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SOME NOTEWORTHY PLANT RECORDS TO THE FLORA OF BULDHANA DISTRICT - II

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ABSTRACT

The present investigation deals with the report of 16 noteworthy plant species belonging to 12 families along with 2 additional families of monocotyledons (Orchidaceae and Taccaceae) reported for the first time to the flora of Buldhana district.

INTRODUCTION

Buldhana district is the Western most districts in the Vidarbha of the Maharashtra State which is situated between 19^0.51' and 21^0.17' N latitudes and 75^0.57' and 76^0.49' E longitudes. It is bounded in the Tapi and Godavari river basins. The northern half of the district is broadly called Payanghat and Southern half known as Balaghat. The district extends over an area of 9,745 Km of which 1,558 Sq. km is constituted by forest which comes to less than 16% of the total area of the district. The vegetation of this district is tropical dry deciduous. The climate of this district is dry and hot. In general an average rainfall of the district is 754 mm.

Botanically, the vegetation of Buldhana district was explored by Diwakar and Sharma (2000). They reported 567 species, 3 sub species and 11 varieties spread under 378 genera and 102 families, besides 3 species of Gymnosperm and Pteridophytes. Later on, Rothe *et. al.* (2011), reported 16 new plant species and 1 additional family to the flora of Buldhana district.

The present investigations provide information about morphology, phenology and occurrence of 16 additional plant species belonging to 12 families along with 2 additional families (Orchidaceae and Taccaceae) from this district.

MATERIALS AND METHODS

An extensive plant exploration was conducted during July 2009- August 2012, for the study of new plants from the Buldhana district. The study has resulted in collection of 16 new plant species and 2 new families addition to the flora of Buldhana district.

Each of plant species was assigned a field note books and documented. The plant specimens were collected and identified by using standard floras (Almeida, 1996-2009; Cooke, 1967; Kamble & Pradhan, 1988; Naik, 1998; Sharma *et al.*, 1996; Singh & Karthikeyan, 2000 and Singh *et al.*, 2001) and deposited in Herbarium of Department of Botany, Shri Shivaji College Akola.

OBSERVATION & RESULTS

FLACOURTIACEAE

Casearia tomentosa Roxb. Fl. Ind. 2: 421. 1832; C.B. Cl. in Hook. f. Fl. Brit. India 2: 593. 1879; Cooke, Fl. Pres. Bombay 1: 554. 1958 (Repr.); Mitra in Sharma *et al*. Fl. India 2: 397. 1993. C. *elliptica* Willd. Sp. Pl. 2: 628. 1799 nom. superfl. Karei .

Trees, 4.5–10.0 m tall; stems and branches lenticelled; bark ash coloured. Leaves 6.4–20.6 x 3.0–7.5 cm, elliptic–oblong, apex acute or acuminate, margins entire or serrulate. Flowers greenish–white, in short, axillary clusters; calyx deeply lobed, lobes 0.3–0.4 x 0.1–0.2 cm, broadly elliptic, obtuse. Capsules 1.7–3.0 x 0.8–1.0 cm, ellipsoid, 3–valved. Seeds arillate.

Rare, in dry deciduous forest.

Fls. & Frts.: January - May

Specimen examined: Bokhad, 1493.

Distribution: Wasali forest.

POLYGALACEAE

Polygala persicariifolia DC. Prodr. 1: 326. 1824; Bennett in Hook. f. Fl. Brit. India 1: 202. 1872; Cooke, Fl. Pres. Bombay 1: 63. 1958 (Repr.); S.K. Mukherjee in Bull. Bot. Soc. Bengal 12: 45. 1960; Adema in *Blumea* 14: 265, f. 9. 1966; Banerjee in Sharma *et al*. Fl. India 2: 480. 1993.

Herbs, c 30 cm tall. Leaves 4.5 x 0.5–0.8 cm, linear–oblong, apex acute, base subacute, sparsely pubescent beneath. Flowers in 10–12 cm long, lateral and terminal racemes; pedicels 0.2–0.3 cm long; calyx lobes 5; outer 3 lobes subequal, oblong, suborbicular, puberulous; corolla lobes 3, united below with staminal sheath, laterals equalling keel, obliquely oblong, keel crested with linear appendages. Capsules c 0.5 x 0.4 cm, enclosed by wings, ciliate.

Frequent, along roadsides.

Fls. & Frts.: August - October

Specimen examined: Rothe, 1495

Distribution: Bhingara forest.

