

## Contributions to the Flora of Southeast Asia

### VI. Additions and Corrections to the Knowledge of Labiatae in Thailand (1)

Gen MURATA\*

*A List of Labiatae Known from Thailand* was published in 1971 as a fourth article of this series in *the Southeast Asian Studies* **8**: 489–517, based chiefly on the materials deposited in the herbaria of AAU,C,KYO and TI. Since then, many additional specimens of Labiatae have been brought from Thailand to the herbarium of Kyoto University (KYO). I myself had two chances to explore actually various localities in Thailand in 1971 and 1973. I had also a chance to examine the specimens kept in the herbarium of the Department of Agriculture at Bangkok (BK) and in the Forest Herbarium, Royal Forest Department at Bangkok (BKF). A considerable number of specimens of Labiatae from Thailand and Indochina were sent on loan from Museum National d'Histoire Naturelle, Paris (P) for my study. Examination of these specimens as well as the field observation bring me to prepare a paper for additions and corrections to my earlier paper.

Before going further, I would like to express my deep appreciations to the directors and the curators of the above stated Herbaria. Dr. Tem Smitinand and Mr. Chamlong Phengkklai, Royal Forest Department, and Miss Umpai Youngboonkird, Department of Agriculture, helped me in various ways when I visited their herbaria. I am also grateful to Dr J. Vidal at Paris who recommended me to study the specimens from Thailand and Indochina in Paris and gave me various suggestions. The two field trips were financially supported by the Ministry of Education through the Center for Southeast Asian Studies, Kyoto University. This study was made possible in part by the Grant in Aid of Scientific Research of Ministry of Education, No. 034047.

#### **Achyropermum** BLUME

**Achyropermum densiflorum** BLUME, Bijdr. 841 (1826); BENTH. in DC. Prodr. **12**: 458 (1848); MIQ. Fl. Ind. Bat. **2**: 989 (1856); HOOK. f. Fl. Brit. Ind. **4**: 673 (1885) in nota; MERR. Enum. Philip. Fl. Pl. **3**: 412 (1923); BACK. & BAKH. f. Fl. Jav. **2**: 624 (1963); KENG in Gard. Bull. Sing. **24**: 23, f. 1 (1969); MURATA in Acta Phytotax. Geobot. **25**: 106 (1973).

*A. phlomoides* BLUME, l. c. 841 (1826); MIQ. l. c. 990 (1856).

*A. Wallichianum* (BENTH.) BENTH. ex HOOK. f. l. c. 673 (1885); MURATA in SE. Asian Stud. **8**: 490 (1971).

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*A. philippinense* BENTH. in DC. Prodr. **12**: 458 (1848); MIQ. l. c. 990 (1856).

*Teucrium Wallichianum* BENTH. in WALL. Pl. As. Rar. **2**: 19 (1831), Lab. Gen. & Sp. 671 (1835) & in DC. Prodr. **12**: 580 (1848); WALL. Cat. No. 2758.

**N.** Chiang Mai: Doi Chiang Dao (*Put 4424* BK); Chiang Rai: Doi Saket (*Put 3269* BK), Doi Nanh Ka (*Put 3481* BK); Nakhon Sawan: Tak (*Umpai 2* BK). **NE.** Loei: Phu Luang, 1300 m (*Chermsirivathana 1072* BK), same loc. 700 m (*Chermsirivathana 1037* BK), Phu Kradung, 1045 m (*Din 57* BKF), Sun-kae, Phu Kradung, 800 m (*Din 58* BKF), S of Loi, Phu Kradung, 700-1100 m (*Charaenphal et al. 4858* AAU). **SE.** Chanthaburi: Baw Rai, Kurat, 600 m (*Kerr 9488* BK), Pong Namrawn, 700 m (*Sangkhachand 526* BKF). **SW.** Ratchaburi: Takanum, Kanburi (*Chermsirivathana 692* BK); Kanchanaburi: Huay Bankau (*Beusekom et al. 3739* C, L, BKF, KYO). **E.** Chaiphum: Vunkamang (*Beusekom et al. 4403* C, L, BKF, KYO); Chanthaburi: Soidao, 2-300 m (*Sørensen et al. 346* C).

Distribution: Sikkim, Bhutan, Assam, Burma, Thailand, Sumatra, Java, and Philippines.

The Himalayan and Thai specimens (*A. Wallichianum* BENTH.) agree well with Indonesian specimens including the type specimen (*Blume 1561* BO) of *A. densiflorum* BLUME.

#### Acrocephalus BENTH.

**Acrocephalus indicus** (BURM. f.) O. KUNTZE; BACK. & BAKH. f. Fl. Jav. **2**: 638 (1965); KENG in Gard. Bull. Sing. **25**: 26, f. 2 a-g (1968); MURATA in SE Asian Stud. **8**: 490 (1971).

**N.** Chiang Mai: Chiang Mai (*Kerr 1524-B. K,C,P,BO*), Chiandao (*Adisai 905* BK); Nakhon Sawan: Doi Tung Cha, 500 m (*Kerr 4604* BK), Raheng (*Lindhard 22* C). **E.** Nakhon Ratchasima: Khao Yai National Park, 800 m (*Smitinand 5739* BKF). **SW.** Kanchanaburi: Huay Bankau (*Beusekom et al. 3624* L, BKF, KYO). **P.** Nakhon Si Thammarat: Padaung Besar (*Kerr 13609* BK).

#### Ajuga L.

**Ajuga macrosperma** WALL.; MURATA in SE Asian Stud. **8**: 490 (1971).

*Perilla ocymoides* sensu MUSCHLER ex HOSSEUS in Beih. Bot. Centralbl. **17-2**: 498 (1910); HOSSEUS, *ibid.* **28-2**: 433 (1911), non L.

**N.** Chiang Mai: Doi Chiang Dao (*Hosseus 408-a* P), Khunhong, 1100 m (*Smitinand 8779* BKF), same loc. 1200 m (*K. Larsen et al. 2926* AAU, KYO), Doi Pu Ka, Nan, 900 m (*Kerr 4948* BK).

Although the HOSSEUS's specimen, No. 408-a, was reported as *Perilla ocymoides* by HOSSEUS, it is identical with this species.

#### Anisochilus WALL.

**Anisochilus carnosus** (L.) WALL. ex BENTH. in WALL. Pl. As. Rar. **2**: 18 (1831), Lab. Gen. & Sp. 59 (1832) & in DC. Prodr. **12**: 81 (1848); WIGHT, Ill. **2**: t. 176 b, f. 1 (1850); HOOK. f. Fl. Brit. Ind. **4**: 627 (1885); COLLETT & HEMSL. in Journ. Linn. Soc. Bot. **28**: 113 (1890); MUKERJEE in Rec. Bot. Surv. Ind. **14**: 58 (1940); MURATA in HARA, Fl. East. Himal. 271 (1966).

*Lavandula carnosus* L. Amoen. Acad. **10**: 56, t. 3 (1790).

*Plectranthus strobiliferus* ROXB. Hort. Beng. 45 (1814), nom. nud. & Fl. Ind. **3**: 23 (1832).

*P. dubius* SPRENG. Syst. Veg. **2**: 691 (1825).

*Anisochilus glaber* SCHRAD. Ind. Sem. Hort. Goett. **1833**: 1 (1833).

*A. crassus* BENTH. in DC. Prodr. **12**: 81 (1848).

N. Chiang Mai: Khao Chiang Dao (*Bunchuai* 1355 BKF), Doi Koon Krong (*Adisai* 696 BK), Mae Hong Son: 500–600 m (*K. Larsen & S. Larsen* 34291 AAU). SW. Prachuap: Hai Yang Fall (*Cherm-sirivathana* 174 BK), Hui Yang (*Put* 3204 BK).

Distribution: India, Ceylon, Nepal, Bhutan, Burma, and Thailand.

**Anisochilus Harmandii** DOAN in LECOMTE, Fl. Gén. Indo-Chine **4**: 943, f. 99, 11–13 (1936).

SE. Chanthaburi: Makham, Noen Dan, 50 m (*Smitinand* 3602 BKF), between Makham and Khao Kluea, 100 m (*Smitinand* 3936 BKF), Na Kleor, Chantaburi (*Sakol* 289 BKF). NE. Udon Thani: Pu Wat, Nakawn Panom, 300 m (*Kerr* 21499 BK); Sakon Nakhon: Lardkracher, Sakol Nakorn (*Adisai* 152 BK).

Distribution: Cambodia and Thailand.

