

LIPPIA ALBA (MILLER) N.E. BR. DISTINCT FROM *LIPPIA JAVANICA*
(BURM. F.) SPRENGEL (VERBENACEAE)

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A B S T R A C T

Lippia alba (Miller) N.E. Br. is a distinct species and wide-spread in India. *Lippia javanica* (Burm. f.) Sprengel has established in very few places only and the name *L. javanica* is found misapplied to *L. alba* (Miller) N.E. Br. It is established that *Lantana malabarica* Hayek and *Lippia unica* Ramakr., and *L. indica* Mold., all described from southern India, are synonyms of *L. alba* and *L. javanica* respectively.

Among the earlier monographers whereas Walpers (1845) considered *Lippia javanica* (Burm. f.) Sprengel a distinct species, Schauer (1847) enumerated it under *Species denuo recognoscende* but opined - Affinis ex icone *L. asperifoliae*. Meeuse (1942) discussed the identity of *Verbena javanica* Burm. f. and proved that this species, transferred to *Blairia* by Gaertner, *Zappania* by Lamarck, *Lippia* by Sprengel and *Phyla* by Moldenke, belongs to only *Lippia* L. He also concluded that *V. javanica* is identical with *Lippia asperifolia* A. Rich. ex Marthe and added that Burmann's *V. javanica* (1768) appears to be conspecific with Miller's *Lantana alba* (1768). As he could not decide the priority of the two contending binomials choose the earliest of the two combinations, *L. javanica* (Burm. f.) Sprengel (1825), as the correct name and treated *L. alba* (Miller) N. E. Br. (1925) as a synonym thereunder. Meeuse (1942) had seen the type of *V. javanica* only and his discussion was without reference to Moldenke (1939) who considered *L. alba* distinct. Moldenke's concept is also clearly a mixture for he included a number of synonyms which are all referable to *L. javanica*. Overlooking Moldenke (1939, 1973) and following Meeuse (1942) some Indian authors accepted *L. javanica* as the correct

name of the species of *Lippia* in India and *L. alba* as a synonym thereof.

A study of material in Indian herbaria, relevant literature and the types proved that *L. alba* and *L. javanica* are two distinct species. *L. alba*, native to the New World and now naturalized in India, has been collected in many areas in the country including the Andaman Islands. *L. javanica*, on the contrary, is not widespread as yet and has been collected only in Palghat district in Kerala, and Nilgiri & Coimbatore districts in Tamil Nadu. The 2 species can be keyed out as follows.

- 1a. Leaves lanceolate, serrate, smooth; spikes solitary, subglobose, 0.5-1 cm long; bracts abruptly acuminate; corolla pinkish white to purple-violet; tube curvate at base
... 1. *L. alba*
- b. Leaves ovate, crenate, rugose; spikes usually fascicled, cylindric, 1-3 cm long; bracts acute; corolla white; tube straight ... 2. *L. javanica*

Lantana malabarica was described by Hayek (1906) as a new species from southern India. This was enumerated as a distinct species (Calder *et al.*, 1926; Moldenke, 1980; Naithani, 1991). Its

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Date of receipt : 7.9.92. Date of acceptance : 8.5.97.

circumscription certainly falls within that of *L. alba* (Miller) N.E. Br.

Moldenke (1940) described *Lippia indica* based on a specimen collected by Gamble on the Nilgiris. The present investigation proved that it is conspecific with *L. javanica* (Burm. f.) Sprengel.

Ramakrishnan (1957) described *Lippia unica* based on a collection made in Coimbatore. Moldenke (1978, 1980) synonymized *L. unica* under *L. indica* Mold. In the present study *L. unica* is found to be a synonym of *L. alba* (Miller) N.E. Br.

Moldenke (1939, 1973, 1984) treated *L. alba* (Miller) N.E. Br. as a distinct species citing a number of names in the synonymy. Most of them certainly belong to the synonymy of *L. javanica* (Burm. f.) Sprengel. Moreover, Moldenke (1973, 1984) made no reference to the treatment of Meeuse (1942). Hence, the correct names of these 2 species and the synonymy are provided.

