

NEW AND LITTLE KNOWN TAXA FROM ANAIMUDI AND SURROUNDING REGIONS, DEVICOLAM, KERALA—IV: NOTES ON SOME RARE SPECIES

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ABSTRACT

Juncus effusus Linn. is reported for the first time from South India. Additional information on a few little known taxa from Kerala are given.

During the floristic survey of Anaimudi (2,695 m), the highest peak in the subcontinent, south of the Himalayas, the authors collected some interesting taxa, three of which have been described as new to science (Shetty & Vivekananthan, 1968, 1969 and 1970). The present paper deals with a new record for South India, viz. *Juncus effusus* Linn. (Juncaceae) and a few other species, viz. *Impatiens coelotropis* C. E. C. Fischer (Balsaminaceae), *I. pandata* E. Barnes, *Isachne fischeri* Bor (Poaceae), *Medinilla malabarica* Bedd. (Melastomataceae), *Symplocos anamallayana* Bedd. (Symplocaceae), *Tylophora subramanii* Henry (Asclepiadaceae) and *Vernonia anamallica* Bedd. ex Gamble (Asteraceae) which are little known and are inadequately or not at all represented in the Indian herbaria. Of these, the present collections of *Impatiens coelotropis*, *Isachne fischeri*, *Tylophora subramanii* and *Vernonia anamallica* are the only collections made after the type collections.

Juncus effusus L. Sp. Pl. 326. 1753 ; Hook. f. Fl. Brit. India 6: 392. 1892 ; Buch. in Engl. Pflanzenr. 25: 135. 1906 ; C. A. Backer in Fl. Mal. I, 4: 211. 1951 ; C. A. Backer & R. C. Bakh. Fl. Java 3: 451. 1965.

This species, though quite common in South India, has hitherto been confused with

Juncus inflexus Linn. (*J. glaucus* Ehrh.). The two species, however, can be differentiated by the following key.

Basal sheaths dull or faintly shining ; tepals light green or yellowish, less than 3 mm long ; stamens usually 3 ; mucro of the capsule absent or inconspicuous	<i>J. effusus</i>
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Basal sheaths very shining ; tepals brown or greenish brown, more than 3 mm long ; stamens 6 ; mucro of the capsule distinct	... <i>J. inflexus</i>
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Juncus effusus Linn. is world-wide in its distribution and is reported to occur in the temperate zones (specially in the N. hemisphere) and the mountainous districts of the tropics, excepting Australia (Backer, l.c.). J. D. Hooker (l.c.) records this species from "Sikkim Himalaya, alt. 6-10,000 ft. Khasia hills, alt. 5-5,500 ft." and states that it is distributed over Europe, N. Asia, Africa, America and Australia. There are also collections from Afghanistan and Ceylon in the Central National Herbarium, Calcutta. The present collections (Shetty 26446 B & 27385) from Upper Vagavurrai, near Anaimudi in Devicolam, Kerala from a new record to South India. In addition, there are also collections from the High Range (Kerala), Pulneys and Nilgiris (Tamil Nadu) in the Madras Herbarium, Coimbatore ; these, however, have been wrongly identified as *J. inflexus* Linn. This indicates that *J. effusus* has a wide distribution in the high plateaux of the Western Ghats in South India.

Herbarium specimens examined: KERALA: Upper Vagavurrai, Devicolam, 1,930 m, 16-11-1965, B. V. Shetty 26446 B; Upper Vagavurrai, Devicolam, 1,825 m, 25-4-1966, B. V. Shetty 27385; Munnar, 1,500 m, 16-10-1963, K. M. Sebastine 17579; Lakshmi Estate, Munnar, 1,500 m, 12-9-1968, D. B. Deb 30763. TAMIL NADU: Madurai Dt., between Fumburai and Kukkal, 17-7-1920, K. C. Jacob 16527; Vattakanal, 1900 m, 18-9-1968, D. B. Deb 30969. Nilgiri Dt., Govt. Gardens, Ooty, 2,285 m, 16-9-1938, G. V. Narayana and S. R. Raju 18430; Kunnacombai R. F., 2,000 m, 1-9-1957, K. M. Sebastine 3992; Upper Bhavani, 2,075 m, 1-6-1970, B. V. Shetty 34044 A (all in MH).