**Anisochilus pallidus** WALL. ex BENTH. in WALL. Pl. As. Rar. **2**: 18 (1831); DOAN, l. c. 942 (1936); MURATA in SE Asian Stud. **8**: 491 (1971).

N. Chiang Mai: Chiang Dao (*Smitinand* 3949 BKF, *Adisai* 724 BK), same loc. 1400 m (*Kerr* 6521 BK), Doi Inthanon (*Bunchuai* 1448 BKF,P,C).

#### **Anisomeles** R. BR.

**Anisomeles indica** (L.) O. KUNTZE; MURATA in SE Asian Stud. **8**: 492 (1971).

*A. candicans* sensu MURATA, l. c. 491 (1971), non BENTH.

*Epileredia indica* (L.) ROTHM. in FEDD. Repert. Sp. Nov. **53**: 12 (1944); H.-W. LI in Acta Phytotax. Sin. **13**: 74 (1975).

N. Chiang Mai: Doi Chiang Dao (*Vidal* 5152 P, AAU, *Murata et al.* T-14906 BKF, KYO, 14942 BKF, KYO, L, & 14914 KYO), Doi Inthanon (*K. Larsen* 34464 AAU), Doi Suthep (*K. Larsen & Hansen* 5924 C, *Sørensen et al.* 4725 C, *Kerr* 1490 & 2241 P), Doi Koung Krong (*Adisai* 304 BK), Pha Mawn (*Murata et al.* T-1580 KYO); Chiang Rai: Chun (*Nmanong & Phusomsaeng* 109 BKF); Mae Hong Son: Khum Yuam, 600–700 m (*K. Larsen & S. Larsen* 34226 AAU); Phitsanulok: Nakawn Tai (*Prayad* 686 BK); Nakhon Sawan: Raheng (*Lindhard* 79 C), Kao Tatu, 100 m (*K. Larsen* 8337 C). NE. Loei: Ban Na Luang (*Cherm-sirivathana* 686 BK). C. Saraburi: Sahm Lahu (*Maxwell* 73–657 AAU); Nakhon Nayok: Kao Peang (*S & J* 1924 BK). SW. Kanchanaburi: Kuay Bankau (*Beusekom et al.* 3674 L, C, *Beusekom et al.* 3559 L, C, KYO), W of Sri Sawat, 600–700 m (*K. Larsen & S. Larsen* 33884 AAU), Sai Yok (*K. Larsen* 8629 C); Ratchaburi: Wang Pho (*Cherm-sirivathana* 486 BK). SE. Prachin Buri: (*Adisai* 704 BK). P. Surat: Tung, Petchaburi (*Kerr* 20590 BK); Nakhon Si Thammarat: Padang Besar (*Kerr* 13613 BK).

#### **Basilicum** MOENCH.

**Basilicum polystachyon** (L.) MOENCH. Suppl. Meth. Pl. 143 (1802); MORTON in HUTCH. & DALZ. Fl. W. Trop. Afr. **2**: 454 (1963); KENG in Gard. Bull. Sing. **24**: 39 (1969).

*Moschosma polystachyum* (L.) BENTH.; MURATA in SE Asian Stud. **8**: 509 (1971).

*Ocimum Tashiroi* HAYATA, Icon. Pl. Formos. [**8**: 109 (1919), nom. nud.] **9**: 86 (1920); KUDO, Lab. Sino-Jap. Prodr. 115 (1929).

C. Bangkok (*Kerr 4366* BK). SW. Petchaburi (*Pierre 3215* P); Ratchaburi: Wang Kanai, Kanburi (*Kerr 12829* BK), Cha Aum (*Sokal 512* BK); Prachuap Khiri Khan: Pak Tawan (*Kerr 20507* BK).

### **Ceratanthus** F. MUELL. ex G. TAYLOR

**Ceratanthus annamensis** G. TAYLOR in Journ. Bot. **74**: 39 (1936); DOAN in LECOMTE, Fl. Gén. Indo-Chin. **4**: 953 (1936).

N. Lampang, 440 m (*Winit 570* BK, BKF). SW. Kanchanaburi: Ku-Jae, NW of Kanburi, 100–150 m (*Kostermans 1305* P,C). NE. Sakon Nakhon: Poo-Parm, Sakolnakorn (*Pradit 411* BK, *Lakshnakara 1011* BK).

Distribution: Vietnam and Thailand.

**Ceratanthus Garrettii** (CRAIB) G. TAYLOR in Journ. Bot. **74**: 40 (1936).

*Plectranthus Garrettii* CRAIB in Kew Bull. **1914**: 132 (1914).

N. Chiang Mai: Doi Angka (Inthanon), 1140 m (Garrett 65 Isotype BKF).

Distribution: endemic to Thailand.

**Ceratanthus Kerrii** DOAN in LECOMTE, Fl. Gén. Indo-Chin. **4**: 953 (1936); MURATA in SE Asian Stud. **8**: 492 (1971).

SE. Prachin Buri: Aran Pratet (*Kerr 19573* BK).

**Ceratanthus stolonifer** G. TAYLOR in Journ. Bot. **74**: 30 (1936); DOAN, l. c. 952 (1936).

SE. Chantaburi: Klawng Non Si (*Kerr 9180* BK).

Distribution: Laos, Thailand, and Cambodia.

### **Clinopodium** L.

**Clinopodium umbrosum** (BIEB.) C. KOCH in Linnaea **21**: 673 (1848); BORISS. in Fl. URSS **21**: 439 (1954); MURATA in Acta Phytotax. Geobot. **24**: 77 (1969).

*Melissa umbrosa* BIEB. Fl. Taur. Cauc. **2**: 63 (1808); WIGHT, Ic. t. 1447 (1850).

*Calamintha umbrosa* (BIEB.) BENTH. in DC. Prodr. **12**: 233 (1848); HOOK. f. Fl. Brit. Ind. **4**: 450 (1885); MERR. Enum. Philip. Fl. Pl. **3**: 410 (1923); MUKERJEE in Rec. Bot. Surv. Ind. **14**: 98 (1940); KENG in Gard. Bull. Sing. **24**: 43 (1969), excl. var. *javanica*.

*Satureia umbrosa* (BIEB.) SCHEELE in Flora **26**: 577 (1843).

*Thymus repens* D. DON, Prodr. Fl. Nepal. 113 (1825).

*Clinopodium repens* (D. DON) WALL. ex BENTH. in WALL. Pl. As. Rar. **1**: 66 (1830); H.-W. LI in Acta Phytotax. Sin. **12**: 217 (1974).

*Calamintha repens* (D. DON) BENTH. in DC. Prodr. **12**: 232 (1848); HAND.-MAZZ. Symb. Sin. **7**: 931 (1936).

*Satureia umbrosa* var. *repens* (D. DON) BRIQ. in ENGL. & PR. Pfl.-fam. IV **3-a**: 302

(1897); BACK. & BAKH. f. Fl. Jav. **2**: 630 (1965), p.p.

*Satureia chinensis* BRIQ. *ε. repens* (D. DON) KUDO, Lab. Sino-Jap. Prodr. 104 (1929).

N. Nan: Pu Huat (*Kerr 4997* BK).

Distribution: Caucasus, Iran, Afghanistan, India, Nepal, Bhutan, Burma, Thailand, China, Formosa, Philippines, Lesser Sunda Isls, Java, and Sumatra.

### **Colebrookia** SMITH

**Colebrookia oppositifolia** SMITH; MURATA in SE Asian Stud. **8**: 492 (1971).

N. Chiang Mai: Doi Chiang Dao (*Hosseus 412 P,C, Put 4511* BK, *Abbe & Smitinand 9316* BKF, *Smitinand 4205* BKF), same loc. 600 m (*Tagawa et al. T-4057* KYO), same loc. 1100 m (*Sørensen et al. 1262* C), Pan Mapha, 800 m (*Hansen & Smitinand 12747* C).

### **Coleus** LOUR.

**Coleus calcicola** MURATA; SE Asian Stud. **8**: 493 (1971).

N. Chiang Mai: Doi Chiang Dao (*Put 413* BK, *Shimizu et al. T-10052* KYO, BKF, *Murata et al. T-15265* KYO, BKF, AAU, P, K, T, SIN, *Vidal 5199* P, *Vidal 5239* P, AAU).

**Coleus Forskohlilii** (WILLD.) BRIQ. in ENGL. & PR. Pfl.-fam. IV, **3-a**: 359 (1897); MUKERJEE in Rec. Bot. Surv. Ind. **14**: 53 (1940); MURATA in Acta Phytotax. Geobot. **24**: 78 (1969).

