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STROBILANTHES CIRCARENSIS GAMBLE, A SYNONYM OF *S. PULNEYENSIS* C.B. CLARKE (ACANTHACEAE)

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ABSTRACT

Strobilanthes circarensis described by Gamble based on incomplete material is subjected to critical studies and its identity is compared with that of *S. neilgherrensis* Bedd. and *S. pulneyensis* C.B. Clarke. The reports of its rarity and its occurrence elsewhere after type collection are reviewed. It is now proved conspecific with *S. pulneyensis* and a detailed description with an illustration is included.

Gamble (1923) described *Strobilanthes circarensis* based on his material collected at Peddavalasa and that of Lushington at Endrika and Vantala in Visakhapatnam District, Andhra Pradesh. He allied it to *S. neilgherrensis* Bedd. but differentiated in the stems being more strigose, bracts obovate and not oblong, calyx lobes narrower and more silky villous and, the venation of the leaf more impressed. The specimens, on which he based the description, are incomplete as he stated corolla ignota (unknown). The duplicates of Gamble material (*Gamble* 21779) at DD and BSI which have been annotated as *sp. nov.*, by Gamble look similar to *S. pulneyensis* which is distributed in Andhra Pradesh, Karnataka, Kerala and Tamil Nadu. The one at BSI was later annotated as *S. circarensis* Gamble by Venkata Reddi. After Gamble's collection of *S. circarensis* in fruit from Visakhapatnam, Mooney collected a plant in two locations in Kalahandi, Orissa, in January 1938, one at Karlapat, Kasipur and the other in Chandragiri. He collected it again in Bailadila, Bastar in the same year. Mooney did not give any name on *Schedula* but appended a long descriptive note. Only part of the description has some relevance with its identity which is reproduced here. "Flowers bright blue in flattened heads, densely white hairy, bracts leafy, suborbicular (deltoid) with broad stalk, bracteoles silky pubescent, linear spathulate, ca 13mm long, sepals linear; corolla bright blue with cylinder base long and slender, as long as curved ventricose part, filaments long, white, hairy at base, fruit 4-seeded, seeds discoid, apparently glabrous". Mooney's specimens show that except for the seeds which are flat, glabrous and uniformly thick and never discoid, his observations are in order. Later, Narayanaswami in an elaborate note on their identity stated that these specimens appear to be intermediate between *S. pulneyensis* and *S. neilgherensis*. But then, he determining them as *S. neilgherensis* and his basis thereof is least convincing. Expectedly, Mooney too did not agree with his determination and included them under *S. pulneyensis* (Mooney 1950: 113). Mooney made another collection at Tankanmai, Karlapat, Kalahandi in 1939 (Mooney 1234). He described it as a shrub not exceeding 2 ft. and the colour of the corolla mauve. Mooney (*l.c.*) determined it as *S. circarensis* and distinguished it from *S. pulneyensis* in the heads being terete (not flattened) and flowers lilac. On the other hand in *S. pulneyensis* the heads