Impatiens coelotropis C. E. C. Fischer in Bull. Misc. Inf. Kew 1934: 390-391. 1934 & in Gamble, Fl. Pres. Madras 1871. 1936; E. Barnes in J. Indian bot. Soc. 18: 99. 1939.

This endemic species which is restricted to the High Range in Kerala was described by C. E. C. Fischer, based on the collections of E. Barnes from Naimakad gap and Anaimudi slopes, the type specimens being deposited in the Kew Herbarium. Barnes (l.c.) found this plant "in several places in the same region—the Naimakad gap of the Anaimudi ridge" and had collected several specimens under nine field numbers, but none of them has been deposited in the Madras Herbarium, Coimbatore, nor in the Central National Herbarium, Calcutta. The present collections from the type locality were made by the authors during their visits to Anaimudi.

Herbarium specimens examined: KERALA: Umaiymallay, Anaimudi slopes, 2,100 m, common in sholas, flowering, 20-11-1965, B. V. Shetty 26574; Upper Vagavurrai, 1,800 m, in evergreen forests, not common, flowering, 8-8-1967, B. V. Shetty 28338 (all in MH).

I. pandata E. Barnes in Bull. Misc. Inf. Kew 1938: 33-34. 1938 & in J. Indian bot. Soc.

18: 98. 1939; Sebastine in Bull. bot. Surv. India 4: 223. 1962.

E. Barnes collected this scapigerous herb which grows on wet rocks in cushions of moss in the grasslands on Anaimudi slopes and Karankulam in the High Range—a region considered by him to be "the richest area of the Western Ghats and consequently of the world" for *Impatiens*. The restricted distribution of this species, according to Barnes (1939), is due to the feeble dispersal mechanism of the plant, and he observed, that "when these seeds fall on wet surface the hairs expand; when the surface dries the hairs adhere to it and so anchor the seed. The primary function of this adaptation is no doubt to prevent the seeds from being carried beyond the habitat of the plant". The type materials and the other collections of Barnes have been deposited in the Kew Herbarium and Barnes Herbarium and none of them is available in the leading Indian herbaria. This little-known plant has again been collected by the authors from the type locality during the monsoon season.

Herbarium specimens examined: KERALA: Umaiymallay, Anaimudi slopes, 2,025 m, in grassland on wet rocks in cushions of moss, not common, flowering, 6-8-1967, B. V. Shetty 28319 (MH).

Isachne fischeri Bor in Kew Bull. 1949: 69-70. 1949 & Monogr. 580. 1960; Sebastine in Bull. bot. Surv. India 4: 222. 1962. *I. kunthiana* Wt. & Arn. var. *nana* C. E. C. Fischer in Gamble, Fl. Pres. Madras 1796. 1934.

N. L. Bor described this species, based on a collection made by E. Barnes in September, 1933 from the summit of Anaimudi. This collection, forming the type and deposited in the Kew Herbarium, happens to be the only one available until now, excepting for the authors' collection. In the original description Bor had not given the character

of caryopsis and hence a brief description of the same based on the present collection from the type locality is given below.

Caryopsis chocolate-brown in colour, often with black markings, ellipsoid, plano-convex, enclosed by the hardened lemma and palea.

Herbarium specimen examined: KERALA: Anaimudi slopes, 2,575 m, in grassland, not common, 19-11-1965, B. V. Shetty 26533 (MH).

Medinilla malabarica Bedd. Ic. Pl. Ind. Or. 33, t. 157. 1874; C. B. Clarke in Hook. f. Fl. Brit. India 2: 548. 1879; Gamble, Fl. Pres. Madras 496. 1919; Fyson, Fl. South Ind. Hill St. 1: 229. 1932; C. E. C. Fischer in Bull. Misc. Inf. Kew 1938: 124. 1938.

