

THE GENUS *DENTELLA* J. R. & G. FORST. (RUBIACEAE) IN INDIA

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ABSTRACT

During studies on the weed-flora of the Indian Botanic Garden, Sibpur, Howrah, two forms of "*Dentella repens*", were met with; they were identified as two distinct species — *D. repens* (Linn.) J. R. & G. Forst. and *D. serpyllifolia* Wall. ex Airy-Shaw. Detailed descriptions and illustrations of both the species, hitherto not available in Indian floras, are given to facilitate easy identification. Specimens of *Dentella* present in various herbaria in India were studied in order to establish their correct identity.

INTRODUCTION

During studies on the weed-flora of the Indian Botanic Garden, Sibpur, Howrah, two distinct forms of "*Dentella repens*" were met with: one with ovaries and fruits densely covered with hyaline, blunt, unicellular setae and the other with ovaries and fruits glabrous. In Indian floras and florulas both these forms were included in *Dentella repens* (Linn.) J. R. & G. Forst.

As early as 1826, Wallich recognised the glabrous-fruited form as a distinct species, *Dentella serpyllifolia* (in Sched. in Herb. Wall., sub. No. 6206 G.); he however, did not publish this species. Only in 1932, Airy-Shaw published the binomial in accordance with the "International Code of Botanical Nomenclature". The glabrous nature of the fruit, noticed as a constant character, without any intermediate forms, in the population of plants occurring in the Indian Botanic Garden, supports that *D. serpyllifolia* is a well defined species. Specimens of *Dentella* present in various herbaria in India were studied in order to establish their correct identity and distribution.

Dentella J. R. & G. Forst. Char. Gen. Plant. Ins. Mar. Austr. 25, t. 13, 1776.

Small, prostrate herbs. Leaves small, entire; stipules minute, scarious. Flowers small, white, solitary, axillary and in forks of branches. Calyx membranous, 5-fid, persistent. Corolla infundibuliform, fugacious, 5-lobed, each lobe with a tooth on either side at apex. Stamens 5, inserted on corolla tube; filaments short; anthers linear, introrse. Ovary inferior, 2-celled; ovules many on axile placentae; style simple, short; stigmas 2, filiform. Fruits small, globose, dry, indehiscent. Seeds many, minute, angled, finely rugose or reticulate.

Distribution: Species 10, mostly Indo-Malaysian and Australian; 2 in India.

KEY TO THE INDIAN SPECIES

Capsules covered with thick hyaline blunt setae	<i>D. repens</i>
Capsules glabrous	 <i>D. serpyllifolia</i>

