



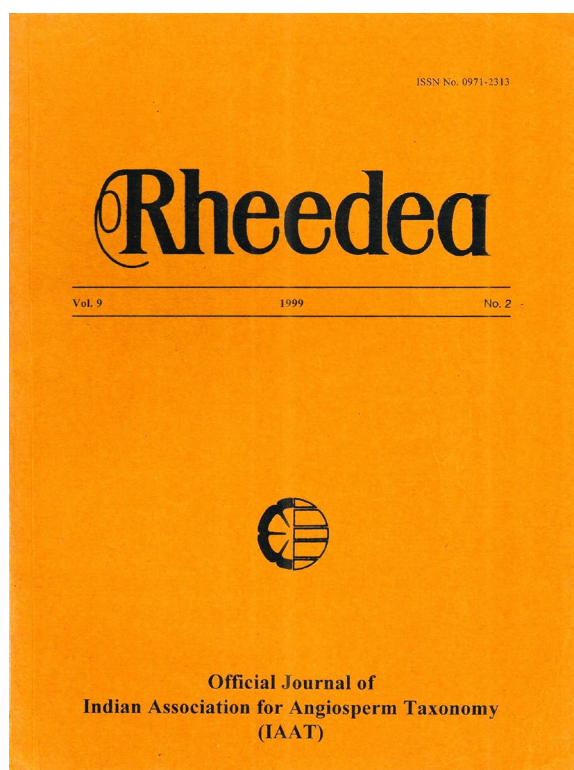
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## **Additions to the Flora of Orissa**

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### **Abstract**

This paper reports 18 species of flowering plants, from the Koraput district, as new records for Orissa state.

### **INTRODUCTION**

Recently for the first time a comprehensive Flora of Orissa was compiled and published (Saxena & Brahman 1995) after the reorganisation of Orissa State in 1936. While dealing with "The Botany of Bihar and Orissa", Haines (1921-1925) and Mooney (1950) have not dealt the flora of the present Koraput and Ganjam districts (undivided) of Orissa as it was then under the Madras Province. Gamble (1915-36), while preparing "The Flora of Madras Presidency" had never visited the Koraput district but cited 5 species from Jeypore hills basing on the collection of R.H. Beddome.

The Koraput district of Orissa holds an interesting place in any discussion on the floristic taxonomy of the Orissa state as the district forms almost the northern limit of the Deccan Endemic Centre. Very little attention has been paid in the past to assess the floristic components of the district. The floristic exploration of the district (undivided) was conducted during 1984-1988, under the supervision of the senior author (under the District Flora Project of the B.S.I.) and the specimens collected were deposited in the herbarium of the Department of Botany, Berhampur University, Berhampur (BOTB). While going critically through the 'Flora of Orissa' recently published and the Koraput district flora, the authors came across some interesting plants, which, on critical study of literature and consultation of other herbaria, revealed that 18 taxa are *new* to the 'Flora of Orissa' (cf. Saxena & Brahman 1995) and are presented here in alphabetical order, genus wise, with correct nomenclature, family name is provided in parenthesis. A brief description, phenological data, notes on distribution and habitat and specimens examined, are also given.

1. *Achyranthes aspera* L. var. *porphyristachya* (Wall. ex Moq.) Hook.f., Fl. Brit. India 4 : 730. 1883; Gamble, Fl. Mad. 1176 (824). 1925. *Achyranthes porphyristachya* Wall. ex Moq. in DC. Prod. 13(2) : 316. 1849 (AMARANTHACEAE).

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M.K. Mishra *et al.*

Erect unbranched herbs upto 1.5 m high. Leaves 50-13 x 3-7.5 cm, broadly ovate, entire, base attenuate to a petiole, 0.5-1.5 cm long, acuminate at apex, glabrous, pubescent along midribs and principal veins. Flowers in terminal and axillary spikes, rachises 8-15 cm long, woolly pubescent; perianth green, lanceolate, 5 mm long; stamens 5, alternate with pseudo-staminodes.

*Fl. & Fr.* : September - June.

*Distribution* : Eastern Himalaya, Orissa (New report), Andhra Pradesh, Tamil Nadu, Maharashtra, N. Burma, Bangladesh, China.

*Specimen examined* : Kumbharadhamani, Das 365 (BOTB). Rare and found on moist localities.

