

RARE AND ENDEMIC TAXA OF *LEUCAS* (LAMIACEAE) IN INDIA

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The genus *Leucas* R.Br. belonging to the family Lamiaceae (Labiales) is comprising 98 taxa reported from different parts of the world (Sebald 1980), including 50 taxa from India (Singh 2001). Hooker (1885) in his Flora of British India included 34 species and 12 varieties from India. Later Mukerjee (1940) listed 43 species and 11 infra-specific taxa under the genus *Leucas* from India.

The adaptability of this genus can be seen as the populations grow equally well in the plains as well as in higher altitudes of the hilly regions of India. The genus *Leucas* is medicinally important as a whole and almost every species has unique medicinal value and are widely used by traditional healers in India as well as in other countries (Chouhan & Singh 2011).

After thorough checking in important Indian herbaria as well as some foreign herbaria, Herbarium of Botanical Survey of India, Northern Circle, Dehradun (BSD), Herbarium of Indian Council of Forestry Research and Education, Dehradun (DD), Central National Herbarium, Kolkata (CAL), Herbarium of CSIR-National Botanical Research Institute, Lucknow (LWG), Herbarium of St. Xavier's College, Mumbai (BLAT), Herbarium of Central Drug Research Institute, Lucknow (CDRI), Herbarium

of Botanical Survey of India, Southern Circle, Coimbatore (MH), Herbarium of Presidency College, Madras (PCM), Herbarium of British Museum of Natural History, London (BM) and Herbarium of Royal Botanic Gardens, Kew (K) and also through scrutiny of literature, 12 taxa of *Leucas* have been sorted out, 10 of which are known only by their type collections, while two taxa, namely, *L. decemdentata* var. *angustifolia* and *L. eriostoma* var. *lanata* have been collected only once after their type collections. Out of these 12 taxa, 11 are endemic to India, except *L. decemdentata* var. *angustifolia* (Image 3C) which is distributed in Nepal and was probably introduced from Gorakhpur in Uttar Pradesh. These species have also not been included in the Red Data Books of Indian Plants (Jain & Shastri 1984; Nayar & Shastri 1987, 1988, 1990). The taxa are listed below with notes on their distribution, flowering and fruiting months and herbarium details:

1. *Leucas anandaraoana* P. Umamaheswari & P. Daniel in Kew Bull. 54: 1003. 1999; V. Singh in J. Econ. Tax. Bot., Add. Ser. 20: 36. 2001.

Leaves broadly ovate, 1–2.5 cm broad; bracts villous, as long as calyx. Calyx mouth pubescent, villi absent.

Distribution: Endemic to India (Tamil Nadu) (Image 1).

Flowering & Fruiting: January–April.

Representative specimens: India: Tamil Nadu, Ramanathapuram, Gulf of Mannar Biosphere Reserve, Upputhanni Island, western side, 2m, 01.ii.1994, P. Daniel 101669A (holo.: CAL); P. Daniel 101669 B,C,D (iso.:MH, K) (Images 2 A,B).

2. *Leucas angustissima* Sedgw. in J. Ind. Bot. 2:



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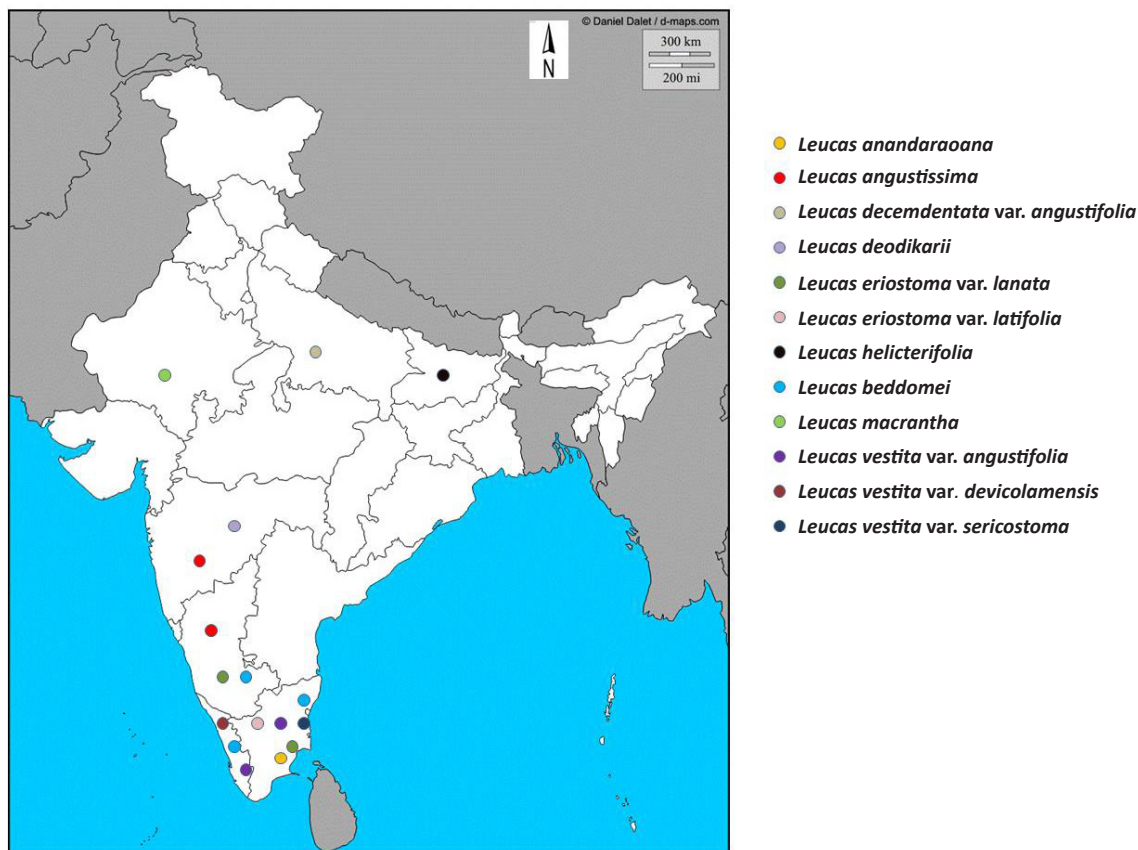


Image 1. Map showing Type locations of *Leucas* species.

123.1921; V. Singh in J. Econ. Tax. Bot., Add. Ser. 20: 40. 2001.

Leaves linear, entire, revolute margined, upto 0.3cm wide; bracts hairy, shorter than calyx. Calyx mouth oblique, villi absent.

Distribution: Endemic to India (Maharashtra & Karnataka) (Image 1).

Flowering & Fruiting: August–January.

Representative specimens: India: Maharashtra (Bombaiensi), Canara, Gairsoppa fall, 455m, November 1919, L.J. Sedgwick & Bell 7234 (holo.: BLAT); L.J. Sedgwick & Bell 7255 (para.: BLAT); Talbot 3740A (para.: BSI).

3. *Leucas beddomei* (Hook.f.) Sunojkumar & P. Mathew in Rheedia 12(2): 169. 2002; *Leucas hirta* (Heyne ex Roth) Spreng. var. *beddomei* Hook.f., Fl. Brit. India 4: 687. 1885; V. Singh in J. Econ. Tax. Bot., Add. Ser. 20: 93. 2001.

Leaves linear-oblong. Calyx mouth villous; teeth longer than villi.

Distribution: Endemic to India (Karnataka, Tamil Nadu & Kerala) (Image 1).

Flowering & Fruiting: August–March.

Representative specimens: India: Kerala, Chembra

Peak, Wayanad, 1524m, R.H. Beddome s.n. (holo.:BM). (Image 3B).

4. *Leucas decemdentata* (Willd.) Sm. var. *angustifolia* (Benth.) V. Singh in J. Econ. Tax. Bot. 22: 388. 1998 & in J. Econ. Tax. Bot., Add. Ser. 20: 74. 2001. *Leucas angustifolia* Benth. in Wall., Pl. Asiat. Rar. 1: 62. 1830.

Leaves linear-lanceolate or narrowly lanceolate, 1.5 cm wide; Bracts shorter than calyx. Calyx mouth villous within.

Distribution: India (Uttar Pradesh), Nepal (Image 1).

Flowering & Fruiting: July–March.

Representative specimens: India: Wall. Cat. no. 2064 (holo.:K); Uttar Pradesh, Gorakhpur, Dhomakhana forest, Jan. 1968, J.K. Maheshwari 81537 (LWG) (Image 3C).