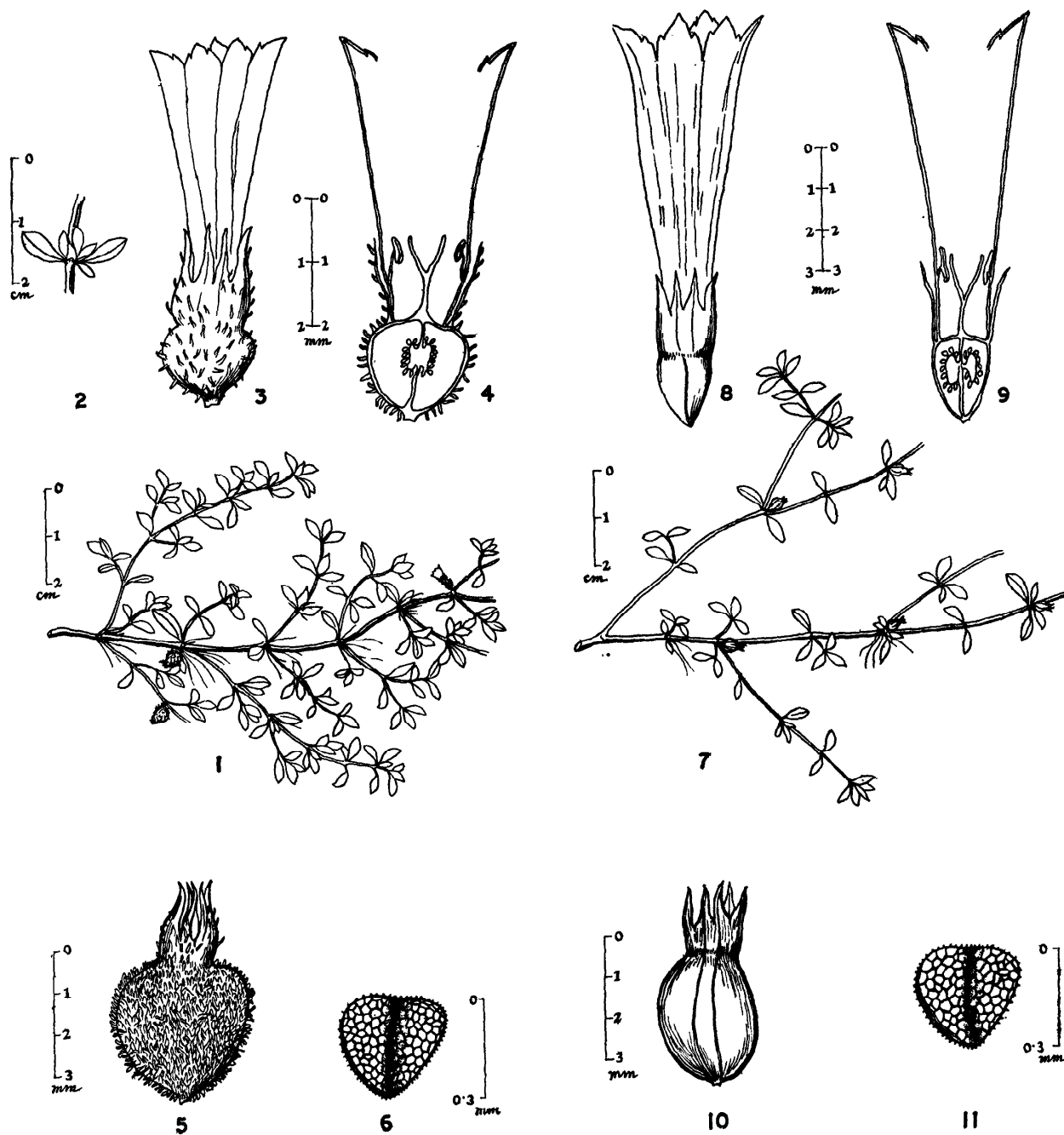
Dentella repens (Linn.) J. R. & G. Forst. Char. Gen. Plant. Ins. Mar. Austr. 25, t. 13, 1776; Airy-Shaw in Kew Bull. 1934 : 291, 1934; Hook. f. Fl. Brit. India 3 : 42, 1880 p.p. *Oldenlandia repens* Linn. Mant. 1 : 40, 1767 (non Burm. f.).

Small, subdichotomously branched herbs; branches slender, prostrate, rarely ascending, rooting at nodes; stems sharply 4-gonous, furrowed, green, glabrous. Leaves 3-10 × 2-3 mm, opposite, sessile or subsessile, subspathulate, obovate-oblongate or oblong-elliptic, entire, glabrous or sparsely hairy, often covered densely with hyaline hollow setae, ciliate along margins, acute or subacute at apex, narrowed at base, 1-nerved, raphides vertically arranged; stipules minute, scarious, connate. Flowers small, solitary, axillary and in forks of branches, sessile or very shortly pedicelled. Calyx ca 2.5 mm long, membranous, persistent; limb tubular, sparsely covered with hyaline setae, 5-toothed; teeth linear-lanceate, acute. Corolla ca 4.5 mm long, infundibuliform, white, hairy within, fugacious; lobes 5, ovate, acute with a tooth on either side at apex. Stamens 5, inserted on corolla-tube in lower half; filaments short; anthers linear, dorsifixed, introrse, dehiscence longitudinal. Ovary 2-celled, oblong, obovoid or turbinate, covered with thick hyaline setae; ovules many on axile placentae; style simple, short; stigmas 2, filiform. Fruits 2.5-3 mm in diam., globose or obovoid, dry, indehiscent, shortly stalked, covered densely with hollow, thick, blunt, hyaline, unicellular trichomes, crowned by persistent calyx. Seeds numerous, minute, spherico-tetrahedral or variously polygonal, brown, rugose, finely echinulate along angles (Figs. 1-6).

Flowers: April to July.

Specimens examined: ANDHRA PRADESH: Anakapalle, 24 Sept. 1921, Accn. No. 85585 (MH); Cheedi-

palem, 28 May 1966, G. V. Subbarao 27433 (MH); Chittoor, 16 June 1918, C. E. C. Fischer



Figs. 1-6 : *Dentella repens* : 1. Habit. 2. Node enlarged. 3. Flower. 4. L. S. of flower. 5. Fruit. 6. Seed. Figs. 7-11 : *D. serpyllifolia* : 7. Habit. 8. Flower. 9. L. S. of flower. 10. Fruit. 11. Seed.