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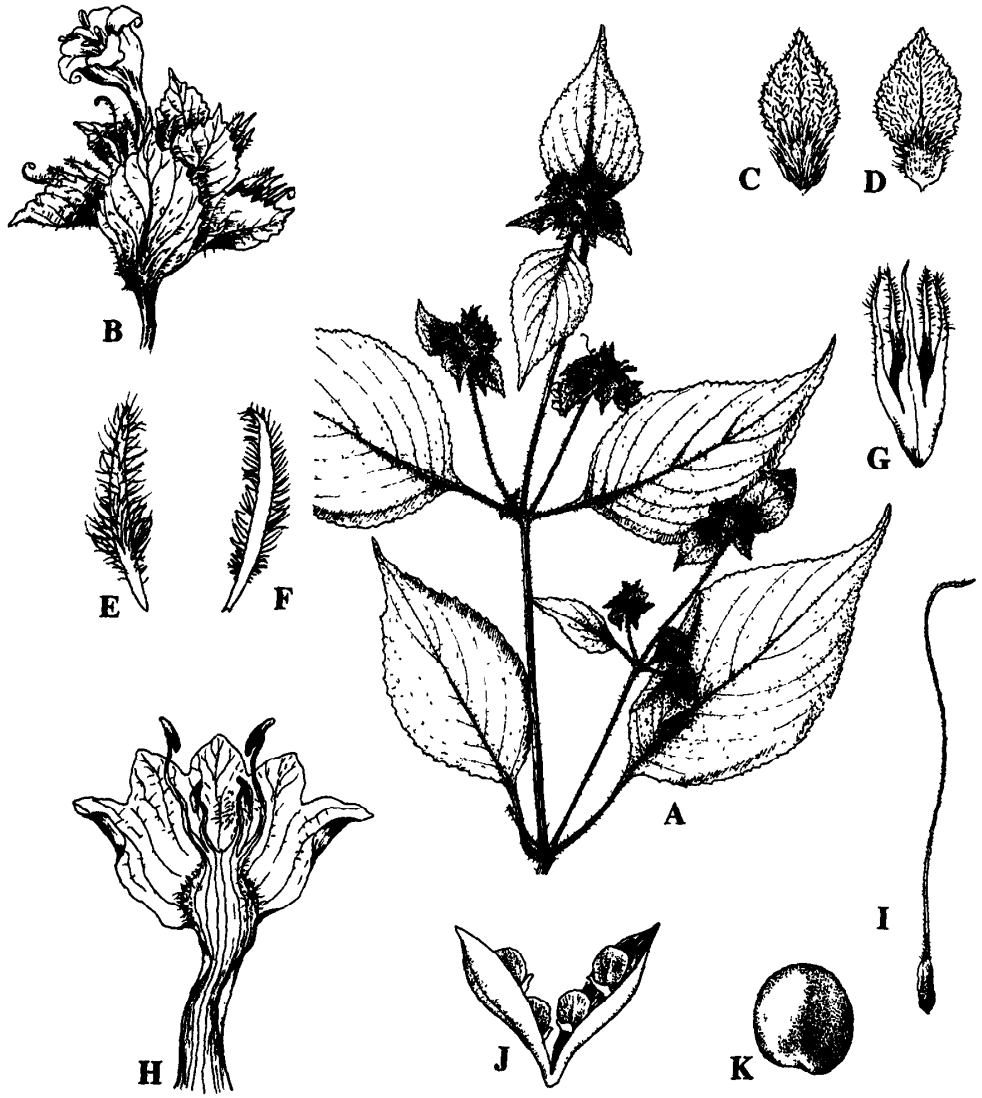
are flat and flowers blue. This probably is the first collection of a flowering material of *S. circarensis* from Kalahandi, a neighbouring district of Visakhapatnam from where the type was collected. There is some discrepancy in the diagnoses of *S. pulneyensis* and *S. circarensis* provided by Gamble and Mooney. Gamble described the bracts as foliaceous and obovate in *S. circarensis* and ovate and foliaceous in *S. pulneyensis*. He described the heads as closely and densely set at the ends of branches, an observation based on spikes in fruit. But Mooney distinguished *S. pulneyensis* as having inflorescences flattened and flowers blue in contrast to *S. circarensis* in which they are more terete or subquadrangular and not flattened and flowers mauve. Gamble never stressed these points in his diagnosis. Moreover Mooney described bracts of *S. circarensis* as ovate which in fact, according to Gamble (*l.c.*), should be attributable to *S. pulneyensis*. But, both *S. neilgherrensis* Bedd. and *S. pulneyensis* C.B. Clarke are distinct species and the former differs from the latter in having bracts oblong, 2.5 – 3.7 cm long, bracteoles very long, setaceous, bristly, calyx lobes lanceolate, tube alternately thick and scarious below, calyx constricted at base is distinct with a notch and tubular portion is uniformly wide. On the other hand, in *S. pulneyensis* bracts leafy, suborbicular, with a broad stalk, densely white hairy, bracteoles linear, spathulate about 1 cm long and white silky; calyx lobes more slender, densely white hairy and the tube uniformly thick. What Matthew (1982) cited as *S. pulneyensis* (t. 545) is in fact *S. neilgherrensis* though he later cited it (Matthew, 1988) as p.p. of *S. neilgherrensis* and *S. pulneyensis*. Matthew (*l.c.*) cited two specimens (RHT 4744 & 28845) on which his dissections were based, and he cited that one of them (RHT 4744) as *S. pulneyensis* and the other without the name in his earlier work (Matthew,1981). Also, some of these stated distinctions are not clear in Beddome's icones (t. 196) for *S. neilgherrensis* and that of Matthew (1996) for *S. pulneyensis* (t. 567). In fact Matthew's later figure (t. 567) shows staminal filaments completely glabrous but in text (1999: 957) they are described as white hairy at base. The other differences noted by others include that in *S. pulneyensis* peduncles are single-headed and stamens are exserted while in *S. neilgherrensis* peduncles are sometimes branched and stamens included. Matthew (1983) stated that *S. pulneyensis* has calyx lobes equal while in *S. neilgherrensis* one of the lobes is longer. But Gamble (*l.c.*) ignored these distinctions while separating them.