1. *Lippia alba* (Miller) N.E. Br. in Britton & Wilson, Bot. Porto Rico 6 : 141. 1925 ; Mold. in Lilloa 4 : 294. 1939, p.p. incl. syn. *L. geminata* Kunth & *L. citrata* Willd. ex Cham.; Santapau & Wagh in Bull. Bot. Surv. India 5 : 107. 1963 ; M.A. Rau in Bull. Bot. Surv. India 10 (Suppl. 2) : 62. 1968 ; A.S. Rao & D.M. Verma in Bull. Bot. Surv. India 11 : 410. 1969 ; Mold., Fifth Summ. Verbenac. etc. 2 : 550. 1971 & in Ann. Missouri Bot. Gard. 60 : 70. 1973, p.p. incl. syn. *L. geminata* Kunth & *L. citrata* Willd. ex Cham.; Raiz., Suppl. Fl. Gangetic Plain 214. 1976 ; B. Sharma *et al.* in Biol. Mem. 2 : 111. 1977 ; Mold. in Phytologia Mem. 2 : 263. 558. 1980 ; Varma, Fl. Bhagalpur 367. 1981 ; Deb, Fl. Tripura 2 : 112. 1983 ; Guha Bakshi, Fl. Murshidabad 250. 1984 ; Mold. in Phytologia 56 : 359. 1984. (Fig.1).

Lantana alba Miller, Gard. Dict. ed. 8, no. 8. 1768. Type :? Mexico, Compeachy, Dr. Houston s.n. (BM!). In the protologue Miller stated that the eighth sort was sent to him by Dr. Houston. This specimen with Miller's annotation has also no. 8 on it.

Lippia geminata Kunth in H.B.K., Nov. Gen.

Sp. 2 : 266. 1817 ; Cham. in Linnaea 7 : 215. 1832 ; Walp., Repert. Bot. Syst. 4 : 53. 1845 ; Schauer in A. DC., Prodr. 11 : 582. 1847, p.p. excl. syn. *Lantana lippoides* Hook. & Arn. ; Bocq. in Adansonia 3 : 244. 1863 ; C.B. Clarke in Hook. f., Fl. Brit. India 4 : 563. 1885 ; Prain, Bengal Pl. 825. 1903 & in Rec. Bot. Surv. India 2 : 328. 1903 ; Brandis, Indian Trees 503. 1906 ; C. Fischer in Rec. Bot. Surv. India 9(1) : 139. 1921 ; H.J. Lam. & Bakh. in Bull. Jard. Bot. Buitenzorg Ser. 3, 3 : 5. 1921 ; Gamble, Fl. Madras 1088. 1924 ; Haines, Bot. Bihar Orissa 740. 1925 ; Raiz. in J. Indian Bot. Soc. 15 : 165. 1936 ; Kanj. *et. al.*, Fl. Assam 3 : 461. 1939 ; Biswas in Indian Forest Rec. Bot. 3(1) : 42. 1940 ; Mooney, Suppl. Bot. Bihar Orissa 120. 1950 ; Bor, Man. Indian Forest Bot. 301. 1953. Type : *Herb. Humbolt & Bonpland*, Amerique Equatoriale, Rio Apure juxta Santa Barbara (P, photo!).

Lantana geminata (Kunth) Sprengel, Syst. Veg. 2: 763. 1825.