4397 (CAL); Cuddapah, Dongala-Cheruvu, paddy fields, 20 Aug. 1958, K. Subramanyam 6317 (MH); Cuddapah, Gunjana river bed, 24 July 1962,

J. L. Ellis 14340 (MH); Hyderabad, Moosi river bank, 26 June 1958, K. M. Sebastine 5977 (MH); Kodimial, 18 July 1964, G. V. Subbarao

20103 (MH); Krishnadevipeta, 5 March 1915, Accn. No. 24130 (MH); Nandavaram, 24 July 1914, *M. S. Ramaswami* 1167 (CAL); Northern Circars, Apr. 1853, *Cleithorn* s.n., Accn. No. 199517 (CAL); Saveri river bed, Feb. 1885, *J. S. Gamble* 15853 (CAL); Tummleru, 10 Dec. 1902, *C. A. Barber* 5300 (MH); Warangal, 8 Aug. 1961, *K. M. Sebastine* 13109 (MH). ASSAM: Dibrugarh, *Bourne* s.n., Accn. No. B.S.I. (WC) C-8 (BSI); Gauhati, Brahmaputra river bank, 9 Sept. 1967, *A. S. Rao* 45028 (ASSAM); Gauhati, Brahmaputra river bank, D. C.'s Court, 9 Sept. 1967, *A. S. Rao* 45030 (ASSAM); Gauhati, Uzam bazar, 8 Dec. 1945, *M. M. Srinivasan* s.n., Accn. No. 37993 (ASSAM); *Jenkins* s.n. Accn. No. 199471 (CAL). BIHAR: Chota Nagpur, 21 Nov. 1883, *C. B. Clarke* 34366 (CAL); Patna, *Wallich* s.n., (Cat. No. 6206 C), Accn. No. 199469 (CAL); Pukhuria, *A. Campbell* s.n., Accn. No. 199500 (CAL); Udaipur Forest, 7 Apr. 1963, *K. Thothathri* 9929 (CAL). GUJARAT: Nageshwar, Dwaraka, 21 Aug. 1950, *J. C. Dhruna* D 42 (CAL); Nageshwar, 21 Aug. 1950, *J. C. Dhruna* D 42 (DD). KERALA: Calicut, 1847, Accn. No. 199519 (CAL); Calicut, Feb. 1906, *A. Meebold* 2240 (CAL); Dhoni, 25 March 1910, *C. E. C. Fischer* 1815 (CAL); Dhoni, 9 June 1910, *C. E. C. Fischer* 1985 (CAL); Nilambur, *Beddome* s.n., Accn. No. 24134 (MH); Nilambur, 30 Apr. 1958, *J. A. Vasavada* 35989 (BSI); Quilon, 17 Aug. 1913, *M. Ramarao* 2239 (CAL); Reechi Range, Kuthiran Reserve Forest, Near Tank, 18 May 1966, *K. M. Sebastine* 27624 (MH); Thenmalai, Railway track, 15 June 1960, *K. C. Kanodia* 63073 (BSI); Walayar Dam, along outlet canal, 24 May 1964, *E. Vajravelu* 19063 (MH); Walayar Forest, 12 July 1963, *J. Joseph* 17125 (MH). MADHYA PRADESH: Kathfora 17 Apr. 1965, *C. M. Arora* 8674 (BSA); Pali, 17 Apr. 1965, *G. Panigrahi & C. M. Arora* 8719 (BSA). MADRAS: Aduthorai, North of Veerasolen river, 14 Feb. 1931, *V. Narayanaswamy* 5247 (MH); Ammapettai, 25 Aug. 1930, *V. Narayanaswamy* 4169 (MH); Coimbatore, Neninjipet, 11 Jan. 1906, *C. E. C. Fischer* 874 (CAL); Coimbatore, Siva Samudram, 10 May 1914, Accn. No. 24137 (MH); Coimbatore, Walayar Reservoir, 6 May 1957, *K. Subramanyam* 3006 (MH); Courtallam, near Tirumalaikoil, 27 Apr. 1957, *K. Subramanyam* 2983 (MH); Gingee Reserve Forest, 6 Aug. 1961, *K. Ramamurthy* 13039 (MH); Hogainakkal river bank, 11 July 1964, *E. Vajravelu* 20531 (MH); Kuppam, 30 Apr. 1914, Accn. No. 24127 (MH); Madras, 27 Nov. 1900, Accn. No. 199503