Though Gamble (*l.c.*) allied *S. circarensis* with *S. neilgherrensis* the former seems to be nearer to *S. pulneyensis* particularly with respect to nature of indumentum and bracts being more foliaceous (though attributed shape varies). The other characters attributed to *S. pulneyensis* in later years particularly with respect to single-headed peduncles, equal calyx lobes and capsule and seed characters also go well with *S. circarensis*. With no worthwhile distinctions found it was felt necessary to examine some more authentic flowering material of *S. circarensis* either from the type locality or its vicinity. Two collections from Jespore (*H. Santapau* 21363, 21496 BLAT) and two from Anantagiri (*S.K. Wagh*, 4685, 4744 BLAT) both in Visakhapatnam district, were examined. There is no specimen determined as *S. circarensis* at MH. But there is ample material of *S. pulneyensis*. There is great variability so much so some indeed stand as intermediates the colour of the corolla is highly variable from bright blue-light blue with yellow spot in the throat – and violet and is not a reliable character. Again the density of flowers on peduncle is graded and graduated from highly depressed and flattened (*J.S. Gamble s.n.*, 17020; *M. Chandrabose* 51663; *D.B. Deb* 30979; *K.C. Jacob* 16129), to moderately dense, (*K. Subramanyam* 7555; *E. Vajravelu* 36956; *N.P. Balakrishnan & J.L. Ellis* 11722)

to highly dense in slightly elongated heads and not flattened (*E. Vajravelu* 35242; *G.V. Subbarao* 32821 & *B.D. Naithani* 23240), thus rendering it insignificant in diagnosis. Also bracts form rosettes when flattened or depressed and vary in shape from obovate in depressed or flattened heads to ovate in heads not flattened. Some specimens virtually match with that of Mooney's first collection of *S. circarensis* in flower. Even a certain amount of variability in bract shape led to discrepancy in the description between Gamble and Mooney. No matter however hard one tries to draw distinction based on the spike character it fails because of the more unifying characters between them such as bracts which are prominent, foliaceous, ovate-obovate with a broad stalk that is densely silky-villous, longer stamens that are exserted and very similar capsules with glabrous, orbicular and exareolate seeds. Bremekamp's treatment (1944) which further distanced *S. pulneyensis* and *S. circarensis* ignoring the similarities, placed them in his segregate genera – *Xenacanthus* and *Nilgirianthus* respectively, is unconvincing. Hence, *S. circarensis* is synonymized under *S. pulneyensis*. (Fig. 1)

Strobilanthes pulneyensis C.B. Clarke in Hook. f., Fl. Brit. India 4: 438. 1884; Gamble, Fl. Madras: 1038. 1924; Fyson, Fl. S. India Hill Stat.: 477, t. 386. 1932; Mooney, Suppl. Bot. Bihar Orissa: 113. 1950; K.M. Matthew, Mat. Fl. Tamil Nadu Carnatic 1: 298. 1981& III. Fl. Tamil Nadu Carnatic 2: t. 545. 1982; N. Rani & K.M. Matthew in K.M. Matthew, Fl. Tamilnadu Carnatic 3: 1206. 1983; Saxena & Brahmam, Fl. Orissa 3: 1391. 1995; Sivar. & P. Mathew, Fl. Nilambur: 523. 1997. K.M. Matthew Fl. Palni hills 2: 957.1999. – Type: S. Deccan, Pulney hills & Anamallays, *Beddome* (BM). *Nilgirianthus circarensis* (Gamble) Bremek. in Verh. Kon. Ned. Akad. Wetensch., Afd. Naturrk., Tweede Sect. 41: 272. 1944; H.O. Saxena & Brahmam in S.K. Jain, & R.R. Rao, Assess. Threat. Pl. India: 84. 1983; A.N. Henry & M.K. Janarth. in M.P. Nayar & Sastry, Red Data Book Indian Pl. 2: 5. 1988; Moulali in Pullaiah & A.Moulali, Fl. Andhra Pradesh 2: 722. 1997. *Strobilanthes circarensis* Gamble in Bull. Misc. Inform. 1923: 373. 1923 & Fl. Madras: 2: 1038. 1924; Mooney, Suppl. Bot. Bihar Orissa: 113. 1950; Saxena & Brahmam, Fl. Orissa 3: 1387. 1995. – Types: S. India, Andhra Pradesh, Visakhapatnam Distr., Peddavalasa, 700 m, Jan. 1890, *Gamble* 21779(BSI!, DD!); Endrika and Vantala, 1500 m, May – June 1914, *A.W. Lushington s.n.*(K?). *Xenacanthus pulneyensis* (C.B. Clarke) Bremek. in Verh. Kon. Ned. Akad. Wetensch., Afd. Natuurk., Tweede Sect. 41: 176. 1944; B.D. Sharma *& al.* in Biol. Mem. 2: 110. 1977; Kumari in A.N. Henry & al., Fl. Tamil Nadu 2: 162. 1987; Manilal, Fl. Silent Valley: 213. 1988; Vajr., Fl. Palghat: 363. 1990; Moulali in Pullaiah & Moulali, Fl. Andhra Pradesh 2: 736. 1997.