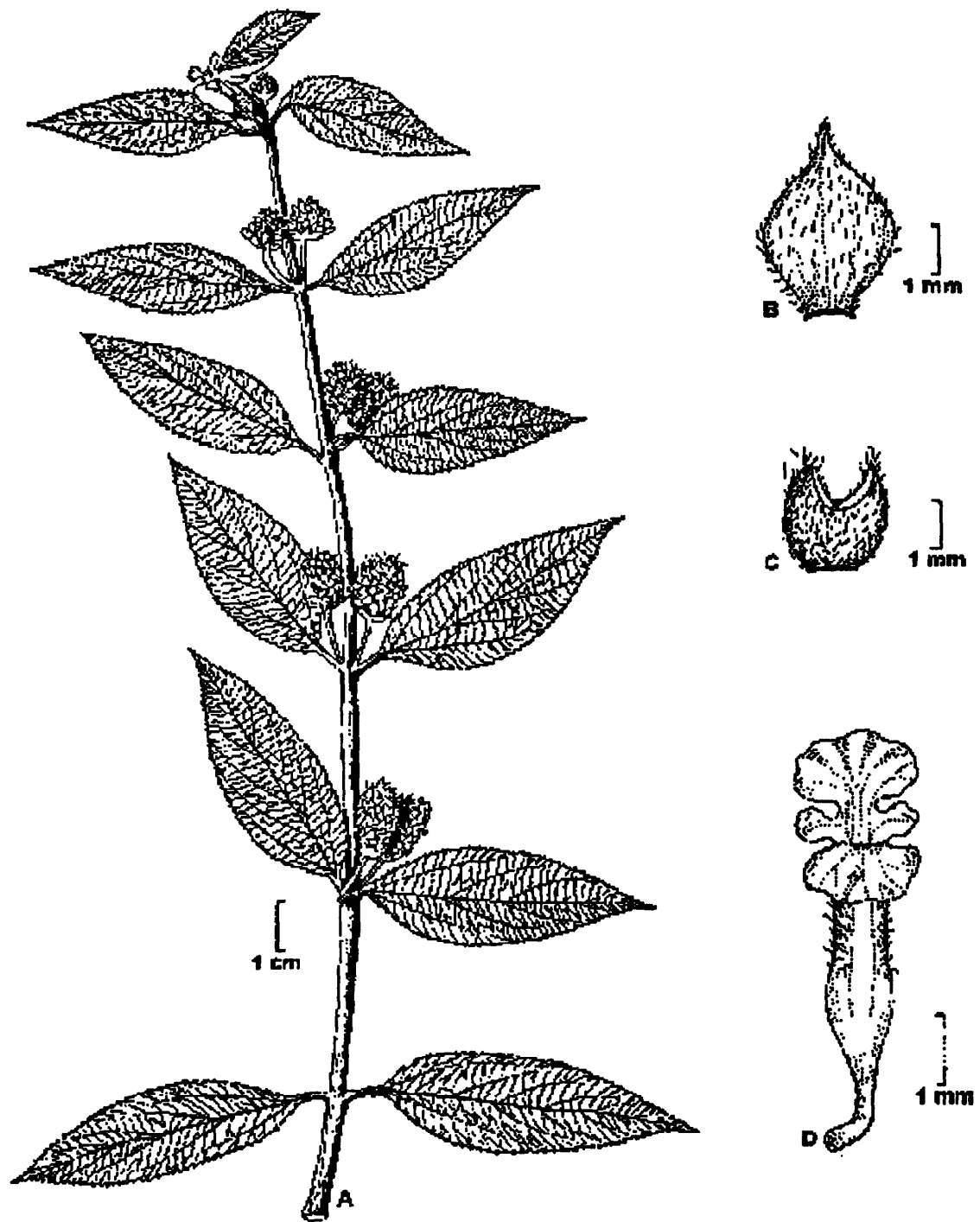
Lippia citrata Willd. ex Cham. in Linnaea 7 : 214. 1832 ; Walp., Repert. Bot. Syst. 4 : 44. 1845. Type : (B-W, no. 11611, microfiche!).

L. malabarica Hayek in Feddes Repert. Nov. Spec. Regni Veg. 2 : 163. 1906 ; Calder *et al.* in Rec. Bot. Surv. India 11(1) : 78. 1926 ; Mold. in Phytologia Mem. 2 : 263. 555. 1980 ; H. Naithani, Fl. Pl. India 337. 1991. Type : Malabar, Concan, *Stocks s.n.*; *Law s.n.* (K, n.v.).