*C. barbatus* (ANDR.) BENTH. in WALL. Pl. As. Rar. **2**: 15 (1831); HOOK. f. Fl. Brit. Ind. **4**: 625 (1885).

*Plectranthus Forskolaei* WILLD. Sp. Pl. **3**: 169 (1800); Bot. Mag. t. 2036 (1819).

*P. barbatus* ANDR. Bot. Reg. t. 594 (1809).

*P. asper* SPRENG. Syst. **2**: 690 (1825).

*Germanea Forskolaei* POIR. Dict. suppl. **2**: 764 (1811).

*Ocimum asperum* ROTH. Nov. Sp. 268 (1821).

N. Chiang Mai: Keng Soi, Payap (*Kerr 4636* BK).

Distribution: Tropical Africa, Ceylon, Nepal, Sikkim, Bhutan, India, nad Thailand.

**Coleus parviflorus** BENTH. in DC. Prodr. **12**: 72 (1848); HOOK. f. Fl. Br. Ind. **4**: 625 (1885); DOAN in LECOMTE, Fl. Gén. Indo-Chin. **4**: 957 (1936); MUKERJEE, l. c. 54 (1940); BACK. & BAKH. f. Fl. Jav. **2**: 637 (1965).

*C. tuberosus* (BL.) BENTH. Lab. Gen. & Sp. 59 (1832), non RICH.

*Plectranthus tuberosus* BL. Bijdr. 838 (1826).

Without locality (*Winit 173* BKF, *Schomburgk 297* P).

Cultivated for the edible roots, native of India.

**Coleus scutellarioides** (L.) BENTH. in WALL. Pl. As. Rar. **2**: 16 (1831), Lab. Gen. & Sp. 53 (1832) & in DC. Prodr. **12**: 73 (1848); MUKERJEE, l. c. 54 (1940); BACK. & BAKH. f. Fl. Jav. **2**: 637 (1965); KENG in Gard. Bull. Sing. **24**: 51 (1969); WALKER, Fl. Okinawa 904 (1976).

*C. atropurpureus* BENTH. in WALL. Pl. As. Rar. **2**: 16 (1831); MURATA in SE Asian Stud. **8**: 492 (1971).

*C. Blumei* BENTH. Lab. Gen. & Sp. 56 (1832) & in DC. Prodr. **12**: 75 (1848); MERR. Enum. Philip. Fl. Pl. **3**: 419 (1923); MUKERJEE, l. c. 55 (1940).

*Ocimum scutellarioides* L. Sp. Pl. ed. 2, 834 (1768); Bot. Mag. t. 1446 (1812).

P. Nakhon Si Thammarat: Wat Kiriwong (*Kerr 15584* BK).

Var. **crispipilus** (MERR.) KENG in Gard. Bull. Sing. **24**: 56 (1969).

*C. macranthus* MERR. var. *crispipilus* MERR. in Philip. Journ. Sci. **1**: suppl. 234 (1906).

*C. crispipilus* (MERR.) MERR. in Philip. Journ. Sci. Bot. **5**: 383 (1910) & Enum. Philip. Fl. Pl. **3**: 419 (1923).

*C. pumilus* BLANCO, Fl. Philip. 482 (1837), ed 2, 336 (1845), ed. 3, 257 (1878); BENTH. in DC. Prodr. **12**: 78 (1848); MERR. Enum. Philip. Fl. Pl. **3**: 420 (1923); Icon. Cormophyt. Sin. **3**: 703 f. 5359 (1974).

*C. formosanus* HAYATA in MATSUM. & HAYATA, Enum. Pl. Formos. 320 (1906); KUDO, Lab. Sino-Jap. Prodr. 145 (1929); HATUSIMA, Fl. Ryuky. 527 (1971).

*C. mucosus* HAYATA, Mater. Fl. Formos. 225 (1911).

*C. Esquirolii* (LÉV.) DUNN in Notes Bot. Gard. Edinb. No. **37**: 158 (1913) & ibid. No. **28**: 144 (1915); KUDO, l. c. 144 (1929).

*Calamintha Esquirolii* LÉV. in FEDD. Repert. Nov. Sp. **8**: 450 (1910).

SW. Kanchanaburi: Takanum, Kanburi, 400 m (*Kerr 10524* BK).

Distribution: S. China, Thailand, Formosa, Philippines.

### Colquhounia WALL.

**Colquhounia coccinea** WALL. var. **mollis** (SCHL.) PRAIN; WU in Acta Phytotax. Sin. **8**: 40 (1959); MURATA in SE Asian Stud. **8**: 493 (1971).

N. Chiang Mai: Doi Chiang Dao (*Kerr 6603* BK, *Hennipman 3297* L, BKF, C, KYO, *Smitinand & Abbe 6237* BKF).

**Colquhounia elegans** WALL.; MURATA, l. c. (1971).

N. Chiang Mai: Doi Chiang Dao (*Put 4433* BK, SIN, *Sørensen et al. 1225* C, KYO, *Fukuoka T-4353-bis*. KYO), Doi Suthep (*Smitinand 192* BKF, *Chermsirivathana 444* BK), Doi Inthanon (Anka) (*Lakshnakara 1468* BK), Doi Tat (*Garrett 129* BK, BKF), Doi Nang Keo (*Kerr 2525* P), Mé Kang, 1100 m (*Winit 1325* BK), Pang Mapha (*Hansen & Smitinand 12726* C, AAU, BKF, P), Ban Kae, S of Mae Chem, 1000 m (*Hansen et al. 11051* BKF, C). NE. Loei: Phurua, Loi (*Umpai 325* BK).

**Colquhounia tenuiflora** HOOK. f. Fl. Brit. Ind. **4**: 674 (1885).

*C. elegans* var. *tenuiflora* (HOOK. f.) PRAIN; WU in Acta Phytotax. Sin. **8**: 43 (1959); MURATA, l. c. 494 (1971).

*Stachys siamensis* MUSCHLER ex HOSSEUS in Beih. Bot. Centralb. **27-2**: 491 (1910).

N. Chiang Mai: Doi Suthep (*Kerr 1680* P, BO, C, *Collins 1214* BK, *Sukkri 42* BK, *Sørensen et al. 6929* C, BKF, KYO, *Tantisewie & Phengkhai 702* C); Mae Hong Son: Doi Chon, 1600 m (*Hansen & Smitinand*

12611 BKF,P,C); Phitsanulok: Phu Miang (*Hansen et al. 11113 C,BKF*). NE. Udon Thani: Poo Kradeng, 1250 m (*Sørensen et al. 2395 C*).

### **Cymaria** BENTH.

**Cymaria acuminata** DECNE. Nouv. Ann. Mus. Hist. Nat. Paris **3**: 71 (1834); DELESS. Ic. Pl. **3**: t. 86 (1837); BENTH. in DC. Prodr. **12**: 602 (1848); MIQ. Fl. Ind. Bat. **2**: 992 (1856); MERR. Enum. Philip. Fl. Pl. **3**: 408 (1923); BACK. & BAKH. f. Fl. Jav. **2**: 617 (1965); KENG in Gard. Bull. Sing. **24**: 63, f. 10 (1969).

*C. dichotoma* sensu DOAN in LECOMTE, Fl. Gén. Indo-Chin. **4**: 1043 (1936); MURATA in SE Asian Stud. **8**: 491 (1971), p. p.

*Anthocoma flavescens* ZOLL. Nat. Geneesk. Arch. Neerl. Ind. **2**: 569 (1846).

SW. Rachtchaburi: Hui Yang, 1100 m (*Kerr 10877 BK*), Sam Roy Yot, 100 m (*K. Larsen et al. 1180 AAU,KYO,P*), W of Huai Yang, 250 m (*K. Larsen et al. 1605 AAU,KYO,P*). P. Puket: Ban Kawp Kep (*Kerr 13349 BK*); Pattani: Banang Sta (*Kerr 7697 BK*); Surat Thani: Siep Yuan (*Put 943 BK,SIN*).

Distribution: China (Hainan), Cambodia, Thailand, Malay Peninsula, Java, Timor, Celebes, Philippines, and New Guinea.