Large shrub, *ca* 3 m high, hispid all over; branches quadrangular, faintly sunken above nodes, sulcate on faces. Leaves in pairs unequal, ovate-lanceolate or elliptic, usually with bulbous-based-hairs, rounded or broadly ovate at base, faintly decurrent into petiole, serrate at margin, acuminate at apex, 12 × 6 cm, rugose, coriaceous; secondary nerves 6-7 pairs, curved, impressed above, faintly raised beneath; petiole length variable, *ca* 5 cm (leaves near heads sessile), hairy. Inflorescence a spike, flattened or subquadrangular, axillary, capitate, densely white-hairy; outer bracts sterile, foliaceous, densely hispid; fertile bracts ovate-spatulate, smaller, *ca* 1.5 cm long, crenate at margin, white-silky-villous at base; bracteoles linear-lanceolate, *ca* 1 cm long, white-silky. Calyx *ca* 1 cm long, lobed half-way down; lobes 5, narrowly linear, equal, silky-glandular above. Corolla with a long cylindric tube, *ca* 1 cm long, blue or mauve or lilac; upper portion curved and ventricose, of equal length, 5-lobed; lobes subequal, orbicular, sparsely hirsute outside, strigose inside below stamens. Stamens 4;



Sl. No.	Actual Length
A	30 cm
B	3 cm
C	1.5 cm
D	1.5 cm
E	1 cm
F	1 cm
G	1 cm
H	1.8 cm
I	2 cm
J	1 cm
K	4 mm

Fig. 1 (A - K). *Strobilanthes pulneyensis* C.B.Clarke : A. Habit; B. Inflorescence; C. Bract abaxial face; D. Bract adaxial face; E. Bracteole abaxial face; F. Bracteole adaxial face; G. Calyx; H. Corolla split open (*H.F. Mooney* 1234); I. Pistil; J. Capsule; K. Seed (*J.S. Gamble* 21779).

filaments connate in pairs, united at base into a sheath; sheath adhering at middle of corolla and extending to 1/3 of ventricose portion, hairy; filaments *ca* 3 mm and 8 mm long; longer ones exserted; anthers oblong, *ca* 2 mm long, muticous, 2-lobed, dorsifixed. Disc stalk-like, *ca* 1 mm long. Ovary almost twice as long, glabrous except at apex, 2-loculed with 2 ovules in each; style linear, broad above middle, *ca* 1.5 cm long, sparsely hairy. Capsule oblong-obovate, *ca* 1 cm long, with placenta separating elastically, 4-seeded; seeds orbicular, *ca* 4 mm, compressed, glabrous, on a strong short curved retinacula, exareolate.

Fl. & Fr.: Nov. Feb.; it flowers every year.

Habitat: Evergreen forests, in open places, to 2000 m; common; frequent in shola forests. Under heavy shade on the banks of perennial streams (Mooney, 1950).

Distrib.: Andhra Pradesh: Visakhapatnam; Karnataka: Chikmagalur, Coorg, Hassan and Mysore; Kerala: Palghat and Travancore; Chattisgarh: Bastar; Orissa: Ganjam, Kalahandi and Mahendragiri; Tamil Nadu: Coimbatore, Dindugal, Madurai, Nilgiris, Salem and Tirunelveli.