Lippia unica Ramakr. in J. Bombay Nat. Hist. Soc. 54: 925. 1957; Sebastine in Bull. Bot. Surv. India 4: 223. 1962; Matthew *et al.* in Jain & R. R. Rao, Assessm. Threat. Pl. India 160. 1983; Ahmedullah & Nayar, Endem. Pl. Indian Region 1: 133. 1986; Chandrab. & Nair, Fl. Coimbatore 235. 1988. Type : Coimbatore, Agricultural College Estate, wetlands, 14.4.1952, K. Ramakrishnan 94281 (MH, holo!).

Lantana salvifolia auct. non Jacq. 1768 ; Shah, Fl. Gujarat 1 : 360. 1978.

Lippia javanica auct. non (Burm. f.) Sprengel 1825 ; A.D.J. Meeuse in Blumea 5 : 69. 1942, p.p.



Figs. 1(A-D) : *Lippia alba* (Miller) N. E. Br. (K. Thothathri 9293). A. Habit. B. Bract. C. Calyx. D. Corolla.

quoad syn. *L. alba* ; Bennet, Fl. Howrah 309. 1979 ; Matthew, Ill. Fl. Tamil Nadu Carnatic t. 552. ff. 1-12. 1982 ; Matthew & Rani in Matthew, Fl. Tamil Nadu Carnatic 3 : 1225. 1983 ; R. Rao *et al.*, Fl. W. Godavari 325. 1986 ; M.P. Singh, Fl. Patna 279. 1986.

Lippia indica auct. non Mold. 1940 ; Mold. in Phytologia 1978, p.p. quoad syn. *L. unica*.

2. *Lippia javanica* (Burm. f.) Sprengel, Syst. Veg. 1 : 725. 1825 ; Walp., Repert. Bot. Syst. 4 : 50. 1845 ; Schauer in A. DC., Prodr. 11 : 593. 1847, under Spec. denuo recognosc. ; Merr. in Philipp. J. Sci. 19 : 376. 1921 ; A.D.J. Meeuse in Blumea 5 : 68. 1942, p.p. excl. syn. *L. alba* (Miller) N.E. Br. & *L. geminata* Kunth ; Raju in Bull. Bot. Soc. Bengal 23 : 69. 1969, p.p. ; Mold., Fifth Summ. Verbenac. etc. 2 : 557. 1971 & in Phytologia Mem. 2 : 560. 1980 ; Srinivasan in A.N. Henry *et al.*, Fl. Tamil Nadu 2 : 166. 1987, p.p. (Fig.2).

Verbena javanica Burm. f., Fl. Ind. 12. t. 6. f. 2. 1768. Type : unknown origin (G, photo!). That the type is not from Java, though Burmann *fil.* cited Java as the provenance, was discussed at length by Meeuse (1942 : 68, 69).

Blairia javanica (Burm. f.) Gaertner, Fruct. Sem. Pl. 1 : 265. t. 56. 1788.

Zappania javanica (Burm. f.) Lam., Tabl. Encycl. 1 : 59. t. 17. f. 2. 1791 (as *Zapania*).

Lantana lavandulacea Willd., Sp. Pl. 3 : 319. 1800 & Enum. Pl. 2 : 652. 1809. Type : (B-W, no. 11512, microfiche!).