**Cymaria dichotoma** BENTH.; KENG, l. c. 65 (1969); MURATA in SE Asian Stud. **8**: 491 (1971), p. p. incl. syn.

N. Chiang Mai: Keng Soi, Payap, 200–400 m (*Kerr 4640 BK*), NE. Loei: Pha Nok Khao, S of Loi, 250–350 m (*Charoenphol et al. 4565 AAU*), Pha Nuk Khao, 300 m (*Tagawa et al. T-298 KYO, Shimizu et al. T-8708 KYO*). SW. Ratchaburi: Sam Roi Yawt (*Put 2517 BK,SIN, Kerr 10953 BK*), Kao Dang, Prachuap (*Adisai 928 BK*); Kanchanaburi: Erawan Waterfall (*Chermsirivathana 625 BK, Murata et al. T-16165 KYO*), Si Sawat (*Prayad 1537 BK, Beusekom et al. 3408 L,C,BKF,KYO*); Prachuap Kiri Khan: Kaw Wieng, Surat (*Kerr 11364 BK*) C. Saraburi: Ban Naung Bua (*Put 1104 BK*); Ayutthaya: Doang Paya Yen (*Kerr 7999 BK*).

### **Elsholtzia** WILLD.

**Elsholtzia blanda** (BENTH.) BENTH.; MURATA in SE Asian Stud. **8**: 497 (1971).

N. Chiang Mai: Doi Suthep (*Hosseus 239 P, Kerr 1588-B P, K. Larsen & Hansen 947 C, Chermsirivathana 545 BK*), Doi Chiang Dao (*Kerr 6562 BK, Put 4428 BK*), Doi Inthanon (Angka), 2130 m (*Garrett 92 BK*), Poh Hom Pok (*Sørensen et al. 1622 C*), Pha Mawn, 1200 m (*Smitinand & Alsterlund 6728 BK*); Phitsanulok: Phu Miang (*S. P. et al. 51919 BKF,KYO*).

**Elsholtzia communis** (COLL. et HEMSL.) DIELS in Notes Bot. Gard. Edinb. No. **31**: 47 (1912); DUNN, *ibid.* No. **28**: 150 (1915); DOAN in LECOMTE, Fl. Gén. Indo-Chin. **4**: 979 (1936); MUKERJEE in Rec. Bot. Surv. Ind. **14**: 90 (1940).

*Dysophylla communis* COLL. et HEMSL. in Journ. Linn. Soc. **28**: 114 (1891).

*Aphanochilus communis* (COLL. et HEMSL.) KUDO, Lab. Sino-Jap. Prodr. 62 (1929).

N. Chiang Mai: Doi Chiang Dao, 1400 m (*Kerr 4529 BK, Lakshnakara 1520 BK*), same loc. 430 m (*Garrett 1421 P*).

Distribution: S. China, Burma, and Thailand.

**Elsholtzia kachinensis** PRAIN in Journ. As. Soc. Beng. **73**: 206 (1904); DUNN in Notes Bot. Gard. Edinb. No. **28**: 152 (1915); KUDO, Lab. Sino.-Jap. Prodr. 69 (1929); MUKERJEE, l. c. 92 (1940).

N. Chiang Mai: Pang Tawn (*Put 3881* BK,P,SIN), Doi Nang Ka (*Put 3478* P,SIN,BK).

Distribution: China (Yunnan), Burma, and Thailand.

**Elsholtzia pilosa** (BENTH.) BENTH. Lab. Gen. & Sp. 163 (1833) & in DC. Prodr. **12**: 162 (1848); HOOK. f. Fl. Brit. Ind. **4**: 644 (1885); DOAN in LECOMTE, Fl. Gén. Indo-Chin. **4**: 979 (1936); MUKERJEE, l. c. 88 (1940); MURATA in HARA, Fl. East. Himal. 274 (1966).

*Aphanochilus pilosa* BENTH. [WALL. Cat. No. 1556 (1829), nom. nud.] in WALL. Pl. As. Rar. **1**: 30 (1830); KUDO, l. c. 60 (1929).

N. Chiang Mai: Doi Chiang Dao (*Kerr 6418* BK).

Distribution: Nepal, Sikkim, China (Yunnan), Vietnam, and Thailand.

**Elsholtzia Winitiana** CRAIB; MURATA in SE Asian Stud. **8**: 497 (1971).

N. Chiang Mai: Doi Chiang Dao (*Smitinand 7867* BKF, *Sørensen et al. 1297* C), Chiang Dao, Pang Boh, 1000 m (*Chermsirivathana 317* BK,BKF), Doi Suthep (*Sørensen et al. 2746* C), Bo Luang—Om Kai, 1000 m (*Hansen et al. 10789* C, BKF, *Sangkhachand 126* BK), Pha Mawn, 1200 m (*Smitinand & Alsterlung 6729* BKF), Doi Inthanon (*Chermsirivathana 749* BK, *Smitinand 10282* BKF).

#### Eurysolen PRAIN

**Eurysolen gracilis** PRAIN, Sc. Mem. Med. Offic. Ind. **11**: 44 (1898) & in Ann. Roy. Bot. Gard. Calc. **9**: 61, pl. 75 (1906); KUDO, Lab. Sino.-Jap. Prodr. 276 (1929); MUKERJEE in Rec. Bot. Surv. Ind. **14**: 227 (1940); WU in Acta Phytotax. Sin. **8**: 2 (1959); KENG in Gard. Bull. Sing. **24**: 77 (1969).

*Pogostemon Wattii* sensu MURATA in SE Asian Stud. **8**: 515 (1971), non C. B. CLARKE.

N. Chiang Mai: Doi Chiang Dao (*Put 4404* BK, *Adisai 676* BK, *Sørensen et al. 1288* C,BKF, *Hennipman 3215* BKF), Doi Suthep (*Sørensen et al. 3046, 6555* C,BKF, *Kasin* BK), Doi Luang (*Phusomsaeng 39* BKF). NE. Udon Thani: Phu Luang, Loei (*Tagawa et al. T-1042* KYO, *Chermsirivathana 1050* BK), Sum Kai, Phukrading (*Din 38* BKF). E. Chaiyaphum: Nam Phrom (*Beusekom et al. 4182* C,L,KYO); Nakhon Ratchasima: Ban Ta Chang, Korat (*Put 3502* BK), Kao Lem (*Kerr 9898* BK), Klawng Dong (*Phengkhlai 414* C,BKF).

Distr. Burma, Thailand, China (Yunnan), Sumatra, Java, and Lesser Sunda Islands.

#### Eusteralis RAFIN.

Fl. Tellur. **2**: 95 (1836); v. STEENIS in Taxon **17**: 236 (1968).

*Dysophylla* (non BL.) EL-GAZZAR et L. WATSON ex AIRY SHAW in Taxon **16**: 190 (1967).

*Dysophylla* sect. *Verticillatae* BENTH. Lab. Gen. & Sp. 158 (1833).

*Dysophylla* sect. *Chotekia* KUDO, Lab. Sino.-Jap. Prodr. 47 (1929).

**Eusteralis pumila** (GRAH.) RAFIN. Fl. Tellur. **2**: 95 (1836).

*Dysophylla crassicaulis* BENTH. [in WALL. Cat. No. 1545 (1829), nom. nud.] in WALL. Pl. As. Rar. **1**: 30 (1930); MURATA in SE Asian Stud. **8**: 495 (1971).



*D. pumila* (GRAH.) BENTH. in WALL. Pl. As. Rar. **1**: 30 (1830).

*D. crassicaulis* var. *pumila* (GRAH.) HOOK. f. Fl. Brit. Ind. **4**: 640 (1885); MUKERJEE in Rec. Bot. Surv. Ind. **14**: 82 (1940).

*Mentha pumila* GRAH. in Edinb. New Philos. Journ. **1828**: 393 (1828).

*Mentha verticillata* DON, Prodr. Fl. Nepal. 114 (1825), non L. (1758); HOOK. Bot. Mag. t. 2907 (1829).

I have not seen specimens from Thailand.

**Eusteralis Halferi** (HOOK. f.) MURATA, comb. nov.

*Dysophylla Halferi* HOOK. f. Fl. Brit. Ind. **4**: 640 (1885); MURATA in SE Asian Stud. **8**: 496 (1971).

I have not seen specimens from Thailand.

**Eusteralis linearis** (BENTH.) MURATA, comb. nov.

*Dysophylla linearis* BENTH. in DC. Prodr. **12**: 157 (1848); MURATA in SE Asian Stud. **8**: 496 (1971).

I have not seen specimens from Thailand.

**Eusteralis peguana** (PRAIN) MURATA, comb. nov.

*Dysophylla peguana* PRAIN in Journ. As. Soc. Beng. **59**: 292 (1891); MURATA in SE Asian Stud. **8**: 496 (1971).

*Dysophylla Koehneana* MUSCHLER in FEDD. Repert. Sp. Nov. **4**: 269 (1907); MURATA, l. c., syn. nov.