2. **Arisaema tylophorum** C.E.C. Fischer in Kew Bull. 1933 : 346. 1933 & Gamble, Fl. Mad. 1891 (3:1308). 1936. *A. wightii* Schott in Bonplandia 7 : 26. 1859, p.p. from Nilgiris. (ARACEAE).

Herbs upto 50 cm high, corms spherical, *ca* 3 cm across. Leaves 2 per plant, radiallysect, leaflets 5-9, cuneately oblong, 8-10 x 1.5-2 cm, entire at margin, acuminate at apex, glaucous beneath, petioles 20-30 cm long; peduncles longer than petioles. Spathe green with 5 white vertical streaks, tubes 4-5 cm long, funnel shaped limb expanded, ovate, caudate-acuminate, revolute at mouth; spadix smaller to spathe, appendage shortly stipitate, white below, *ca* 5 cm long, neuter flowers absent.

*Fl.* : July

*Distribution* : Karnataka, Tamil Nadu, Orissa (New report).

*Specimen examined* : Padwa, Das 819 (BOTB). Rare along hilly slopes.

*Note* : A single plant was located with flower. Though the rhizome was planted, it could not give any aerial shoot.

3. **Barleria ristata** L. var. *albida* Haines, Bot. 716. 1922. (ACANTHACEAE)

Diffused straggling herbs, upto 30 cm high, stems tawny strigose, more at the swollen nodes. Leaves oblong, 4-7 x 0.8 - 2 cm, obtuse at base, acute at apex, mucronate, whitish strigose beneath, petioles *ca* 2 mm long. Flowers solitary, axillary at bract; bracts lanceolate, 2 x 9.5 cm, ciliate at margin, 3-nerved; sepals in 2 pairs, outer pair much larger, elliptic, 1-2.5 x 0.7-1 cm, ciliate-dentate, inner pair oblong, scarious, 1 x 0.2 cm; corolla tube *ca* 3 cm long, slightly dilated at throat, limb 5, whitish glandular pubescent; stamens 4, didynamous, all fertile. Capsule elliptic, glabrous; seed hairy.

## Additions to the Flora of Orissa

*Fl. & Fr.* : September - December.

*Distribution* : Bihar, Orissa (New report).

*Specimen examined* : Kotpad at Matiadongri. Das 609 (BOTB). Rare on dry open hilly slopes.

*Note* : The specimen collected by Haines is from much higher altitude (Naterehat, 915 m) from Bihar.

4. *Clerodendrum serratum* (L.) Moon var. *dentatum* H.J. Lam, Verb. Malay Archipel. 269. 1919; Gandhi in Fl. Hassan. 488. 1976. (VERBENACEAE).

Bushy shrubs upto 3 m high, stem densely pubescent, hexagonal. Lower leaves 11-23 x 6-12 cm, broadly ovate-lanceolate, attenuate at base, dentate at margin, acuminate at apex, densely tawny pubescent beneath, petioles upto 2 cm long; upper leaves elliptic-orbicular, 5-7 x 3-6 cm, slightly cordate at base, subsessile. Flowers in pubescent panicles; calyx campanulate, 6 mm long, pubescent, teeth 5, obtuse-mucronate, corolla bluish-purple, tube upto 10 mm long; anthers basifixed, filaments exserted, upto 3.5 cm long; style longer than stamens, stigma bifurcated. Drupe of 4 pyrenes, 1-3 aborted, purple.

*Fl. & Fr.* : May-October.

*Distribution* : Orissa (New report). Karnataka, Sri Lanka.

*Specimen examined* : Koraput, Das 30. Common along dry open hilly slopes.

*Note* : It may be conspecific to *C. serratum* var. *wallichii* Clarke (in J. Hooker, Fl. Brit. India 4 : 592. 1885) with a wider distribution to India, Burma, Sumatra, Java, Cambodia.

5. *Conyza floribunda* Kunth in HBK., Nov. Gen. & Sp. 4 : 73. 1820; Grierson in Rev. Handb. Fl. Ceylon 1 : 157. 1980 (ASTERACEAE)

Annual herbs upto 1 m high, stems striate, lower leaves oblanceolate, 5-10 x 1-1.5 cm, cuneate at base, shallowly dentate at margin on the upper portion, acute at apex, appressed pubescent on either side, upper leaves linear-lanceolate, entire. Flowers 4-9 mm broad, in elongated racemose panicles; phyllaries ca 5 mm long, outer sparsely pubescent, inner ones glabrous. Female flowers yellow, ca 4 mm long, bisexual flowers 3-6 per head; corolla ca 4.5 mm long. Achenes compressed, pubescent, ca 1.5 mm long, pappus ca 4 mm long.