5. *Leucas deodikarii* Billmore & Hemadri in Indian For. 96 (12): 858. f. 1-4. 1970; V. Singh in J. Econ. Tax. Bot., Add. Ser. 20: 76. 2001.

Leaves broadly ovate or ovate-lanceolate, 3–7.5 cm broad, acute, crenate; bracts linear-lanceolate, hairy along the margins, shorter than calyx. Calyx glabrous, veined within; mouth truncate, villi absent.

Distribution: Endemic to India (Maharashtra) (Image 1).



Image 2. Herbarium of *Leucas anandaraoana* (A - holotype; B - Isotype) and *Leucas vestita* var. *devicolamensis* (C - holotype; D - Isotype)

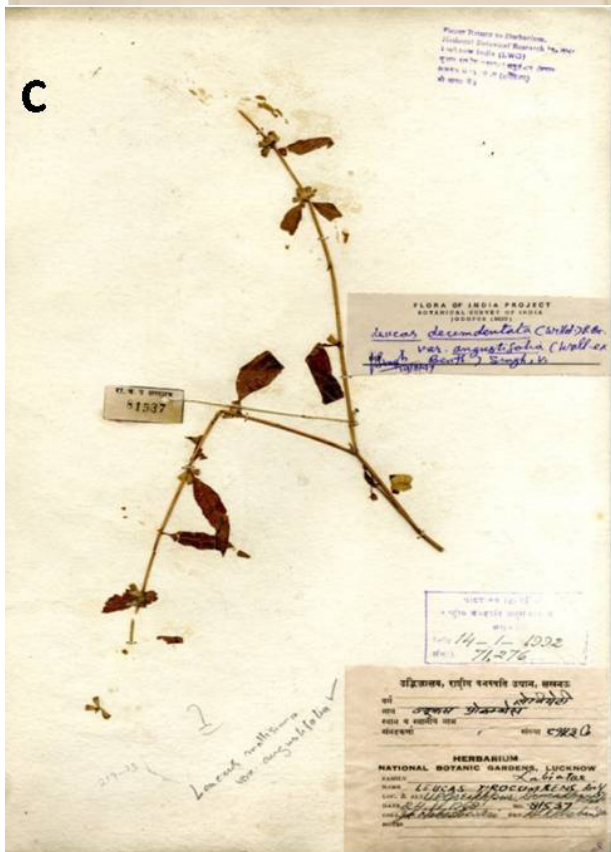


Image 3. Herbarium of *Leucas vestita* var. *sericostoma* (A), *Leucas beddomei* (B) and *Leucas decemdentata* var. *angustifolia* (C)

Flowering & Fruiting: September–December.

Representative specimens: India: Maharashtra (Sahyadri range), Poona, 1100m., September 1968, K. Hemadri 117970A (holo.:CAL); K. Hemadri 117970 B-F (iso.:BSI), K. Hemadri 117970G (iso.:K).

6. *Leucas eriostoma* Hook.f. var. *lanata* Hook.f., Fl. Brit. India 4: 686. 1885; V.Singh in J. Econ. Tax. Bot., Add. Ser. 20: 84. 2001. *Leucas eriostoma* Hook.f. var. *stocksii* Hook.f., Fl. Brit. India 4: 686.1885.

Leaves oblong-lanceolate, 4cm wide, villous on both surfaces. Calyx with a definite ring of villi; villi as long as or longer than calyx teeth.

Distribution: Endemic to India (Karnataka & Tamil Nadu) (Image 1).

Flowering & Fruiting: August–January.

Representative specimens: India: Karnataka, Mysore, Nilgiri and Badaboodan hills. Wight (holo.:E); Tamil Nadu, Salem, Servarayans, 1700m., 1962, E. Govindarajalu 4321 (iso.:PCM).

7. *Leucas eriostoma* Hook.f. var. *latifolia* Hook.f., Fl. Brit. India 4: 686. 1885; V.Singh in J. Econ. Tax. Bot., Add. Ser. 20: 86. 2001.

Leaves elliptic-oblong or lanceolate, 2.5-3.8 cm wide.

Calyx mouth villous within.

Distribution: Endemic to India (Tamil Nadu) (Image 1).

Flowering & Fruiting: July–December.