N. Chiang Mai: Doi Inthanon (Angka), Ban Tang (*Hosseus* 704, Type specimen of *D. Koehneana* P). E. Nakhon Ratchasima: Pok Tong Chai, Korat (*Kerr* 8123 BK). SE. Prachin Buri: Aran Pratet (*Put* 1971 BK,SIN), Kao Beeb (*Sokal* 71 BK). SW. Kanchanaburi: Kanburi (*Winit* 547 BK).

**Eusteralis pentagona** (CLARKE ex HOOK. f.) MURATA, comb. nov.

*Dysophylla pentagona* CLARKE ex HOOK. f. Fl. Brit. Ind. **4**: 641 (1885); MURATA in SE Asian Stud. **8**: 496 (1971).

N. Chiang Mai: Doi Suthep (*Hosseus* 489-a P, *Kerr* 1465 C,BO,P), Doi Inthanon (*Garrett* 56 BKF,P), Pha Mawn—Doi Inthanon (*Murata et al.* T-15880 BKF,KYO,P,AAU,TI), near Bo Luang, 1050m (*Geesink et al.* 5870 L,AAU,KYO), Ban Ta Fang (*Vidal* 5370 P,AAU). NE. Petchabun: Lom Kaw (*Tem & Ploochitt* 517 BKF).

**Eusteralis quadrifolia** (DON) MURATA, comb. nov.

*Mentha quadrifolia* DON, Prodr. Fl. Nep. 113 (1825), non ROXB. (1832).

*Dysophylla cruciata* BENTH. [in WALL. Cat. No. 1541 (1829), nom. nud.] in WALL. Pl. As. Rar. **1**: 30 (1830); MURATA in SE Asian Stud. **8**: 495 (1971).

*Dysophylla Petelotii* DOAN in LECOMTE, Fl. Gén. Indo-Chin. **4**: 967 (1936), syn. nov.

N. Chiang Mai: W of Bo Luang, 1100 m (*Hansen et al.* 11008 C,BKF), Om Koi, 900 m (*Hansen et al.* 10824 C,BKF). NE. Udon Thani: Phu Krading (*Sørensen et al.* 6313 C,BKF, *Hennipman* 3700 C,BKF, KYO); Loei: Pu Krading (*Umpai*, 127 BK, 118 BK, *Kerr* 20107 BK), Poo Veing, Komkan (*Pradit &*

*Adisai* 360 BK, *Prayad* 1047 BK); Sakon Nakhon: Ban Aom (*Adisai* 200 BK). E. Chaiyaphum: Tunkamang, 800 m (v. *Beusekom et al.* 4263 L,C,KYO). SE. Prachin Buri: Aran Pratet (*Put* 1971 BK).

**Eusteralis stellata** (LOUR.) MURATA, comb. nov.

*Mentha stellata* LOUR. Fl. Cochinch. **2**: 361 (1790).

*Dysophylla stellata* (LOUR.) BENTH. ex KENG in Gard. Bull. Sing. **24**: 70 (1969); H.-W. LI in Acta Phytotax. Sin. **13**: 76 (1975), non *D. stellata* BENTH. (1830).

*Mentha verticillata* ROXB. [Hort. Beng. 44 (1814), nom. nud.] Fl. Ind. ed 2, **3**: 5 (1832), non L. (1758), nec D. DON (1825).

*Dysophylla verticillata* BENTH. [in WALL. Cat. No. 1544 (1829), nom. nud.] in WALL. Pl. As. Rar. **1**: 30 (1830); MURATA in SE Asian Stud. **8**: 496 (1971).

N. Chiang Mai: Ban Ta Dua, Payap (*Kerr* 4663 BK), Meh Tang, N of Chiang Mai (*Sprengsen et al.* 5772 C). P. Surat Thani: Wat Spa Uhm (*Seidenfaden* 2200 SIN).

### Geniosporum WALL.

**Geniosporum coloratum** (DON) O. KUNTZE; MURATA in SE Asian Stud. **8**: 498 (1971).

*G. Taylori* sensu MURATA, l.c., non DOAN (1936).

N. Chiang Mai: Doi Suthep (*Sprengsen et al.* 4035 C), Doi Pui (*Murata et al.* T-15334 BKF,KYO,L,P, AAU, TI), Doi Chiang Dao (*Put* 4500 BK), Mae Klang Waterfall (*Murata et al.* T-15489 KYO), Doi Inthanon (*Bunchuai* 1424 BKF,C), Doi Nank Ka (*Put* 3364 BK); Chiang Rai: Amphoe Chiangkham (*Prayad* 1121 BK), Chiang Rai Chun (*Nimanang & Phusomsaeng* 112 BKF).

**Geniosporum lanceolatum** CHERMSIRIVATHANA, sp. nov. (in sched. Herb. BK).

Herba perennis. Caulis erectus simplex vel pauci-ramosus quadrangularis, pilis breviusculis dense obtectus. Folia opposita subsessilia lanceolata 6–8 cm longa 6–10 mm lata emarginata vel minute serrata, apice acuminata, basi anguste cuneata, supra breviter appresse puberula, subtus tomentosa. Inflorescentia terminalia cylindrica 5–7 cm longa ca. 1.5 cm lata. Bracteae ovato-lanceolatae acuminatae utrinque tomentosae, infimae 1–2 cm longae. Verticillastris multifloris, pedicellis 1–2 mm longis puberulis. Calyx tubulosus hirsutus, apice bilabiatus 4 mm (fructifer 6 mm) longus, tubo subinflato transverse nervoso, labio superiore 3-fido 2.5 mm longo, lobo medio latissimo apice obtuso, labiis lateralibus minutis deltoideis, labio inferiore 2-fido, 1.5 mm longo, lobis acutis. Corolla 1 cm longa calyce fere duplo longior, limbo bilabiato, lobis superiore 4-fido, inferiore integro declinato. Stamina 4 didyma exserta.

SW. Petchaburi: Tung Luang, 1100 m (Nov. 8, 1931, *Kerr* 20598 Holotypus BK); Kanchanaburi: Kao Tawng, Kanburi (*Kerr* 19774 BK).

Distr. Thailand.

**Geniosporum siamense** MURATA in Acta Phytotax. Geobot. **24**: 108 (1970) & in SE Asian Stud. **8**: 498 (1971).



Fig. 1 Type specimen of *Geniosporum lanceolatum* CHERMSIRIVATHANA

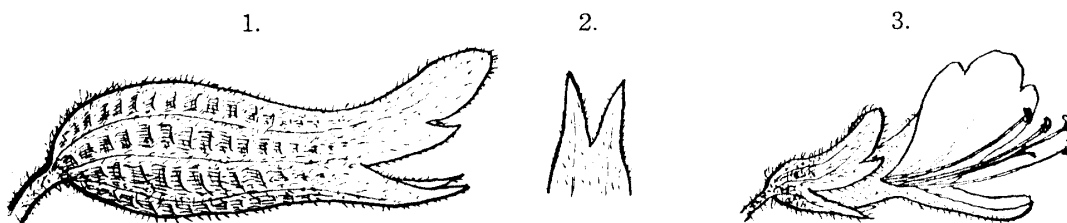


Fig. 2 *Geniosporum lanceolatum* CHERMSIRIVATHANA: 1. Fruiting calyx, 2. Lower lip of the calyx, 3. Flower.

N. Chiang Mai: Doi Suthep (*Sørensen et al.* 4602 C, BKF), Mè Tun (*Kerr* 6235 BK), Mae Klang water fall to Sop Aep, 350–700 m (*Murata et al.* T-15451 KYO, BKF), Me Hoht (*Winit* 420 BKF). SW. Ratchaburi: Sadong Same Reserve, Kanburi (*Smitinand* 11368 BKF).

**Gomphostemma WALL.**

**Gomphostemma crinitum** WALL. [Cat. No. 2159 (1830), nom. nud.] ex BENTH. in WALL. Pl. As. Rar. **2**: 12 (1831); KENG in Gard. Bull. Sing. **24**: 84 (1969); MURATA in SE Asian Stud. **8**: 499 (1971).

*G. parviflorum* sensu BENTH. Lab. Gen. & Sp. 648 (1835) & in DC. Prodr. **12**: 551 (1848); MIQ. Fl. Ind. Bat. **2**: 987 (1859), non WALL. ex BENTH. (1831).

