 1.7-2 cm long, glabrous outside, densely pilose more than half of the tube inside; lobes 5-7 mm long, densely pilose at base. *Stamens*: filaments 0.7-0.8 mm long; anthers 4-5 mm long. *Style* 3.5-4 cm long; stigma 4-5 mm long; ovary 0.8-1 mm long, sparsely scabrous. *Fruits* 4-5 diam., glabrous.

Thailand.— NORTH-EASTERN: Sakon Nakhon.

Distribution.— Endemic to Thailand

Ecology.— Along stream in evergreen forest, alt. 350-450 m.

Vernacular.—

Specimens examined.— *J. Thangthong* 343 (KKU) & 344 (KKU).

Note.— *Pavetta* sp. A is similar to *P. graciliflora* but it differs in having pubescence on lower surface of leaf and scabrous calyx and ovary.