(CAL); Madras, 9 March 1899, *C. A. Barber* 231 (MH); Nilgiri, *G. D. Hooker & Thomson* s.n., Accn. No. 199515 (CAL); Palur, 14 June 1907, *C. A. Barber* 8336 (MH); Pinchenkotagam, 11 Aug. 1960, *K. M. Sebastine* 10666 (MH); Poyakkarai, paddy-fields near pond, 12 June 1957, *K. Subramanyam* 3436 (MH); Shevaroi Hills, Accn. No. 199511 (CAL); Tippukadu Reserve Forest, 29 June 1963, *K. Ramamurthy* 16619 (MH); Tirupachetti, 23 Aug. 1964, *K. Ramamurthy* 21058 (MH); Tiruvaniur, July 1885, *J. S. Gamble* 16418 (DD); Tranquebar, 31 July 1799, *Rotiler* 364 (CAL). MAHARASHTRA: Bassein, Bhatana, 13 Jan. 1903, *G. A. Gammie* 174 (BSI); Lonavala, 6 May 1956, *S. K. Jain* 925 (BSI); Poona, banks of Moorchha Canal, 9 Apr. 1890, *P. S. Kanerkar* s.n., Accn. No. 199527 (CAL); Poona, banks of Parvati tank, July 1888, *N. B. Ranade* s.n., Accn. No. BSI (WC) C-6, (BSI); Poona, banks of Parvati, July 1888, *N. B. Ranade* s.n., Accn. No. BSI (WC) C-7 (BSI); Poona, near Parvati tank, *T. Cooke* s.n., Accn. No. BSI (WC) C-5 (BSI); Pravara Sangam, near bridge, 3 Nov. 1961, *R. S. Rao* 71337 (BSI); *T. Cooke* s.n., Accn. No. BSI (WC) C-9 (BSI). MYSORE: Bccjapore, Accn. No. BSI (WC) C-3 (BSI); North Kanara, 20 May 1883, *W. A. Talbot* 471 (CAL); North Kanara, 1884, *W. A. Talbot* 471 (BSI); North Kanara, Malpe, 9 March 1963, *R. K. Arora* 3023 (CAL); North Kanara, Yellapur, 13 Apr. 1958, *R. K. Arora* 33693 (BSI); North Kanara, Yellapur, Rice-fields, May 1919, *T. R. Bell* 6074 (CAL). ORISSA: Balukhand, Reserve Forest, 21 Apr. 1964, *V. Abraham* 72 (CAL) and 10 Apr. 1965, *V. Abraham* 172 (CAL); Berhampur, 1846, *McClelland* s.n., Accn. No. 199510 (CAL); Deogaon, 27 June 1957, *G. Panigrahi* 8354 (ASSAM); Puri, 25 May 1848, *H. F. Mooney* 3032 (DD). RAJASTHAN: Ajmeer, Beer tank, 17 Aug. 1958, *V. S. Sharma* 445 (DD); Dungarpur, 13 Apr. 1963, *D. M. Verma* 170 (BSA); Jodhpur, Kailana tank, 16 Oct. 1960, *Seshagiri Rao Rolla* 67226 A (BSI); Kota, 27 May 1965, *B. M. Wadhwa & R. Prasad* 9491 (BSI); Shahabad Rest house, 18 May 1965, *B. M. Wadhwa & R. Prasad* 9350 (BSA). UTTAR PRADESH: Allahabad, Macferson lake, 19 Oct. 1963, *V. N. Singh* 576 (BSA); Banki, 22 Feb. 1966, *G. Panigrahi & R. Saran* 10527 (BSA); Dudhi, Jamunah nallah, 23 July 1965, *O. P. Misra* 9911 (BSA); Garwa, 1 May 1967, *G. Panigrahi* 11385 (BSA); Gorakhpur, March 1959, *D. N. Sen* s.n., Accn. No. 129365 (DD); Mahoba, 18 July 1962, *C. L. Malhotra* 21433 (BSD);