R. H. Beddome (*l.c.*) who described this species based on his collections from Anaimalai states: "this beautiful epiphyte is most abundant on the Anamallays, chiefly on the higher ranges where it quite covers trees, but also at lower elevations down to 3,500 feet. I have also observed it on the western slopes of the Nilgiris [banks of the river just below Walaghat—(Palaghat)] 4,000 feet elevation; it is in flower all the year round." Based on Beddome's collections and observation, C. B. Clarke (*l.c.*), J. S. Gamble (*l.c.*) and P. F. Fyson (*l.c.*) have recorded its occurrence in the Nilgiris and Anaimalai but there are no collections of this plant so far from Nilgiris. In the Madras Herbarium there are only two collections of Beddome from Anaimalai. C. E. C. Fischer (*l.c.*) in his paper on 'New or little-known plants from South India' has pointed out that "the published description of this plant appears to have been based on scanty material collected by Beddome. In the Kew Herbarium there are only two sheets, each with a few short twigs with 2 or 3 flowers and detached leaves (2 in one sheet and 6 on the other)." He emended the description of this species, based on the notes of E. Barnes and also his

collection from Anaimudi slopes at 2,285-2,435 m, along stream banks. The present collections are also from Anaimudi slopes.

The habit of the plant is peculiar and has led to some confusion in the past. Beddome (*l.c.*) described it as "epiphytic, glabrous, subscandent, copiously rooting" and on the sheets deposited in the Madras Herbarium he has made the following remark: "parasitic on trees". According to Gamble (*l.c.*) it is an "epiphytic subscandent shrub" Based on the notes of Barnes, Fischer (*l.c.*) furnished the correct information on the habit thus: "the plant is rooted in the soil, the stem runs up the trunks of trees and its leaves and flowers hang down in bunches from the underside of the branches of the supporting tree." The authors' observations are in agreement with that of Fischer.

Herbarium specimens examined: KERALA: Umaiyamallay, Anaimudi slopes, 2,075 m, along the margins of stream, not common, flowering, 17-11-1965, B. V. Shetty 26477; Umaiyamallay, 2,050 m, along the margins of stream, not common, flowering, 6-8-1967, B. V. Shetty 28323; Umaiyamallay, 2,150 m, along the margins of stream, not common, flowering and fruiting, 3-2-1970, B. V. Shetty 33405. TAMIL NADU: Anamallays, 1,524 to 2,133 m, Beddome s. n. (acc. no. 21367, 21368) (all in MH).

Symplocos anamallayana Bedd. Forest Man. Bot. 150. 1872 & Ic. Pl. Ind. Or. 24, t. 116. 1874; C. B. Clarke in Hook. f. Fl. Brit. India 3: 581. 1882; A. Brand in Engl. Pflanzenr. 6: 65. 1901; C. E. C. Fischer in Rec. bot. Surv. India 9: 111. 1921; Gamble, Fl. Pres. Madras 784. 1923; K. Balasub. in Indian For. 98: 302. 1972. *S. uniflora* Bedd. in Trans. Linn. Soc. 25: 219. 1866 (*non* Benth.).

In the Madras Herbarium, Coimbatore, there are only two specimens collected from Anaimalai hills, one at an altitude of 1,800 m (acc. no. 30604) and the other at 1,800-2,000 m

(acc. no. 30605). Although the collector's name and the field numbers are lacking, it is evident from the herbarium ledger and from the handwriting that both the specimens have been collected by R. H. Beddome; but the date of collection is not known. On one of the sheets (acc. no. 30604) J. S. Gamble has indicated that "This seems to be the type of Beddome plate No. 116." This species has also been enumerated by C. E. C. Fischer (*l.c.*) in his "*A Survey of the flora of Anaimalai Hills in the Coimbatore District, Madras Presidency*" and he quotes two field numbers, Fischer 3312 and 3562. These specimens which have been deposited in the Central National Herbarium, Calcutta and Forest College Herbarium, Coimbatore were collected by him during 1912 and 1913 respectively. Recently K. Balasubramanian (*l.c.*) reported its occurrence in the sholas near Berijam, in Pulneys (2,135 m). The present collection, made in April 1966, is from Anaimudi (2,500 m).

Herbarium specimens examined: KERALA: Western slopes of Anaimudi, 2,500 m, in sholas, rare, flowering, 23-4-1966, B. V. Shetty 27363; TAMIL NADU: Anamallay hills, 1,800 m, flowering, Beddome s. n. (acc. no. 30604); Anamallays, 1,800-2,000 m, flowering, Beddome s. n. (acc. no. 30605) (all in MH); Parampara, Anaimalai hills, 2,300 m, 31-3-1912, C. E. C. Fischer 3312 (Forest College Herbarium, Coimbatore).

Tylophora subramanii Henry in Proc. Indian Acad. Sci. 65 B: 161-164. 1967.