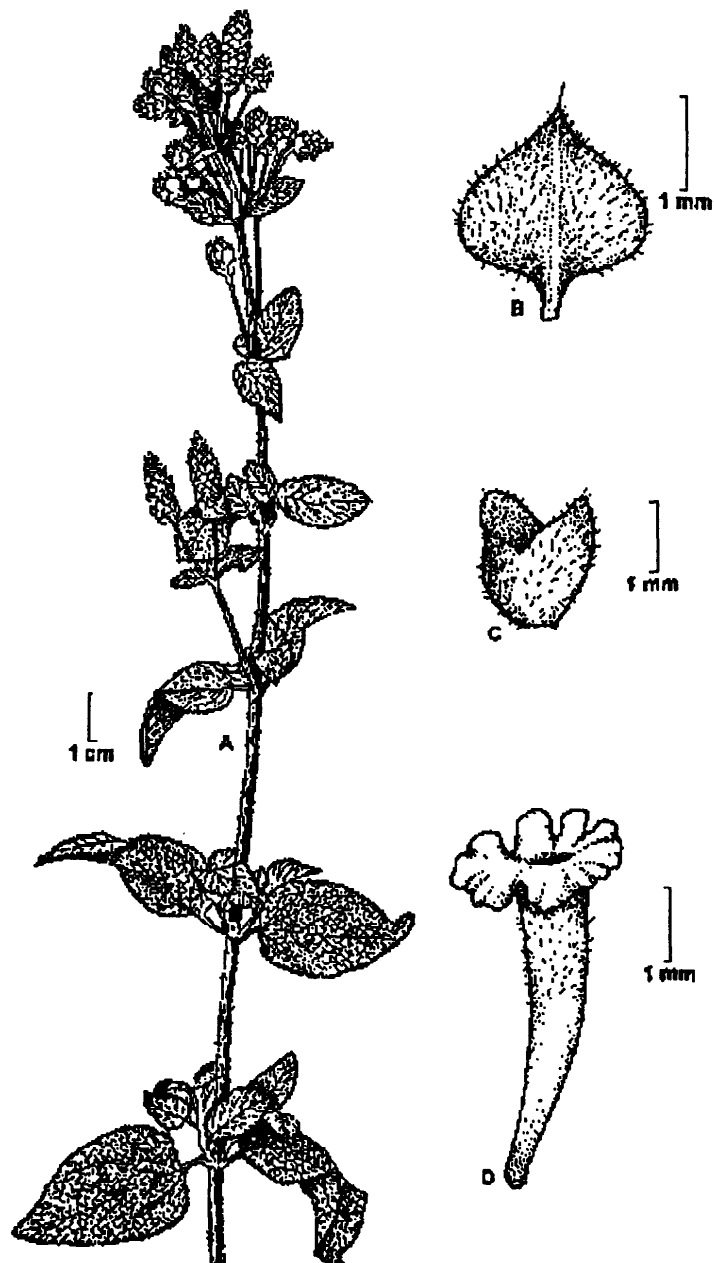
Lippia asperifolia A. Rich. ex Marthe, Cat. Pl. Jard. Med. Paris 67. 1801 ; Kunth in H.B.K., Nov. Gen. Sp. 2 : 265. 1817 ; Walp., Repert. Bot. Syst. 4 : 47. 1845 ; Schauer in A. DC., Prodr. 11 : 583. 1847 ; Miq., Fl. Ind. Bat. 2 : 906. 1858 ; Bocq. in Adansonia 3 : 244. 1863 ; Briq. in Engl. & Prantl, Nat. Pflanzenfam. 4 (3a) : 152. f. C, D. 1895 ; H. J. Lam & Bakh. in Bull. Jard. Bot. Buitenzorg Ser. 3, 3 : 5. 1921 ; Srinivasan in A.N. Henry *et al.*, Fl. Tamil Nadu 2 : 166. 1987 ; H. Naithani, Fl. Pl. India 336. 1991. -Type : Herb. E. Drake (P, photo!).

Phyla javanica (Burm. f.) Mold., Revista Sudamer. Bot. 5 : 2. 1938.

Lippia indica Mold. in Phytologia 12 : 427. 1940 ; Sebastine in Bull. Bot. Surv. India 4 : 223. 1962 ; Mold., Fifth Summ. Verbenac. etc. 2 : 277. 1971 ; in Phytologia 40 : 200. 1978, p.p. excl. syn. *L. unica* & in Phytologia Mem. 2 : 263. 422. 1980, p.p. excl. syn. *L. unica* ; Srinivasan in A.N. Henry *et al.*, Fl. Tamil Nadu 2 : 166. 1987 ; H. Naithani, Fl. Pl. India 337. 1991. Type : Nilgiri, Sigur Ghat, 915m', Aug. 1886, J.S. Gamble 17895 (K, hol⁸ ; MH, iso!).