*Fl. & Fr.* : May - December.

*Distribution* : Karnataka, Maharashtra, Orissa (New report), Uttar Pradesh. Malesia, Australia, Sri

M.K. Mishra *et al.*

Lanka. Native of South America (Equodor)

*Specimen examined* : Nandapur, Das 548 (BOTB). Common on waste fields.

*Note* : This plant is closely allied to *C. bonariensis* (Linn.) Conquist but recognisable by narrower heads (below 1 cm broad), pyramidal compound inflorescence, chestnut brown inner phyllaries and straw yellow pappus.

6. *Crotalaria triquetra* Dalz. in Hook.J. Bot. Kew. Gard. Misc. 2 : 34. 1850; Baker in Hook.f., Fl. Brit. India 2 : 71. 1876; Gamble, Fl. Mad. 296 (209). 1918. (PAPILIONACEAE / FABACEAE)

Slender, suffruticose herbs, stem triquetrous, pubescent. Leaves elliptic-lanceolate, 10-15 x 3-6 cm, membranous, broadly rounded at base, subacute at apex, glabrous. Racemes 2-3-flowered, terminal or axillary. Flowers yellow, bracts lanceolate; calyx ca 7.5 mm long, united at base, teeth oblong-lanceolate, pubescent; corolla ca 10 mm long. Pods oblong, ca 2 x 0.7 cm. tawny villous; seeds 15-20

*Fl. & Fr.* : December - June.

*Distribution* : Tamil Nadu, Karnataka, Madhya Pradesh, Maharastra, Orissa (New report), Sri Lanka.

*Specimen examined* : Deomali hills, Das 243 (BOTB). Extremely rare among open grassy fields.

7. *Cynoglossum lanceolatum* Forssk. Fl. Aegypt. Arb. 41. 1775; Clarke in Hook.f., Fl. Brit. India 4 : 156. 1883. *C. micranthum* Desf., Tab. Ecole. B. ed. 1 : 220. 1804; Haines, Bot. 610. 1922. p.p. (BORAGINACEAE).

Erect herbs upto 30 cm high, stems hispid. Leaves oblanceolate to obovate, 5-6.5 x 2-3 cm, attenuate at base to a short petiole, obtuse at apex, mucronate, villous beneath, along midrib with tubercled based hairs. Flowers greenish, pentamerous; calyx tubes much accrescent in fruits; sepals 5, campanulate, lobes long hairy; corolla tube urecolate, throat hooded, lobes suborbicular, imbricate. Nutlets glutinous headed bristly, ovate.

*Fl. & Fr.* : August - May.

*Distribution* : Maharastra, Uttar Pradesh, Orissa (New report), West Bengal. Africa, W. Asia, E. China, Burma, Malaysia, Sri Lanka.

*Specimen examined* : Koraput, Das 19 (BOTB). Common along waste fields, preferably on hill plateau.

## Additions to the Flora of Orissa

8. *Cyanotis adscendens* Dalz in Hook., J. Bot. Kew. Gard. Misc. 4 : 343. 1852. *C. tuberosa* (Roxb.) Schultes & Schultes f. var. *adscendens* (Dalz.) Clarke in A. DC., Monog. Phan. 3 : 249. 1881; Hook.f. in Fl. Brit. India. 6 : 386. 1892; Gamble. Fl. Mad. 1549 (1081). 1931. (COMMELINACEAE).

Prostrate herbs with ascending stems upto 25 cm high, rooting and swollen at nodes. Leaves narrowly oblong, 5.5-7.5 x 1 cm, rounded at base, entire at margin, acuminate at apex, pubescent; sheath 1-1.7 cm long, margins hirsute. Flowers in axillary clustered cymose heads, bracts ovate, acute, ca 7.5 mm, villose; sepals lanceolate, hirsute; staminal filaments hairy. Capsule oblong, hairy above.

*Fl. & Fr.* : July - October.

*Distribution* : Uttar Pradesh, Orissa (New report), Madhya Pradesh, Maharashtra, Karnataka, Tamil Nadu.