This interesting species, not very closely allied to any of the Asiatic species, has been described by A. N. Henry from his collection from Kuthiraivetti (1,000 m), Tirunelveli District, Tamil Nadu. The present collection is from Petimudi (1,675 m), near Anaimudi in Kerala. Moreover, one specimen collected in Devicolum (1,500 m) in Kerala by K. M. Sebastine, on critical study, has turned out to be this species, thus indi-

cating that this species may be common in the Southern Ghats of South India. The plant collected at Petimudi is a large climbing shrub, up to 8 m high, climbing on tree trunks or on bushes and sometimes trailing on the ground and rooting at nodes. This collection appears to be more robust than the type materials.

Herbarium specimens examined: KERALA: Petimudi, 1,675 m, not common, flowering, 8-2-1970, B. V. Shetty 33446; Devicolum, 1,500 m, not common, flowering, 29-1-1964, K. M. Sebastine 18524 (all in MH).

Vernonia anamallica Bedd. ex Gamble in Bull. Misc. Inf. Kew 1920; 339. 1920; Gamble, Fl. Pres. Madras 675. 1921.

R. H. Beddome made a collection of this species from Anaimalai in 1873 and deposited it in the Madras Herbarium, Coimbatore, with the manuscript name *Vernonia anamallica*. J. S. Gamble (1920) validated this species and included the same in his *Flora of the Presidency of Madras*. On the type sheet deposited in the Madras Herbarium, Gamble has remarked: "I have taken the liberty of keeping the upper specimen for Kew—please excuse." So, of the two specimens mounted on a single herbarium sheet the upper one has been kept in the Kew Herbarium and the other has been returned to the Madras Herbarium. There are no collections of this species in the Central National Herbarium, Calcutta.

Thus, the present collections (Shetty 26598, 33450) from Rajamallay (2,075 m) and Petimudi (1,675 m) which are near Anaimudi are the only collections made after the type collection, after a lapse of about 100 years. This species appears to be endemic to the higher ranges of Anaimalai hills and the adjoining Anaimudi hill.

As the original description is based on only two specimens collected during a single gathering, a detailed description of the species with some additional characters based

on the present collections is given below for a better understanding of the species.

Shrubs 2-4 m high; *stem* woody, terete, lenticellate; older branches almost glabrous, younger ones closely appressed brown pubescent, striate. *Leaves* 5-17.5 × 1-7.2 cm, elliptic, elliptic-ovate or elliptic-lanceolate, acuminate at apex, acute and often slightly inaequilateral at base, shortly crenate-serrate, upper surface light green, almost glabrous except for the puberulus nerves and the pubescent midrib, undersurface closely appressed brown or golden pubescent; lateral nerves 5-10 pairs, prominent, slender, curved; petioles 0.6-3 cm long, brown pubescent. *Inflorescence* corymbose, terminal and in the axils of upper leaves, 3-7 cm wide. *Capitula* 7-8 mm long, distinctly pedunculate; peduncles upto 2.5 cm long, brown pubescent. Involucre 5-seriate; phyllaries brown, pubescent, mucronate, markedly increasing in size towards the flowers; outer ovate, 2-2.5 mm long, ± 1.25 mm broad, inner elliptic-oblong, 4.5-5 mm long, ± 1.5 mm broad. *Flowers* faintly fragrant. Corolla white, often with a tinge of pink, infundibuliform, 6-7 mm long; lobes five, 2-5 mm long, lanceolate, recurved, margins thickened, with a blunt

brownish tip, glandular towards the apex particularly at the tips of lobes. Stamens 5; filaments white; anthers ± 2.5 mm long, dark-purple. Style ± 5.5 mm long, white, puberulus at tip; stigmatic lobes ± 1.5 mm long, prominently arching. Cypselas 5-angled, glabrous; pappus 2-seriate, outer very short, inner ± 5.5 mm long, deciduous.

Herbarium specimens examined: KERALA: Rajamallay, 2,075 m, not common, flowering and fruiting, 21-11-1965, B. V. Shetty 26598; Petimudi, 1,675 m, not common, flowering and fruiting, 8-2-1970, B. V. Shetty 33450. TAMIL NADU: Anamallays, higher ranges, 1873, Beddome s. n. (acc. no. 27092) (all in MH).

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