LEEACEAE

Leea macrophylla Roxb. ex Horn. Hort. Hafn. 1: 231. 1813; Laws. in Hook. f. Fl. Brit. India 1: 664. 1875; Cooke, Fl. Pres. Bombay 1: 276. 1958 (Repr.); Ridsd. in Blumea 22: 85. 1974. *L. integrifolia* Roxb. Fl. Ind. 2: 468. 1824; Laws. in Hook. f. op. cit. 667. *L. cinerea* Laws. in Hook. f. op. cit. 665. *L. coriacea* Laws. in Hook. f. op. cit. *L. diffusa* Laws. in Hook. f. op. cit. 667. *L. angustifolia* Laws. in Hook. f. op. cit. 665. *L. parallela*Wall. ex Laws. in Hook. f. op. cit. 666.*L. latifolia* Wall. ex Kurz in J. Asiat. Soc. Beng. 2, 44: 178. 1875; Cooke, op. cit. 277. *L.talbotii*King ex Talb. For. Fl. Bombay Pres. & Sind 1: 329, t. 195. 1909. Anderphod.

Herbs or shrubs upto 1.5 m tall. Leaflets 15–60 x 10–50 cm, broadly ovate, upper surface glabrous to sparsely hairy, lower surface sparsely to densely hairy, margins serrate; Flowers 5–merous, greenish–white, in much branched compound cymes. Fruits 0.5–1.0 cm across. Seeds usually 6.

Rare, in hilly forest.

Fls. & Frts.: July – October

Specimen examined: Kakpure, 1490.

Distribution: Pathardi forest.

FABACEAE

Desmodium alysicarpoides van Meeuwen in Reinwardtia 6 : 246.1962; Sanj. Legumes of India 149.1991. *Alysicarpus parviflorus* Dalz. in Hook. Kew J. Bot. 3:211. 1851. *Desmodium parviflorum*(Dalz.) Baker in Hook. f. Fl. Brit. India 2:172. 1876 non Mart. & Galeotti, 1843; Cooke, Fl. Pres. Bombay 1:381. 1958 (Repr.). *Desmodiastrum racemosum* (Bth.) Pramanik & Thoth. var. *parviflorum* (Dalz.) Pramanik & Thoth. in J. Ind. Bot. Soc. 65:377. 1986.

Herbs, 30–60 cm long. Leaflets appressed pubescent beneath. Flowers in lax, terminal racemes. Pods falcate, both sutures indented; joints 4–6.

Occasional, on hill slopes.

Fls. & Frts.: October – December

Specimen examined: Rothe, 1402.

Distribution: Nimkhedi forest.

Desmodium ritchiei Sanj. in Bull. Bot. Surv. India 22: 229. (1980) 1982 & Legumes of India 161.1991. *D. rotundifolium* Baker in Hook. f. Fl. Brit. India 2:172. 1876 non DC. 1825; Cooke, Fl. Pres. Bombay 1:381.1958 (Repr.) p.p. *Desmodiastrum racemosum* (Bth.) Pramanik & Thoth. var. *rotundifolium* (Dalz. ex Prain) Pramanik & Thoth. in. J. Ind. Bot. Soc. 65: 378. 1987. Singh and Karthikeyan, Fl. Maharashtra State 1:675. 2000.

Herbs, 15–45 cm high. Leaflets 1.2–2.5 x 1.2–2.5 cm, appressedly pubescent beneath. Flowers pink, in terminal and axillary racemes. Pods falcate, lower suture slightly indented; joints 3–6.

Occasional, on hill slopes.

Fls. & Frts.: September – December

Specimen examined: Kakpure, 1422.

Distribution: Bhingara forest.

Desmodium velutinum (Willd.) DC. Prodr. 2:328. 1825; van Meeuwen in Reinwardtia 6:264. 1962; Sanj. Legumes of India 165. 1991. *Hedysarum velutinum* Willd. Sp. Pl. 3:117. 1803. *Desmodium latifolium* (Roxb.) DC. Prodr. 2:327. 1825; Baker in Hook. f. Fl. Brit. India 2: 168.1876; Cooke, Fl. Pres. Bombay 1:380. 1958 (Repr.) Lipti.

Undershrubs, 60–150 cm high; branches fulvous–pubescent. Leaflets 7–13 x 4–10 cm, broadly ovate or suborbicular, scabridly sparsely hairy above, denely so beneath. Flowers pinkish or purplish, fascicled, in terminal and axillary racemes. Pods 1.5–2.0 cm long, densely hairy, 3–6 jointed.