*Specimen examined* : Semiliguda, Das 802 (BOTB). Occasional in moist areas.

9. *Globba marantina* L., Mant. 170. 1771; Baker in Hook.f., Fl. Brit. India 6 : 206. 1890. *Globba bulbifera* Roxb., Asiat. Res. 11 : 358. 1810; Baker in Hook.f., l.c. Haines, Bot. 1130. 1924, Gamble, Fl. Mad. 1481 (1035). 1928. (ZINGIBERACEAE)

Erect, slender perennials, upto 25 cm high. Leaves elliptic-lanceolate, 7.5-15 x 1-4 cm, rounded at base entire at margin, narrowly acuminate at apex. Flowers yellow in dense spike, upto 5 cm long, bracts elliptic-oblong, 1-2 x 0.6-1 cm, bulbils globose-oblong, 4-6 mm long; calyx ca 4-6 mm long, funnel-shaped; corolla ca 12 mm long, reflexed; anthers with lateral bifid wings. Capsules ca 6 mm long, oblong, pubescent.

*Fl. & Fr.* : July-September

*Distribution* : Karnataka, Kerala, Tamil Nadu, Orissa (New report), West Bengal, Eastern Himalaya, Andaman & Nicobar Islands, Malaysia, Sri Lanka.

*Specimen examined* : Enroute Chatikana to Kurli. Das 377 (BOTB). Subgregarious along drier rocky grounds on hilly forests.

10. *Grewia scabrophylla* Roxb. Fl. Ind. 2nd ed., 2 : 584. 1832; Master in Hook.f., Fl. Brit. India 1 : 387. 1874. *G. sclerophylla* Wall. ex Wt. l.c. t. 89. 1836; Haines, Bot. 93. 1921 (as "Roxb"). (TILIACEAE)

Bushy undershrubs upto 1.5 m high. Leaves elliptic-ovate, 5.5-9 x 5-7 cm, slightly cordate or rounded at base, serrate at margin, acute at apex, villose beneath, petiole 0.5-1.0 cm. Flowers

M.K. Mishra *et al.*

white in axillary and terminals, umbellate cymes, pedicels *ca* 1.5 cm, tomentose; sepals *ca* 1 cm, villose; petals *ca* 7 mm, tomentose on lower half; stamens many, anthers basifix, filaments *ca* 0.8 cm; stigma 4 lobed. Fruits globose, villose.

*Fl.* : April-June, *Fr.* : October-November.

*Distribution* : Assam, Tropical Himalaya, Uttar Pradesh, Orissa (New report).

*Specimen examined* : Dharmdwar ghat, Laxmipur, Das 525 (BOTB). Scattered on upper hills.

11. **Jasminum rigidum** Zenker, Pl. Ind. 5.t.6.1835; Clarke in Hook.f. Fl. Brit. India 3 : 598. 1882; Gamble, Fl. Mad. 790 (555). 1923. (OLEACEAE)

Erect or scandent glabrous shrubs. Leaves ovate, 7 x 3.5 cm, coriaceous, shining; upper leaves elliptic, rounded or cuneate at base, acute at apex, gland-dotted beneath, petioles upto 5 mm long. Cymes white, 1-3-flowered, sessile; calyx teeth linear, erect *ca* 4 mm long; corolla 2.5 cm long, corolla tube 2 cm long, inflated at tips, lobes oblong, *ca* 16 x 4 mm; anther *ca* 4 mm long; ovary glabrous. Fruits *ca* 5 mm long, paired shining.

*Fl. & Fr.* : February - July.

*Distribution* : Andhra Pradesh, Karnataka, Tamil Nadu, Orissa (New report). Sri Lanka.

*Specimen examined* : Deomali hills, Das 245 (BOTB). Occasional on the open dry slopes of hilly tracts.

*Uses* : Root juice along with garlic juice given to ladies after delivery.

12. **Ixora cuneifolia** Roxb., Fl. Ind. 1 : 380. 1820; Hook.f. in Fl. Brit. India 3 : 145. 1880; Gamble, Fl. Mad. 631 (445) 1921. (RUBIACEAE).