SW. Kantchanaburi: near Wangka (*Hoed* 912 BK, P), Khao Yai (*Prayad* 1461 BK). P. Nakhon Si Thammarat: Srithamarat (*Sangkhachand* 751 BK), Khao Luang (*Kerr* 10832 & 15424 BK, *Hansen & Smitinand* 12053 C, BKF, *Snan* 294 BKF); Krabi: Tambon Kao Panom (*Kerr* 18804 BK); Narathiwat: Dotong, Pattani (*Kerr* 7480 BK), Bukit (*Kerr* 7119 BK, *Kiah* 24261 BK); Surat Thani: Takuapah (*K. Larsen et al.* 39948 AAU), Khao Khlong Yan at Khao Phra Mi (*K. Larsen et al.* 30654 AAU); Trang: Klawang Wa, Kraburi (*Kerr* 16310 BK); Yala: Nikom Kua Long, 600 m (*Santisuk & B. N.* 377 BKF).

**Gomphostemma curtisii** PRAIN in Journ. As. Soc. Beng. **59**: 315 (1891), *ibid* **74**: 95 (1907) & in Ann. Roy. Bot. Gard. Calc. **3-2**: 266, pl. 92 (1891); RIDL. Fl. Mal. Pen. **2**: 654 (1823); KENG in Gard. Bull. Sing. **24**: 85 (1969).

P. Narathiwat: Narathiwat (*Put* 447 BK), Khao Nikhom Laeng (*Sangkhachand & Nimanong* 1363 BKF, P).

Distr. Peninsula Thailand (new to Thailand), Malaya, Sumatra, and Borneo.

**Gomphostemma javanicum** (BL.) BENTH.; KENG in Gard. Bull. Sing. **24**: 86 (1969); MURATA in SE Asian Stud. **8**: 499 (1971), *excl.* MUSCHLER *ex* HOSSEUS (1910) in *syn.*

Subsp. **javanicum**.

*G. oblongum* WALL. [Cat. No. 2154 (1830), nom. nud.] ex BENTH. in WALL. Pl. As. Rar. **2**: 12 (1831); MURATA in SE Asian Stud. **8**: 500 (1971), *incl. syn.*

*G. philippinarum* BENTH. in DC. Prodr. **12**: 551 (1848); MURATA, l. c. 500 (1971), *incl. syn.*

*G. oblongum* var. *setosum* RIDL. Fl. Mal. Pen. **2**: 653 (1923).

E. Nakhon Ratchasima: Kaw Yai National Park, 600 m (*Maxwell* 74–784 AAU). SE. Chanthaburi: Plien Falls (*Maxwell* 73–422 AAU). P. Nakhon Si Thammarat: Nakhon Sri Thammarat (*Thaworn* 688 BKF), Ban Prakawp, Songkhla, 1100 m (*Kerr* 15845 BK, PNH), Rattapume, Sangkhla (*Umpai* 265 BK), Khao Luang (*Kerr* 10829 & 15418 BK, *Hennipman* 3911 C, BKF, *Tagawa et al.* 5321 & 5335 KYO, *Iwatsuki et al.* 8461 KYO), Ronpibun hill, 1600 m (*E. Smith* 416 BK).

Distr. Burma, Thailand, Vietnam, Malay Peninsula, Sumatra, Java, Borneo, and Philippines.

Leaves herbaceous, oblong or elliptic oblong, 15–30 cm long, 5–10 cm wide, crenate or crenate-serrate, hispid and not shining above, densely stellate pubescent beneath; calyx 10–15 mm long, teeth lanceolate 3–4 mm long, acute or acuminate; corolla 4–5 cm long, narrow part of corolla-tube exceeding the calyx.

Form. **phlomoides** (REINW. ex BL.) MURATA, stat. nov.

*G. phlomoides* (REINW. ex BL.) BENTH. Lab. Gen. & Sp. 645 (1835) & in DC. Prodr. **12**: 551 (1848); MIQ. Fl. Ind. Bat. **2**: 985 (1859); PRAIN in Ann. Roy. Bot. Gard. Calc. **3-2**: 264, pl. 104 (1891).

*G. javanicum* b. *phlomoides* BACK. & BAKH. f. Fl. Jav. **2**: 619 (1965).

*G. oblongum* var. *parvifolia* PRAIN, l. c. 230 (1891), nom. nud.

*Prasium phlomoides* REINW. ex BL. Bijdr. 840 (1826).

NE. Loei: Wang Saphung (*Smitinand* 4896 BKF); Phetchabun: Pa Prack, Nam Naw (*Adisai* 777 BK).

Distr. Thailand, Java, and Philippines (Luzon).

Leaves 7–15 cm long, 2–8 cm wide; calyx 8–10 mm long; Corolla 2.5–3 cm long.

Var. **Helperi** (HOOK. f.) MURATA, comb. nov.

*G. oblongum* var. ? *Helperi* HOOK. f. Fl. Brit. Ind. **4**: 697 (1885).

*G. Scortechinii* var. *Helperi* (HOOK. f.) PRAIN in Ann. Roy. Bot. Gard. Calc. **3-2**: 260 (1891); MUKERJEE in Rec. Bot. Surv. Ind. **14**: 210 (1940).

*G. Schortechinii* PRAIN in Journ. As. Soc. Beng. **59**: 315 (1890), *ibid* **74**: 724 (1907) & in Ann. Roy. Bot. Gard. Calc. **3-2**: 260, pl. 93 (1891); RIDL. Fl. Mal. Pen. **2**: 653 (1923); KENG in Gard. Bull. Sing. **24**: 89 (1969).

*G. oblongum* sensu MURATA in SE Asian Stud. **8**: 500 (1971), p. p.

P. Nakhon Si Thammarat: Ban Prakawp, Songkla, 1100 m (*Kerr* 15845 BK,PNH, *Umpai* 265 BK); Trang: Khao Chawng (*Boonnab* 18 BKF, *Ogino* & *Yoda* 771 & 796 KYO).

Distr. Burma, Thailand (Peninsular, new to Thailand), and Cochinchina (*Pierre*, s. n. P).

Leaves herbaceous, elliptic oblong or obovate, 20–30 cm long, 10–15 cm wide, margins remotely serrate or subentire; calyx 16–22 mm long, teeth lanceolate, longer than the tube.

Subsp. **lucidum** (WALL. ex BENTH.) MURATA, stat. nov.

*Gomphostemma lucidum* WALL. [Cat. No. 2156–2 (1830), nom. nud.] ex BENTH. in WALL. Pl. As. Rar. **2**: 12 (1831), p. p.; MURATA in SE Asian Stud. **8**: 499 (1971), incl. syn.

*G. lacteum* RIDL. in Journ. Bot. **62**: 300 (1924).

N. Chiang Mai: Doi Suthep (*Serady* 35 BKF), Doi Inthanon (Angka) (*Kerr* 6347 BK, *Garrett* 409 SIN), Chiang Dao (*Bunchuai* 205 BKK); Tak: Doi Mussor (*Smitinand* 7038 BKF). NE. Phetchabun: Phu Miang (*S. P. et al.* 22 BKF). E. Nakhon Ratchasima: Khao Lotung S of Pak Thong Chai, 800 m (*K. Larsen et al.* 3181 AAU,KYO), Salika forest, 40 km SE from Pakthong Chai, 400 m (*v. Beusekom* & *Geesink* 3352 C,L, BKF,KYO), Pong Song Salung (*Suvarnakoses* 2200 BKF). SE. Prachin Buri: Khao Yai National Park (*K. Larsen et al.* 160 BKF,KYO); Trat: Kao Sming, Krat (*Kerr* 10016 BK), Nong Bon (*Vidal* 5772 P,AAU). SW. Phetchaburi: Pa-nom-nao, 600 m (*Smitinand et al.* 562 BKF), Kanchanaburi: Kao Yai, Sangkhleburi (*Prayad* 1460 BKF). P. Chumphon: Tako, Langsan (*Put* 1632 BK,PNH); Narathiwat: Amphoe Bacho (*Sangkhachand* 1658 BK,BKF), Bachow (*Kerr* 7173 BK); Surat Thani: Kanchanadit (*Kerr* 13115 BK,PNH).

Leaves chartaceous, oblong or oblanceolate, acute or obtuse, serrate or subentire, upper surface shining, 10–25 cm long, 3–8 cm wide; calyx 7–10 mm long, teeth short triangular acute; corolla 3–4 cm long.

Var. **rugosum** (PRAIN) MURATA, stat. nov.

*Gomphostemma rugosum* PRAIN in Ann. Roy. Bot. Gard. Calc. **3-2**: 262 (1891); MUKERJEE in Rec. Bot. Surv. Ind. **14**: 211 (1940).