Nawabganj, Parvati lake, 7 Aug. 1959, Y. K. Sarin 8957 (BSD). WEST BENGAL: Bamunpara, 18 May 1960, A. K. Dutta 176 (CAL); Burdwan, Kanchannagar, 6 May 1960, A. K. Dutta 125 (CAL); Geghat, Aug. 1902, A. Hossein s.n., Accn. No. 199487 (CAL); Golaridanga, 9 Aug. 1961, G. Sen Gupta 66 (CAL); Hooghli, 21 Nov. 1964, M. K. Ghosh 2423 (CAL); Howrah, Sibpur, Indian Botanic Garden, 31 May 1966, V. S. Sharma 371 and 23 July 1966, V. S. Sharma 475 (CAL); Jahanabad, 10 March 1902, J. D. Nusker 14 (CAL); Jalpaiguri, Rajabhatkawa, 23 Apr. 1959, C. R. Das 30 (CAL); Jhargram, 17 May 1963, G. Sen Gupta 452(a) (CAL); Lower Bengal, 1867, S. Kurz s.n., Accn. No. 199493 (CAL); Lower Bengal, Rice-fields, May 1867, S. Kurz s.n., Accn. No. 199495 (CAL); Manikpur, 4 Aug. 1961, G. Sen Gupta 27 (CAL); Raneeaganj, May 1865, S. Kurz s.n., Accn. No. 199492 (CAL); Tarakeshwar, Badypur, 27 Apr. 1963, M. K. Ghosh 881 (CAL). ANDAMAN ISLANDS: South Andamans: Lop Island, S. Kurz s.n., Accn. No. 199480 (CAL); Port Blair, 1 May 1964, J. L. Ellis & K. Ramamurthy 18986 (MH). LACCADIVES: Kalpani Islands, 23 Nov. 1960, B. M. Wadhwa 64826 (BSI); 9 May 1889, A. W. Alcock s.n., Accn. No. 199482 (CAL). NICOBAR ISLANDS: Sawai, 1 Apr. 1959, K. Thothathri 9354 (MH).

While examining the specimens at CAL, some specimens from other countries were met with and they were also studied:

AUSTRALIA: Bundaberg, March 1882, B. Scortechini s.n., Accn. No. 199542 (CAL); Queensland, Ferd Mueller s.n., Accn. No. 199543 (CAL). BURMA: Kyonkse, 10 March 1893, King's Collector 362 (CAL); Segaing, 6 Nov. 1892, Abdul Huk 5 (CAL); Shaimagah, 14 Jan. 1868, J. Anderson s.n., Accn. No. 199474 (CAL); Shan States, 1892, Abdul Huk s.n., Accn. No. 199478 (CAL); Shwebo, June 1891, Abdul Huk 58 (CAL); Shwebo, Mugan, 7 July 1811, Wallich s.n., (Cat. No. 6206 C), Accn. No. 199470 (CAL); Southern Shan State, Indine, 1893, Abdul Khalil s.n., Accn. No. 199477 (CAL); 1862-63, Griffith 2881 (CAL). CEYLON: Colombo, 28 Oct. 1890, King's Collector s.n., Accn. No. 199528. EAST PAKISTAN: Dacca, 31 May 1850, J. D. Hooker & Thomson s.n., Accn. No. 199488 (CAL); Kissanganje, 13 July 1875, Accn. No. 199498 (CAL); Koosteet, bed of Ganges, Apr. 1867, S. Kurz s.n., Accn. No. 199494. INDONESIA: Java, 1859, Accn. Nos. 199536 and 199537 (CAL); Buitenzorg, 19 Sept. 1899, H. Dibson s.n.,

Accn. No. 199540 (CAL). MALAYSIA: Malacca, Accn. No. 199532 (CAL); Penang, Sepoy Lines, July 1889, C. Curtis 1850 (CAL). PHILIPPINES: Luzon, Manila, 28 Apr. 1902, E. D. Merrill s.n., Accn. No. 199538 (CAL). SIAM: Oct. 1910, G. F. G. Kerr 1476 (CAL). SINGAPORE: 1899, Accn. No. 199535 (CAL).

Dentella serpyllifolia Wall. ex Airy-Shaw in Kew Bull. 1932: 289, 1932; Merrill in J. Arnold Arb. 35: 155, 1954. *D. repens* sensu Hook. f. Fl. Brit. India 3: 42, 1880 p.p.