Representative specimen: India. *Wight* (holo.:E).

8. *Leucas helicterifolia* Haines in Kew Bull. 1922: 188. 1922; V. Singh in J. Econ. Tax. Bot., Add. Ser. 20: 88. 2001.

Leaves lanceolate or oblong-lanceolate, 1.2–2 cm broad, villous on both sides; bracts pubescent, shorter than calyx. Calyx mouth truncate; villi absent.

Distribution: Endemic to India (Bihar) (Image 1).

Flowering & Fruiting: November–December.

Representative specimen: India: Bihar, Ramnagar hills, 300–600 m. H.H. Haines 495 (holo.:K).

9. *Leucas macrantha* Blatt. & Hallb. in J. Ind. Bot. 2: 47. 1921; V.Singh in J. Econ. Tax. Bot., Add. Ser. 20: 112. 2001.

Leaves lanceolate or linear-lanceolate, 0.8 cm wide; bracts hairy, as long as calyx. Calyx mouth oblique; villi absent.

Distribution: Endemic to India (Rajasthan) (Image 1).

Flowering & Fruiting: September–December.

Representative specimen: India: Rajasthan, Mt. Abu, 1200m, October 1916. F. Hallberg 768 (holo.:BLAT).

10. *Leucas vestita* Wall. ex Benth. **var. *angustifolia*** Hook.f., Fl. Brit. India 4: 687. 1885; V.Singh in J. Econ. Tax. Bot., Add. Ser. 20: 152. 2001.

Leucas ciliata Benth. **var. *angustifolia*** (Hook.f.) Sunojk. in Candollea 63(1): 83.2008.

Leaves narrowly elliptic-lanceolate, up to 1.5cm wide; bracts as long as calyx. Calyx teeth two-third as long as tube; mouth with a definite ring of villi.

Distribution: Endemic to India (Tamil Nadu & Kerala) (Image 1).

Flowering & Fruiting: November–February.

Representative specimen: India: Kerala, Sisparah, Wight s.n. (holo.:E).

11. *Leucas vestita* Wall. ex Benth. **var. *devicolamensis*** Shetty & Vivek. in Bull. Bot. Surv. India 10: 236. f. 1-12. 1969; V. Singh in J. Econ. Tax. Bot., Add. Ser. 20: 152. 2001.

Leaves ovate or broadly ovate, 1.5–3 cm wide, serrate; bracts as long as calyx. Calyx mouth truncate, villous within; villi longer than calyx teeth.

Distribution: Endemic to India (Kerala) (Image 1).

Flowering & Fruiting: August–December.

Representative specimens: India: Kerala, Kottayam, Devicolam, Upper vagavurrai, 11.viii.1967, Shetty & Vivekananthan 28372 A (holo.: CAL); Shetty & Vivekananthan 28372 B-S (iso.: MH) (Images 2 C,D).

12. *Leucas vestita* Wall. ex Benth. **var. *sericostoma*** Hook.f., Fl. Brit. India 4: 687. 1885; V. Singh in J. Econ. Tax. Bot., Add. Ser. 20: 155. 2001.

Leaves ovate-lanceolate or lanceolate, bracts as long as calyx. Calyx mouth villous within; teeth shorter than villi.

Distribution: Endemic to India (Tamil Nadu) (Image 1).

Flowering & Fruiting: October–February.

Representative specimen: India, Anamalai hills, R.H. Beddome s.n. (holo.:BM). (Image 3A)

Efforts have been made to re-collect *Leucas decemdentata* var. *angustifolia* from its type locality in two seasons, but without success. Further explorations would be made in type localities and other possible habitats of these rare taxa of the genus *Leucas* to re-locate them. During the course of study, habitat destruction and deforestation have been identified as the main causes of threat.

The above mentioned taxa have been collected either once or twice and are known only by their type collections; therefore, it is urgently needed to make collections from the type locality, so that the size of population and conservation status can be ascertained. Medicinal values of other species of the genus *Leucas* are already known, and are considered as medicinal genus with immense potential, thus, screening for the medicinal or other economical value of these rare taxa will be of immense importance. Thus, first of all re-collection of these rare taxa is very important because some taxa would disappear, if they have not already, due to destructive harvesting practices and habitat degradation, before screening of these endemic taxa can take place.

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