L. alba auct. non (Miller) N.E. Br. 1925 ; Vajravelu, Fl. Palghat 367. 1990.

Specimens examined (alphabetically statewide and chronological) : *Lippia alba* (Miller) N.E. Br. ANDAMAN ISLANDS, 1890, G. King s.n. (CAL) ; Colinpur, 15 m, 15.3.1959, K. Thothathri 9293 (MH) ; Mannar Ghat, 10.4.1961, G.S. Srivastava 78735 (LWG) ; Ferrargunj jungle, 15.4.1964, K. Thothathri 10243 (CAL) ; Port Blair, 1.5.1964, J.L. Ellis & K. Ramamurthy 18998 (MH) ; Ugrabraj, road sides, 25 m, 14.12.1973, N.P. Balakrishnan 673 (CAL). ANDHRA PRADESH : E. Godavari Distr., Yanam, 14.9.1956, S.K. Wagh 3857 (BLAT) ; Visakhapatnam Distr., Garden of Madugulu Doctor, 200 m, 11.4.1976, G.V. Subba Rao 47284 (CAL, MH) ; Srikakulam Distr., near Vadavalasa, 150 m, 14.5.1979, G.V. Subba Rao 62409 (CAL, MH) ; W. Godavari Distr., Koratur, 12.2.1984, P.V. Sreekumar & N. Rama Rao 76842 (MH). ASSAM, Nov. 1877, G. Mann 446 (ASSAM, CAL) ; Nowgong, Roha, 250', 21.3.1885, C. B. Clarke 37630C (CAL) ; Sadiya, 25.3.1894, G.A. Gammie 232 (BSI, CAL) ; Nowgong, Dhavantal, 2.4.1915, U. Kanjilal 5522 (ASSAM) ; Goalpara Distr., Kochagaon, 22.3. 1934, G.D. Deka 13078 (ASSAM) ; Kulsi & Kwanying reserve forests, 26.5.1957, G. Panigrahi 9659 (CAL) ; Gauhati, Kambhya, 24.4.1962, S. Chopra 65067 (LWG) ; N. Lakhimpur, Eslampur, Labek, 19.5.1966, D.M. Verma 46505 (ASSAM). BIHAR : Sahibgunj, 11.12.1957, G. Panigrahi 11609 (ASSAM, CAL) ; Sermaspore, near Fatwa, 22.12.1957, J.G. Srivastava & Party 46743 (LWG) ; Udaipur forest, 7.4.1963, K. Thothathri 9920 (CAL) ; Champaran, Gobindgunj, 15.8.1964, S.P. Banerjee 182 (CAL). GUJARAT : Broach,



Figs. 2(A-D): *Lippia javanica* (Burm. f.) Sprengel (M.A. Lawson s.n.). A. Habit. B. Bract. C. Calyx. D. Corolla.