Small, dichotomous herbs; branches slender, prostrate, rarely ascending, rooting at nodes; stems sharply 4-gonous, furrowed, green, glabrous. Leaves 4.9 × 1.5-3 mm, opposite, sessile or subsessile, oblanceolate, subspathulate, oblong-elliptic or obovate-oblanate, entire, glabrous, acute or obtuse at apex, narrowed at base, 1-nerved, raphides vertically arranged; stipules small, scarious, connate. Flowers small, solitary, axillary and in forks of branches, subsessile or very shortly pedicelled. Calyx ca 3 mm long, membranous, persistent; limb tubular, glabrous, 5-nerved, 5-toothed; teeth subulate, acute. Corolla 7.5-8 mm long, infundibuliform, white, sometimes with 5 pale blackish-purple spots on throat, hairy within, fugacious; lobes 5, ovate, subdentate and acute at apex. Stamens 5, inserted on corolla-tube in lower half; filaments short; anthers linear, dorsifixed, introrse, dehiscence longitudinal. Ovary 2-celled, oblong-obovoid, glabrous; ovules many on axile placentae; style simple, short; stigmas 2, filiform. Fruits 2.3 × 2.2-2.5 mm, obliquely ellipsoid, plano-spheric or oblong-obovoid, slightly dorsiventrally compressed, faintly 5-ribbed, dry, indehiscent, shortly stalked, glabrous, crowned by persistent calyx. Seeds numerous, minute, spherico-tetrahedral or variously polygonal, dark brown, reticulate, finely echinulate along angles (Figs. 7-11).

Flowers: April to October.

Specimens examined: ANDHRA PRADESH: Northern Circars, Apr. 1853, Cleighorn s.n., Accn. No. 199517 (CAL); Visakhapattanam, Nathavaram, June 1900, C. A. Barber 1886 (MH). ASSAM: Gauhati, Brahmaputra river bank, 9 Sept. 1967, A. S. Rao 45030 (ASSAM); Gauhati, Uzam bazar, 8 Dec. 1945, M. M. Srinivasan s.n., Accn. No. 37993 (ASSAM). BIHAR: Patna, Wallich s.n. (Cat. No. 6206 C) Accn. No. 199469 (CAL). MADRAS: Coimbatore, Central Farm, 2 Sept. 1943, D. Daniel s.n., Accn. No. 87055 (MH). ORISSA: Chatrapur,

July 1904, *C. E. C. Fischer* 65 (CAL); Cuttack, North of Mahanadi shores, 15 May 1966, *M. K. Ghosh* 86 (CAL); Cuttack, Sisua Chitratar river area, 25 May 1967, *M. K. Ghosh* 268 (CAL); Narasinghpur, Navagarh, 10 July 1843, *H. F. Mooney* 2248 (DD); Tikarpars, along Mahanadi banks, 22 June 1964, *D. C. S. Raju* 1884 (CAL). TRIPURA: Agartala, Oct. 1915, *P. M. Debbarman* 809 (CAL); Agartala, 14 Oct. 1915, *P. M. Debbarman* 821 (CAL). UTTAR PRADESH: Gorakhpur, Ramgarhtal, 29 Aug. 1960, *M. A. Rau* 12193 (BSD). WEST BENGAL: Birati, Saptagram, 1 July 1965, *K. N. Raichowdhury* K 20 (CAL); Gighat, Aug. 1902, *A. Hossein* s.n., Accn. No. 199487 (CAL); Aug. 1902, *A. Hossein* s.n., Accn. No. 199501 (CAL); Howrah, Sibpur, 11 Sept. 1902, *J. D. Nusker* s.n., Accn. No. 199489 (CAL); Howrah, Sibpur, Indian Botanic Garden, 22 Apr. 1966, *V. S. Sharma* 283 and 23 July 1966, *V. S. Sharma* 470 (CAL); Jhargram, 17 May 1963, *G. Sen Gupta* 452 (CAL); Krilapal, Naura Forest, 20 May 1963, *U. Chatterjee* 138 (CAL).

While examining the specimens at CAL, some specimens from other countries were met with and they were also studied.

BURMA: Henzada, Irrawaddi, *Wallich* s.n. (Cat. No. 6206 G) (CAL); Munbu, Pomin, Sept. 1902, *Shaik Mokim* 239 (CAL); Munbu, Pomin, riverbed, Sept. 1902, *Shaik Mokim* 239 (BSI); Shwebo, Mugan, 7 July 1811, *Wallich* s.n. (Cat. No. 6206 C), Accn. No. 199470 (CAL). EAST PAKISTAN: Chittagong, 10 Apr. 1880, *J. Wood* s.n., Accn. No. 199484 (CAL); Mymensingh, Atgao, 4 Apr. 1869, *C. B. Clarke* 8426 (CAL). MALAYSIA: Malaya Archipelago, 1880, *H. Kunstler* 34, Accn. No. 199533 (CAL). PHILIPPINES: Morong, Luzon, Aug. 1906, *Maxims Ramos* 42885 (CAL). SINGAPORE: 1880, *H. Kunstler* 34, Accn. No. 199531 (CAL).

ACKNOWLEDGEMENTS

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