Bushy shrubs upto 2 m high. Leaves oblong or elliptic lanceolate, 10-19 x 3-5 cm, coriaceous, cuneate at base, obtuse-acuminate at apex, glabrous, petioles 8-15 cm long. Flowers in terminal corymbs, peduncles *ca* 2 cm long, trichotomous; flowers white, 3-merous, subsessile, scented; calyx *ca* 2 mm long, corolla funnel-shaped, tube *ca* 3 mm long, hairy at mouth, limb oblong-obtuse, *ca* 4.5 mm long; stamens inserted at mouth, anthers narrowly sagittate. Berry rounded, *ca* 6 mm long, red when ripe; seed pitted.

*Fl. & Fr.* : April - October.

*Distribution* : Tamil Nadu, Kerala, Madhya Pradesh, Orissa (New report). Bangladesh, Burma, Sri Lanka.

## Additions to the Flora of Orissa

*Specimen examined* : Sunki Ghat, Das 166 (BOTB). Sub-gregarious on open hill slopes.

*Uses* : Leaf infusion used as a febrifuge.

13. **Kyllinga brevifolia** Rottb. var. *stellulata* (Valck-Sur.) Hooper (in Saldanha & Nicolson, Fl. Hassan Dt., 686, 1976) ex Karthik. *comb. nov.* *Cyperus brevifolius* (Rottb.) Hassk. var. *stellulatus* Valck.-Sur., Gesl. Cyp. Mal. Arch. 48, t. 2, f. 5. 1898. (CYPERACEAE)

*Note* : Hooper's new combination is invalid in the sense of Art. 33.2 of ICBN, as she had not indicated the basionym with full reference. It is validated in Karthikeyan *et al.*, Flora Indicae Enumeratio : Monocotyledonae : 60 : 1989.

Stoloniferous rhizomatous herbs, stems covered with brown scales, 3-angular. Leaves linear, 2.5 - 3.5 x 0.3 cm, glabrous. Flowers in solitary globose heads, white, turns golden yellow when dry, *ca* 6 mm long, bracts leafy, spikelets oblong-lanceolate, compressed. 1-flowered; glumes 2, *ca* 2 mm long, lower one empty, upper fertile, wings nerved, margins scarious; keel glabrous, mucronate. Nut ellipsoidal, *ca* 2 mm long.

*Fl. & Fr.* : September - December.

*Distribution* : Orissa (New report), Maharashtra, Kerala, Karnataka, Tamil Nadu, Australia, Malaysia.

*Specimen examined* : Enroute Kalyanisingpur to Kurli, Das 796 (BOTB). Occasional along footpaths in deciduous forest.

14. **Ocimum adscendens** Willd. Sp. Pl. 3 : 166. 1800; Hook. f., Fl. Brit. India 4 : 609. 1883; Gamble, Fl. Mad. 1112 (778). 1924. (LABIATAE / LAMIACEAE)

Suberect herbs with ascending branches upto 15 cm high. Leaves elliptic-lanceolate, 3-3.5 x 0.8 - 1.2 cm, cuneate at base, crenate at margin, obtuse or acute at apex, hirsute along marginal midvein on lower surface, petioles *ca* 5 mm long. Flowers pink in terminal solitary racemes; calyx tube *ca* 4 mm long, glabrous within villose outside mucronate at apex; petals white, *ca* 5 mm long, deflexed; stamens *ca* 9 mm long. Nutlets compressed, orbicular, smooth, reddish brown.

*Fl. & Fr.* : July - October.

*Distribution* : Karnataka, Kerala, Madhya Pradesh, Orissa (New report), Sri Lanka.

*Specimen examined* : Arbi, near Rayagada, Das 258 (BOTB). On sandy exposed wastelands.



M.K. Mishra *et al.*

15. **Scutellaria rivularis** Wall., Pl. Asiat. Rar. 1 : 66. 1830; Hook.f. in Fl. Brit. India 4 : 470. 1885; Gamble, Fl. Mad. 1143 (799). 1924. (LABIATAE/LAMIACEAE)

Prostrate glabrous herbs upto 25 cm long, stems acutely tetragonous, rooting at older nodes. Leaves ovate-lanceolate, 6-12 x 2-7 mm, lower leaves rounded or sub-cordate at base, crenulate at margin, obtuse at apex; upper leaves entire at margin. Flowers on the axils of upper leaves. Flowers solitary, sessile; calyx 2 mm long, glabrous, tooth broadly 3 angled, accrescent in fruit, corolla 6-8 mm, glabrous, light purple. Nutlets spinulose.