*G. lucidum* WALL. [Cat. No. 2156-1 (1831), nom. nud.] ex BENTH. in WALL. Pl. As. Rar. **2**: 124 (1831), p. p.; MURATA in SE Asian Stud. **8**: 499 (1971), p. p.

N. Chiang Mai: Doi Chiang Dao (*Tagawa et al. T-9788 & 9789* KYO, BKF); Lamphun: Bam Khun Tan—Doi Khun Tan, 1200 m (*Tagawa et al. T-9140* KYO); Nan: Nam Héng (*Winit 1745* BK, BKF); Phitsanulok: Tung Salaeng Luang (*K. Larsen et al. 475* AAU, BKF, KYO). NE. Loei: Phu Luang (*Tagawa et al. T-1248* KYO). E. Nakhon Ratchasima, 200 m (*Vidal 5118* AAU). SE. Prachinburi: Srirancha (*Collins 990* BK). SW. Prachuap Kiri Khan: Bang Saphan (*Shimizu et al. T-7801* KYO); Kanchanaburi: Sai Yok, 250 m (*K. Larsen 8719* C), Kao Krachai, Ban Nan Lon (Adisai 868 BK); Chon Buri: Klong-Yai (*Winit 56* BKF). P. Surat Thani: Khao Phra Mi (*K. Larsen et al. 30855* AAU).

Distr. Burma, Thailand, Laos, and Cochinchina.

Leaves chartaceous, oblong or lanceolate, acute or obtuse, upper surface shining, hirsute or tomentose beneath; calyx 12–14 mm long, teeth 4–6-mm long, lanceolate, long acuminate.

**Gomphostemma Mastersii** BENTH. ex HOOK. f.; MURATA in SE Asian Stud. **8**: 500 (1971).

P. Nakhon Si Thammarat: Khao Luang, 400 m (*Hansen & Smitinand 12142* C, BKF); Pattani: Banang Sta, 100 m (*Kerr 7350* BK); Surat Thani: Bam Kawp, Surat, 120 m (*Kerr 13189* BK, PNH), Khao Khlong Yang at Khao Phra Mi (*K. Larsen et al. 30688* AAU); Trang: Chao Chong (*Suvarnakoses 2171* BKF, *S. P. 39* BKF, *Phusomsaeng & Pinnin 319* BKF, *Sangkhachand 2160* BK).

Distr. Sikkim, Assam, Thailand, and Sumatra (*v. Steenis 8927* BO).

**Gomphostemma melissifolium** WALL. [Cat. No. 2155 (1830), nom. nud.] ex BENTH. in WALL. Pl. As. Rar. **2**: 12 (1831); Lab. Gen. & Sp. 649 (1835) & in DC. Prodr. **12**: 552 (1848); HOOK. f. Fl. Brit. Ind. **4**: 698 (1885); PRAIN in Ann. Roy. Bot. Gard. Calc. **3-2**: 270, pl. 100 (1891); MUKERJEE in Rec. Bot. Surv. Ind. **14**: 213 (1940).

*Prasium melissifolium* ROXB. [Hort. Beng. 45 (1814), nom. nud.] Fl. Ind. ed. 2, **3**: 26 (1832).

C. Saraburi: Salien Labu, 150 m (*Maxwell 73-755* AAU). SW. Kanchanaburi: SE of Sai Yok, 250–400 m (*K. Larsen 8719 & 8973* C).

Distr. Assam and Thailand (new to Thailand).

**Gomphostemma parviflorum** WALL. [Cat. No. 2158 (1830), nom. nud.] ex BENTH. in WALL. Pl. As. Rar. **2**: 12 (1831) in parte; KENG in Gard. Bull. Sing. **24**: 82 (1969); MURATA in SE Asian Stud. **8**: 500 (1971).

*G. Bartlettii* MERR. in Pap. Mich. Acad. Sci. Art. Let. **19**: 191 (1934).

N. Chiang Mai: Doi Chiang Dao (*Garrett 1423* P, *Garrett 997* P, BKF, *Bunchuai 250* BK, *Vidal 5777* AAU, *Sørensen et al. 1295 & 4209* C, *Murata et al. T-15128* KYO, BKF, P & *T-15084* KYO, BKF, P, L, AAU, TI).

Distr. India, Burma, Thailand, Malaya, Sumatra, Java, and Philippines.

**Gomphostemma strobilinum** WALL. [Cat. No. 2151-1 (1829), nom. nud.] ex BENTH.

in WALL. Pl. As. Rar. **2**: 12 (1831); MURATA in SE Asian Stud. **8**: 501 (1971).

Subsp. **strobilinum**.

*G. javanicum* sensu MUSCHLER ex HOSSEUS in Bein. Bot. Centralb. **27-2**: 496 (1910), non BENTH. (1835).

*G. strobilinum* var. *viridis* sensu CRAIB in Kew Bull. **1911**: 448 (1911), non HOOK. f. (1885).

**N.** Chiang Mai: Wang Dao (*Hosseus 62 & 63 P*); Lampang: Me Saloi (*Winit 1409 BKF*), Me Kaw (*Winit 1525 BK, BKF*); Sukhothai: Sukhothai (*Maxwell 71-669 AAU*); Tak: Doi Tung Cha, Laheng, 500 m (*Kerr 4595 BK*). **NE.** Loei: Khawn Kaen, Pha Nok Kkhao, 400 m (*Smitinand et Steumer 1127 BKF*), Phu Kradung, 700-1100 m (*Charoenphal et al. 4871 AAU, Prayad 1032 BK*); Khon Kaen: Chumphae, Dong Lam (*Smitinand 4918 BKF*). **C.** Saraburi: Muak Lek (*Put 1899 BK*), limestone hill (*Smitinand & Sleumer 1323 BKF*), Hin Lap (*Put 2425 PNH*). **SW.** Kanchanaburi: Huay Ban Kaw, 750 m (*Beusekom et al. 3480 C, L, KYO*); Phetchaburi: Tung Luang (*Kerr 2610 BK*).

Stem deeply grooved, 40-130 cm high; spikes erect interrupted near the base, bracts all equal, 15-20 cm long, ovate, longer than the calyx, base cuneate, margin irregularly dentate above, usuary purplish coloured; corolla ca. 25 mm long.

Var. **viride** (WALL. ex BENTH.) HOOK. f. Fl. Brit. Ind. **4**: 696 (1885); PRAIN in Ann. Roy. Bot. Gard. Calc. **3-2**: 247, pl. 77 (1891); MUKERJEE in Rec. Bot. Surv. Ind. **14**: 205 (1940), ut var. *viridis*.

*G. viride* WALL. [Cat. No. 2153 (1829), nom. nud.] ex BENTH. in WALL. Pl. As. Rar. **2**: 12 (1831), Lab. Gen. & Sp. 647 (1835) & in DC. Prodr. **12**: 550 (1848).

*G. Wallichii* sensu MURATA in SE Asian Stud. **8**: 501 (1971), p. p.

**N.** Chiang Mai: Doi Chiang Dao (*Put 385 & 4394 P, BK, Put 4431 BK, Garrett 1219 & 1367 P, Sørensen et al. 1133 C, Hennipman 3183 BKF, Suvarnakoses 988 BK, Smitinand 7260 & 7858 BKF, Smitinand & Anderson 7339 BKF*), Doi Suthep (*Collins 1220 BK, Iwatsuki et al. T-3974 KYO, Sørensen et al. 5910 C*), Mae Klang water fall—Ban Yang (*Tagawa et al. T-2295 KYO*), Wan Tao (*Sørensen et al. 1032 C, Bunchuai 1000 BK*), Doi Saket (*Put 3272 BK, Sonadiy 319 BKF*), Bo Luang—Om Koi, 1000 m (*Hansen et al. 10773 C, BKF*), Doi Inthanon (Angka) (*Kerr 6333 BK*). **SW.** Kanchanaburi: Huay Bankau, 800 m (*Beusekom et al. 3501 L, C*).

Distr. Burma and Thailand.

Stem grooved, 30-90 cm high; leaves more membranous narrowly elliptic-lanceolate, stellately pubescent or tomentose beneath; spikes 5-15 cm long, bracts ovate acute usually entire, as long or shorter than the calyx except the basal ones of the spike, not purplish coloured; corolla ca. 2.5 cm long.

Subsp. **Wallichii** (PRAIN) MURATA, stat. nov.

*Gomphostemma Wallichii* PRAIN in Journ. As. Soc. Beng. **59**: 314 (1890) & in Ann. Roy. Bot. Gard. Calc. **3-2**: 245, pl. 75 (1891); MURATA in SE Asian Stud. **8**: 501 (1971), p. p.