- Kahirwad, 20.12.1904, *G.A. Gammie s.n.* (BSI) ; Broach, 4.11.1955, *G.L. Shah* 6299 (BLAT) ; Broach, 7.5.1957, *S. K. Jain* 17612 (BSI). MADHYA PRADESH : Bastar Distr., banks of Indrawati, 633 m, 23.11.1958, *K. Subramanyam* 7284 (CAL, MH). MEGHALAYA : Mont. Khasia, without date, *J. D. H. & T.T. s.n.* (CAL) ; Khasi hills, April 1877, *S. Kurz s.n.* (CAL) ; Burni, 13.2.1932, *S.R. Sharma* 9881 (ASSAM) ; Usming, 10.6.1964, *A.S. Rao* 38706 (ASSAM, CAL). ORISSA : Mokabasi, 18.2.1958, *G. Panigrahi* 12556 (ASSAM) ; Patraputhur, 15.12.1962, *G.V. Subba Rao* 36287 (ASSAM) ; Aska, 1.3.1964, *S. L. Kapoor & Party* 62492 (LWG) ; Cuttack Distr., Gobra ravine at Gorapana, 29.5.1967, *M.K. Ghosh* 295 (CAL). TAMIL NADU : Coimbatore, Vellingiri hills, 667 m, 26.4.1957, *K.M. Sebastine* 3141 (MH) ; Coimbatore, Thelungupalayam, 467 m, 11.2.1958, *K. Subramanyam* 5414 (CAL, MH) ; Coimbatore, Selvapuram, 467 m, 11.10.1964, *M. Chandrabose* 28597 (MH) ; Coimbatore, Noyil river side, 467 m, 1.6.1968, *M. Chandrabose* 29941 (MH) ; Trichy, Srirangam island, Oosipalayam, 1.12.1975, *K. M. Matthew* 170 (RHT). UTTAR PRADESH : Lucknow, Birbal Sahni Inst. Gard., 27.10.1958, *B. Balamani* 131 (BLAT) ; Faizabad, 6.8.1959, *Y. K. Sarin* 8456 (BSD) ; Gorakhpur, on way to Daibhar, 28.2.1966, *G. Panigrahi* 10745 (BSA) ; Deopar, Gonda, 25.1.1968, *J.K. Maheshwari* 81566 (CAL) ; Lucknow, 28.3.1974, *H.B. Naithani* 98 (DD). WEST BENGAL : banks of Panarmudde, between Purneah and Digru Ghat, 30.10.1868, *S. Kurz s.n.* (CAL) ; Ganja Mahal, Feb 1893, *D. Prain s.n.* (CAL) ; Sunderbans, 13.3.1895, *R.L. Heinig & G.A. Gammie* 70 (BSI, CAL) ; Hooghly, Tantishal, 11.2.1961, *P. K. Hajra* 26 (CAL) ; Hooghly, Amerbagh, 23.11.1961, *P.K. Hajra* 125 (CAL) ; Howrah, Bhakultalla, 5.4.1963, *S.S.R. Bennet* 25 (CAL) ; Nadia Distr., Kalyani, 19.6.1966, *D.B. Deb* 469 (CAL) ; Malda, 21.8.1966, *R.M. Dutta* 380 (CAL).
- Lippia javanica* (Burm. f.) Sprengel : KERALA : Palghat Distr., Attapady area, 525 m, 20.12.1969, *E. Vajravelu* 33181 (MH). TAMIL NADU : Nilgiris, 17.8.1886, *M.A. Lawson s.n.* (MH) ; Coimbatore, Gopinari, 457m, 10.2.1910, *C.E.C. Fischer* 1741 (CAL, FRC) ; Coimbatore, Mangari to Kunjur, 2700', 28.1.1931, *S.R. Raju & Naganathan* 5017 (MH) ; Coimbatore, Kuridimalai northern slopes, 860 m, 27.11.1956, *K. Subramanyam* 1470 (MH) ; Coimbatore, Thekkumalai, 666 m, 12.12.1956, *K.M. Sebastine* 1720 (MH) ; Coimbatore, Thekkumalai-Sanjivi hills, 667 m, 14.2.1957, *K.M. Sebastine* 2300 (CAL, MH) ; Coimbatore, Anaikkatti, Ottakhal hill, 650 m, 23.12.1969, *M.V. Viswanathan* 295 (MH) ; Nilgiri, way from Segur river to Anaikkatti, 850 m, 15.7.1972, *G.V. Subba Rao* 40543 (MH).

ACKNOWLEDGEMENTS

We are thankful to Dr. N. P. Balakrishnan, formerly Joint Director, Botanical Survey of India, Coimbatore, for facilities and encouragement ; to the Director (K) and Dr. N. P. Singh, then Indian Liaison Officer (K), and Dr. D. H. Nicolson (US), for photocopies of literature; to the Curator, BM, for sending the type of *Lantana alba* on loan ; to the Directors of P and G for sending photographs of the types of *Lippia geminata* and *L. asperifolia*, and *Verbena javanica* respectively, and to the Directors/Curators/Officers-in-Charge of the following Indian herbaria for permission to work in the respective herbaria or sending specimens on loan : AHMA, ARUN, ASSAM, BLAT, BSA, BSD, BSI, BSJO, CAL, CALI, DD, FRC, LWG, MH, PBL, PCM, PUN, RHT, SHC and UCT.