Common, in hilly forest.

Fls. & Frts.: July – December

Specimen examined: Kakpure, 1416.

Distribution: Ambabarwa, Botha, Ghatbori forest.

Eleiotis monophylla (Burm f.) DC. Mem. Legum. 7:350. 1825; Sanj Legumes of India 171. 1991. *Glycine monophylla* Burm. f. Fl. Ind. 161, t. 50, f. 2. 1768. *Eleiotis sororia* (L.) DC. op. cit.; Baker in Hook. f. Fl. Brit. India 2: 153. 1876; Cooke, Fl. Pres. Bombay 1: 364. 1958 (Repr.). Singh and Karthikeyan, Fl. Maharashtra State 1:681. 2000.

Herbs, prostrate or procumbent. Leaves 1–3–foliolate, petiolate; leaflets 1.2–4.5 x 0.8–5.0 cm, ovate–orbicular or subreniform, membranous, apex retuse or rounded, base cordate. Flowers pale to creamy yellow, in compact, axillary racemes. Pods subsessile, boat–shaped, pointed, reticulately veined. Seeds subreniform, dark–brown.

Frequent, in open forest areas.

Fls. & Frts.: August – November

Specimen examined: Kakpure, 1420.

Distribution: Bhingara forest.

CAESALPINIACEAE

Cassia absus L. Sp. Pl. 376. 1753; Baker in Hook. f. Fl. Brit. India 2: 265. 1878; Cooke, Fl. Pres. Bombay 1:451. 1958 (Repr.); de Wit in Webbia 11:279. 1955; Pandey in J. Bombay nat. Hist. Soc. 68: 317. 1971; Sanj. Leg. India 14. 1991. Chimar, Supalyel.

Herbs, 12–35 cm high, annuals, glandular–pubescent. Leaflets 0.8–2.8 x 0.5–1.5 cm, obliquely elliptic or obovate. Flowers reddish–yellow, in terminal or leaf opposed, few flowered racemes. Pods c 4.0 x 0.5 cm, flat, setose hairy. Seeds 4–6, compressed, broadly ovoid, black, shining.

Frequent, on open forest area.

Fls. & Frts.: August - November

Specimen examined: Rothe, 1425.

Distribution: Pathardi, Bhingara forest.

Tephrosia pumila (Lam.) Pers. Syn. Pl. 2:330. 1807; Sanj. Legumes of India 257. 1991. *Galega pumila* Lam. Encycl. 2:599. 1786. *Tephrosia purpurea* var. *pumila* (Lam.) Baker in Hook. f. Fl. Brit. India 2: 113. 1876; Cooke, Fl. Pres. Bombay 1: 347. 1958 (Repr.).

Herbs; stem hairy. Leaflets 9–13, 0.5–2.5 x 0.3–0.6 cm, obovate–oblong or lanceolate, appressed hairy, apex truncate to retuse, base subacute. Flowers rosy purple, in terminal or leaf opposed racemes. Pods 0.5–4.0 cm long, curved, hairy. Seeds 8–10.

Frequent, on open forest area.

Fls. & Frts.: January - March

Specimen examined: Kakpure, 1452.

Distribution: Lonar Wildlife Sanctuary.

APIACEAE

Pimpinella wallichiana (Miq. ex Hohen.) Gandhi in Sald. and Nicols. Fl. Hassan Dt. 417. 1976; P. K. Mukh. & Constance, Umbelliferae (Apiaceae) of India 150. 1993. *Helosciadium wallichianum* Miq. Ex Hohen. Bot. Zeit. 7:775. 1849. *Pimpinella monoica* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3:212 1851; C.B.Cl. in Hook. f. Fl. Brit. India 2:687. 1879; Cooke, Fl. Pres. Bombay 1:602. 1958 (Repr.). *P. katrajensis*R.S. Rao & Hemadri in Indian Forester 102: 232, f. 1–7. 1976. *P. candolleana* sensu Cooke, Fl. Pres. Bombay 1:565. 1903 [1: 601. 1958 (Repr.)] non Wight & Arn. 1834.

Herbs, 0.7–1.5m tall or even more. Lower cauline leaves simple or pinnately 3–foliolate; leaflets 2.8 x 1.8–5.0 cm, ovate, ovate–lanceolate, acute at apex, cordate or truncate at base, margins serrate, petioles 6–15 cm long, petiolules 1–4 cm long, upper leaves with linear segments. Flowers white, bracts 0 or 1, subulate. Fruits 0.1–0.3 x 0.2 cm, ovoid; disk granular when young.