*Fl. & Fr.* : October-December.

*Distribution* : Arunachal Pradesh, Orissa (new report), Tamil Nadu, Karnataka, China, Bhutan, Nepal, Sri Lanka.

*Specimen examined* : Machkund, Das 561 (BOTB). Sub-gregarious on the bank of Poteru river.

16. **Scutellaria violacea** Heyne ex Benth., in Wall., Pl. Asiat. Rar. 1 : 66. 1830; Hook.f. in Fl. Brit. India 4 : 668. 1885; Gamble, Fl. Mad. 1142 (798). 1924. (LABIATAE/LAMIACEAE)

Annual, flexuous branched, glabrous herbs upto 1 m high. Leaves ovate, 3-7 x 2-5.5 cm, chartaceous, rounded or cordate at base, broadly crenulate at margin, sub-acute at apex, pubescent beneath, petioles 1-4.5 cm long. Racemes terminal, 6-10 cm long. Flowers paired, pedicels 3 mm long, accrescent upto 7 mm in fruits; bracts rhomboidal, 3 x 1.5 mm; calyx pubescent, ca 1 mm long, shallowly lobed, lobes narrowly acuminate, much accrescent in fruit, corolla 4 mm long, pink. Nutlets spinulose.

*Fl. & Fr.* : August - December.

*Distribution* : Karnataka, Kerala, Tamil Nadu, Orissa (New report). China, Bhutan, Nepal, Sri Lanka.

*Specimen examined* : Laxmipur, Das 513 (BOTB). Common along cool, moist and shady places.

*Note* : J. Hooker (Fl. Brit. India 4 : 668. 1885) described corolla as white or tinged with rose, 2.5 mm (0.1 inch) long, nutlets hispid.

Confuses with *S. discolor* Wall. ex Benth. which has leaves chiefly radical, elliptic-orbicular; flowers much larger; nutlets echinate.

17. **Tephrosia pulcherrima** (Wight ex Baker) Drumm. in Gamble, Fl. Mad. 319 (225). 1918. *T. tinctoria* Pers. var. *pulcherrima* Wight ex Baker in Hook. f. Fl. Brit. India 2 : 112. 1876. (PAPILIONACEAE)

**Additions to the Flora of Orissa**

Bushy undershrubs upto 1 m high, stems angular with spreading whitish hairs. Leaflets 2-3, mostly reduced to one, oblong, coriaceous, 8 x 3.5 cm, cuneate at base, entire at margin, obtuse at apex, terminal leaflet twice larger than the lateral leaflets, veins very prominent beneath. Flowers congested towards the upper part of the peduncles, bracts ovate-lanceolate, corolla exserted, red. Pods slightly curved, upto 6 cm long, densely fulvous hairy.

*Fl. & Fr.* : July-November.

*Distribution* : Orissa (New report), Andhra Pradesh, Tamil Nadu, Karnataka, Kerala.

*Specimen examined* : Enroute Kasipur to Mandibishi, Das 773 (BOTB). Occasional among scrub jungles on the upper ghats.

18. **Thunbergia alata** Bojer ex Sims, Bot. Mag. t. 2591. 1825; Clarke in Hook. f. Fl. Brit. India 4 : 391. 1884; Gamble, Fl. Mad. 1008 (708). 1924. (ACANTHACEAE)

Climbers. Leaves ovate-cordate in sagitate, 3.5 - 6x3.5 cm, entire at margin, mucronate at apex, pubescent along midrib, petioles 2.5-4.5 cm long, winged. Flowers yellowish white, pedicels 3.5-4.5 cm long, bracteoles broadly ovate-cordate, sheathing young buds; calyx pubescent; corolla yellow with a dark purple-black throat; stamens 4, anthers spurred below, glandular hairy. Capsule pubescent, beak splitting into two.

*Fl. & Fr.* : August - December.

*Distribution* : Karnataka, Madhya Pradesh, Maharashtra, Orissa (New report), Tamil Nadu. Native of Africa. Cultivated and naturalised in many parts of India.

*Specimen examined* : Koraput, Das 43 (BOTB). Common on old walls and bushes in Koraput town.

*Uses* : Leaf poultice applied on head for relief from headache.

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**M.K. Mishra *et al.***

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