Note: Saxena and Brahmam (1983, 1998) listed *S. circarensis* as rare in the Eastern Ghats of Orissa. Henry and Janarthanam (1988) considered it endangered while Rao (1998) listed it as endemic to Circar hills of Visakhapatnam and Kalahandi. These reports, having been based on uncritical determinations, are of little value as its distribution now extends from the Northern Eastern Ghats (Kalahandi and Koraput in Orissa; Visakhapatnam in Andhra Pradesh and Bastar in Madhya Pradesh) to the Western Ghats in the stretches between Tamil Nadu, Karnataka and Kerala.

Specimens examined (at MH unless stated otherwise)*:* Andhra Pradesh, Visakhapatnam Distr., Waltair to Jespore, 23.10.1956, *H. Santapau* 21363 (BLAT); Waltair to Jespore 23.10.1956 *S.K. Wagh* 4685 (BLAT); Anantagiri, 27.10.1956, *H. Santapau* 21496(BLAT); Anantagiri, 27.10.1956, *S.K. Wagh* 4744(BLAT); Anantagiri, 875 m, 26.12.1969, *G. V. Subbarao* 32821. Orissa, Kalahandi, Chandragiri, 3200 ft., Jan. 1938, *H.F. Mooney s.n.* (determined as *S. pulneyensis*) (DD); Kalahandi, Karlapat, 2400 ft., Jan. 1938, *H.F. Mooney s.n.* (determined as *S. pulneyensis*) (DD); Kalahandi, Tankanmai, Karlapat, Dec. 1939, *H.F. Mooney* 1234 (determined as *S. circarensis*) (DD, K). Chattisgarh, Bastar, Bailadila, 3200 ft., Dec. 1938, *H.F. Mooney s.n.* (determined as *S. pulneyensis*) (DD); Karnataka, Chikmagalur Distr., Kemmangundi, Shankar falls 1250 m, 16.10.1978, *C.J. Saldanha & K.R. Keshava Murthy* KFP 3350 (JCB); Coorg, Kulompol, 13.12.1895, *A.E. Lowrie* 66(BLAT); Karavalabadiga, west of College, 22.9.1961, *A.S. Rao* 74498 (BSI); Madapur-Mercara Road, 8.10.1961, *A.S. Rao* 74982 (BSI); Old bridle path leading to Naknad Palace, 23.2.1963, *A.S. Rao* 85933A; Brahmagiri range forest, 4 miles west of Kutla, 1.11.1963, *A.S. Rao* 95430. Hassan Distr., stream between Devanrunde & Deval Kere, without date, *C.J. Saldanha* 15692 (JCB); Bannuhalla, 29.1.1969, *C.J. Saldanha* 12519 (JCB); Road to Hanbal, 29.10.1969, *C.J. Saldanha* 15441 (JCB); Bannuhalla, 23.2.1970, *C.J. Saldanha* 16391 (JCB); Yettinahalla, 8.10.1970, *F.M. Jarvet, C.J. Saldanha & T.P. Ramamoorthy* HFP 909 (JCB). Mysore Distr., Belaji, Bell hills, May 1939, *E. Barnes* (DD) (2 sheets); Gopalswamy Hill-Bandipur, 1600 m, 29.1.1965, *B.D. Naithani* 23240; B.R. Hills, 940 m, 5.9.1978, *C.J. Saldanha & S.R. Ramesh* 2490 (JCB); B.R. Hills, 7.9.1978, *S.R. Ramesh* KFP 2643 (JCB); B.R. Hills, 26.10.1978, *S.R. Ramesh & Manohar* KFP 3925 (JCB); Attikan Estate, B.R. Hills, *R. R. Rao* 996 (JCB). Kerala, Travancore, Madupatty, 16.11.1918, *R.D.A.* 449; Palghat Distr., Karapara R.F., 900 m,29.10.1976, *E.Vajravelu* 48744. Tamil Nadu: Coimbatore Distr., Anamalais, Attakatti to Valparai, 1200 m, 14.12.1960, *N.P. Balakrishnan & J.L. Ellis* 11722. Madurai Distr., Pulney Hills, 1866, *R.H. Beddome s.n.*; Kodaikanal, 15.10.1919, *K.C. Jacob* 16129; Vattakanal, 1900 m, 18.9.1968, *D.B. Deb* 30979; Perumalmalai, 1600 m, 24.10.1977, *M. Chandrabose* 51663; Nilgiri Distr., Ooty, 7000 ft., July 1886, *J.S. Gamble s.n.;* Ooty, 7000 ft., Aug., 1886, *J.S. Gamble* 17825; Nilgiris, Failawns, Aug. 1886, *J.S. Gamble* 17825 (DD); Way to Mamaram-Kunjapanari, 1450 m, 6.8.1970, *E. Vajravelu* 35242; Near Kotada estate, 1500 m, 16.11.1970, *E. Vajravelu* 36956; Balmadies estate shola, 1500 m, 2.2.1971, *J.L. Ellis* 37831. Salem Distr., Yercaud, Sept. 1904, *P.F. Fyson* 173; Yercaud, Dale stream, 1666 m, 19.12.1958, *K. Subramanyam* 7555. Tirunelveli Distr., Kalakad, Sengaltheri, 990 m, 25.11.1984, *N. Parthasarathy* 645.