*G. strobilinum*  $\beta$ . *elatius* BENTH. [WALL. Cat. No. 2151-2 (1829), nom. nud.] in WALL. Pl. As. Rar. **2**: 12 (1831).

**N.** Chiang Mai: Doi Pui, 1500-1685 m (*Murata et al. T-15372 KYO, BKF, L, P, TI*), Doi Khun Tan, 1200-1374 m (*Tagawa et al. T-9288 KYO, BKF*), Pah Hom Pok, 1400 m (*Sørensen et al. 1560 C*); Tak: Doi Mussor, 1000 m (*Smitinand 7069 BKF*).

Distr. Assam, Burma, Thailand, and China (Yunnan).

Stout erect herbs, 1–2 m high, densely tomentose; spikes erect uninterrupted, 8–30 cm long; bracts ovate cordate, large (up to 4 cm long), smaller upwards, but usually longer than the calyx; corolla ca. 3 cm long.

Subsp. **acaule** (KURZ ex HOOK. f.) MURATA, stat. nov.

*Gomphostemma acaule* KURZ ex HOOK. f. Fl. Brit. Ind. **4**: 696 (1885).

*G. strobilinum* var. *acaulis* (KURZ ex HOOK. f.) PRAIN in Ann. Roy. Bot. Gard. Calc. **3-2**: 247, pl. 78 (1891); MURATA in SE Asian Stud. **8**: 501 (1971).

*G. strobilinum* var. *viridis* HOOK. f.; MURATA, op. cit. 501 (1971), excl. syn.

*G. strobilinum* var. *variegatum* CRAIB in Herb. BK.

N. Chiang Mai: Wang Tao (*Sorady* 283 BKF, *Sørensen et al.* 1035 & 1036 C), Koon Krong, Muang Krong (*Adisai* 702 BK), Doi Suthep (*Dixen* 70–27 AAU, *Bunchuai* 688 BKF, *Sørensen et al.* 5945, 881, 5408, 5469 C), Mae Klang water fall—Sop Aep, 350–700 m (*Murata et al.* T-15513 & 15514 KYO, BKF, K,P,AAU, *Murata et al.* T-15536 KYO,BKF), Doi Chiang Dao (*Put* 294 BK, *Phannchit* 952 BKF); Maehongson: Khun Yuam, 600–700 m (*K. Larsen & S. Larsen* 34166 AAU). SW. Kanchanaburi: Sai Yok (*K. Larsen* 8718 C), Erawan National Park (*Beusekom et al.* 3856 L,C,AAU,KYO). SE. Chonburi: Hoop Ben, Sriracha (*Collins* 1038 BK).

Distr. Burma & Thailand.

Small herb, 3–10 cm high; leaves herbaceous, elliptic oblong, 10–30 cm long, 3–17 cm wide; spikes short erect, 3–10 cm long; bracts usually regularly toothed, acute or obtuse, longer than the calyx; corolla ca. 3 cm long.

### Hyptis JACQ.

**Hyptis brevipes** POIT. in Ann. Mus. Paris **7**: 465 (1806); BENTH. Lab. Gen. Sp. 105 (1833) & in DC. Prodr. **12**: 107 (1848); HOOK. f. Fl. Brit. Ind. **4**: 630 (1885); MERR. Enum. Philip. Fl. Pl. **3**: 416 (1923); KUDO, Lab. Sino-Jap. Prodr. 147 (1929); MUKERJEE in Rec. Bot. Surv. Ind. **14**: 62 (1940); BACK. & BAKH. f. Fl. Jav. **2**: 634 (1965); KENG in Gard. Bull. Sing. **24**: 90 (1969); WALKER, Fl. Okinawa 906 (1976).

N. Tak: Ban Musoe, 600–800 m (*Murata et al.* T-16785 KYO,BKF,L). P. Pattani: Bukit (*Kerr* 7130 BK); Narathiwat: N of Sungai Kolok (*Charaenphol et al.* 3946 AAU); Surat Thani: Kao Wong (*Kerr* 18269 BK), Thakhan (*Smitinand* 2945 BKF), Kao Rahn, Kirisatuikom (*Sokal* 1166 BK); Trang: Phathalung (*Smitinand & Abbe* 6147 BKF).

A native of tropical America (Mexico), now naturalized in tropical Asia and Africa as a pantropic weed.

**Hyptis rhomboidea** MART. et GAL. Bull. Acad. Brux. **11**<sup>2</sup>: 188 (1844); EPLING in Kew Bull. **1936**: 278 (1936); KENG in Gard. Bull. Sing. **24**: 92, f. 15 (1969); WIGG. in WIGG. & PORT. Fl. Galap. Isl. 402, f. 99 (1971); WALKER, l.c. 906 (1976).

*H. capitata* (non JACQ.) MIQ. Fl. Ind. Bat. **2**: 958 (1858); MERR. Enum. Philip. Fl. Pl. **3**: 416 (1923); KUDO, Lab. Sino-Jap. Prodr. 147 (1929); MUKERJEE in Rec. Bot. Surv. Ind. **14**: 63 (1940); BACK. & BAKH. f. Fl. Jav. **2**: 634 (1965); HATUSIMA, Fl. Ryuk. 534 (1971).



*H. decurrens* (BLANCO) EPLING in FEDD. Repert. **34**: 120 (1933).

*Pycnanthemum decurrens* BLANCO, Fl. Filip. ed. 2, 333 (1845), ed. 3, **2**: 251, t. 294 (1878).

**SW.** Kanchanaburi: Sai Yok (*Beusekom et al.* 3899 L,C, *K. Larsen* 8655 BKF,AAU). **P.** Chumphon: Chumphon (*Sørensen et al.* 833 C,BKF); Nakhon Si Thammarat: Thungsong (*Umpai* 230 BK); Ranong: (*Smitinand* 6877 BKF); Surat Thani: Koh Prap (*Sokal* 1379 BK); Yala: Bannang Sata (*Sangkhachand* 1376 BKF, *Adisai* 92 BK).

A native of tropical America, naturalized in tropical Asia, Malesia and E. India.

**Hyptis suaveolens** POIT.; MURATA in SE Asian Stud. **8**: 502 (1971).

**N.** Mae Hong Son: Air port (*Tuyama T-58834* KYO,TI), Maesarieng, 400 m (*Sørensen et al.* 7023 C,BKF); Kamphaeng Phet: Umpang (*Kerr* 6115 BK); Nakhon Sawan: 20 km S of Nakhon Sawan (*Murata et al. T-14822* KYO,BKF,P,TI). **E.** Ubon Ratchathani: Sisaket (*Suwarnakoses* 1531 BKF). **SW.** Prachuap Khiri Khan: Prachuap (*K. Larsen et al.* 1272 AAU,KYO); Kanchanaburi: Sisawat, Kanburi (*Kerr* 10204 BK). **C.** N of Bangkok (*Smitinand* 4431 BKF); Saraburi: 71 km N of Saraburi (*Sørensen et al.* 2108 C,BKF). **P.** Nakhon Si Thammarat: Hat Yai (*Kerr* 13548 BK); Narathiwat: (*Sangkhachand* 220 BKF); Surat Thani: Bandon (*Seidenfaden* 2290 C).

### **Leonotis** R. BR.

**Leonotis nepetaefolia** (L.) R. BR. Prodr. 504 (1810) & in AIT. Hort. Kew. ed 2, **3**: 409 (1811); BENTH. in WALL. Pl. As. Rar. **1**: 59 (1830), Lab. Gen. & Sp. 618 (1834) & in DC. Prodr. **12**: 535 (1848); HOOK. Bot. Mag. t. 3700 (1839); WIGHT, Ic. t. 867 (1844-45); HOOK. f. Fl. Brit. Ind. **4**: 691 (1885); DOAN in LECOMTE, Fl. Gén. Indo-Chin. **4**: 1025, f. 107: 1-5 (1936); MUKERJEE in Rec. Bot. Surv. Ind. **14**: 185 (1940); BACK. & BAKH. f. Fl. Java **2**: 622 (1965).

*Phlomis nepetaefolia* L. Sp. Pl. 586 (1753).

*Leonurus globosus* MOENCH, Meth. 400 (1794).

*L. marrubiastrum* (non L.) LOUR. Fl. Cochnich. 360 (1790).

**N.** Chiang Mai: Chawmtawng (*Garrett* 902 P). **NE.** Khon Kaen: Chumphae, 300 m (*Smitinand* 4878 BKF).

Distr. Tropical Asia, India, Africa, and Tropical America.