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REFERENCES

BEDDOME, R.H. Icones Plantarum Indiae Orientalis. t. 196 Madras. 1868–1874.

BREMEKAMP, C.E.B. Materials for a monograph of the *Strobilanthinae*. Verh. Neder. Akad. Wetensch., Afd. Natuurk. Tweede. Sect. 4: 176 & 272. 1944.

GAMBLE, J.S. Flora of the Presidency of Madras. 11 parts (parts 1–7 by Gamble & 8–11 by C.E.C. Fischer). London. 1915 – 1936.

HENRY, A.N. AND K.P. JANARTHANAM. In : M.P. Nayar & A.R.K. Shastry (Ed.), Red Data Book of Indian Plants 2: 5. 1988. BSI. Calcutta.

MATTHEW, K.M. Materials for the Flora of Tamilnadu Carnatic. 1: 298. Diocesan Press, Madras. 1981.

MATTHEW, K.M. Illustrations on the Flora of the Tamilnadu Carnatic 2: t. 545 Diocesan Press, Madras. 1982.

———— AND N. RANI. Acanthaceae. in: K.M. Matthew (Ed.), The Flora of the Tamilnadu Carnatic. 3: 1206 Diocesan Press, Madras. 1983.

MATTHEW, K.M. Further illustrations on the Flora of the Tamilnadu Carnatic. 4: 872. Diocesan Press, Madras. 1988.

———— Illustrations on the Flora of the Palni Hills, South India. t. 567 C.L.S. Press, Madras. 1996.

———— The Flora of the Palni Hills, South India. Part 2. 957. The Rapinat Herbarium, Tiruchirapalli. 1999.

MOONEY, H. F. Supplement to the Botany of Bihar and Orissa. 113. Ranchi. 1950.

RAO, R.S. Vegetation and valuable plant resources of the Eastern ghats with specific reference to Andhra Pradesh and their conservation. Proc. Nat. Seminar on Conservation of Eastern Ghats. 59–86. EPTRI, Hyderabad. 1998.

SAXENA, H.O. AND M. BRAHMAM. Rare and endemic flowering plants of Orissa. In: S.K. Jain & R.R. Rao (Ed.), An Assessment of threatened plants of India. 84. BSI. Calcutta. 1983.

———— AND ———— The Flora of Orissa. Orissa. 1387 & 1391. Forest Development Corporation, Bhubaneswar. 1995.

———— AND ———— Eastern Ghats Flora of Orissa- An epitome of biodiversity worth conserving. In: *Proc. Nat. Seminar on Conservation of Eastern Ghats.* 128-134. EPTRI, Hyderabad. 1998.

स्ट्रोबिलेंथिस सर्कैरेंसिस गेम्बल, एस. पुल्नेयेंसिस सी.बी. क्लार्क (एकेंथेसी) का पर्याय

पी. वेणु एवं पी. डेनियल

सार संक्षेप

अधूरे सामग्री पर आधारित एवं गेम्बल द्वारा वर्णित *स्ट्रोबिलेंथिस सकेरेंसिस* का गहन अध्ययन किया है और इसके अभिनिर्धारण की *एस. नीलेघेरेंसिस बेड,* तथा *एस. पुलनेयांसिस* सी बी क्लार्क से तुलना की है। टाइप संग्रह के बाद इसकी विरलता और अन्यत्र व्याप्ति रिपोर्ट की समीक्षा की है एवं अब यह *एस. पुलनेयोंसिस* का कंस्पेसिफिक साबित हो गया है। इसका विस्तृत विवरण प्रस्तुत है।