Frequent, on hill slopes.

Fls. & Frts.: August - December

Specimen examined: Kakpure, 1458.

Distribution: Chichpani forest.

ASTERACEAE

Blumea virens DC. in Wight, Contrib. Bot. Ind. 14. 1834; Hook. f. Fl. Brit. India 3:264. 1881; Cooke, Fl. Pres. Bombay 2:77. 1958 (Repr.); Randeria in Blumea 10:272. 1960; Rao et al. Fl. Ind. Enum. Aster. 19. 1988.

Herbs, 40-100 cm tall, annual; stems striate. Leaves variable, 2.10 x 0.8.4.5 cm, oblanceolate, obovate or lyrately lobed (base ones), glabrous above, sparsely glandular.hairy beneath. Heads 0.8.1.0 cm across, in lax panicles, florets yellow. Achenes oblong, ribbed, sparsely hairy.

Frequent, on open wasteland.

Fls. & Frts.: January - May

Specimen examined: Kakpure, 1488.

Distribution: Sindhkhed Raja.

CONVOLVULACEAE

Argyreia strigosa (Roth) Roberty in Candollea 14: 44. 1952; Sant. & Patel in Trans. Bose Res. Inst. Calcutta 22: 41. 1958. *Ipomoea strigosa* Roth, Nov. Pl. Sp. 113. 1821. *Lettsomia setosa* Roxb. Fl. Ind. 2: 80. 1824; C. B. Cl. in Hook. f. Fl. Brit. India 4: 194. 1883; Cooke, Fl. Pres. Bombay 2: 330. 1958 (Repr.). Dhudh-vel, Sambar-vel.

Shrubs, 10.15 m long, climbing with milky latex; young branches sparsely hispid with yellowish hairs. Leaves 11.13 x 9.5.12 cm, broadly ovate, hairy beneath. Flowers in corymbose cymes, densely hairy, 10.15 flowered; calyx oblong.obtuse, densely silky tomentose; corolla pink, 4.5 cm long, campanulate, tube glabrous, lobed, with densely hairy band at back; stamens and styles exserted, filaments densely hairy at base. Berries c 1 cm across, subglobose, smooth. Seeds 4, greyish.black, smooth.

Common, in hilly forest.

Fls. & Frts.: October - January

Specimen examined: Kakpure, 1486.

Distribution: Bhingara forest.

SCROPHULARIACEAE

Alectra thomsoni Hook. f. Fl. Brit. India. 4: 297. 1884; Kamble & Pradhan in Bull. Bot. Surv. India 26: 131, figs. 1.9. (1984) 1985. Nirgunda.

Erect parasitic herbs, up to 60 cm tall; rhizome orange.red. Floral leaves scale like, elliptic, ovate to linear lanceolate, sparsely serrate. Flowers yellow, streaked with brown, in terminal branched racemes. Capsules broader than long. Seeds numerous, cuneiform.

Common, in hilly forest.

Fls. & Frts.: August - December

Specimen examined: Kakpure, 1292.

Distribution: Pathardi forest.

BIGNONIACEAE

Tecomella undulata (Sm.) Seem. in Ann. Mag. Nat. Hist. 3, 10: 30. 1862; Cooke, Fl. Pres. Bombay 2: 408. 1958 (Repr.*). Bignonia undulata* Sm. Exot. Bot. 1: 35. 1805. *Tecoma undulata* G. Don, Gen. Syst. 4: 223. 1837; C.B.Cl. in Hook. f. Fl. Brit. India 4: 378. 1884. Rakta Rohida.

Trees, 7 m tall, with drooping branches. Leaves 3.11 x 1.4 cm, oblong.lanceolate. Flowers orange.yellow in few flowered corymbose racemes; calyx and corolla campanulate; stamens 4, exserted. Capsules linear.oblong, laterally compressed, beaked at apex.

Frequent, along roadsides.

Fls. & Frts.: February - May

Specimen examined: Bokhad, 1236.

Distribution: Malkapur.

ORCHIDACEAE

Habenaria grandifloriformis Blatt & McC. in J. Bombay Nat. Hist. Soc. 36:17. 1932. emend. Sant. & Kap. *Ibid* 56:195. 1956 & Orch. Bombay 17, t. 1; f. 2-2’ 1966. *H. grandiflora* Lind ex Dalz. &

Gibs. Bombay Fl. 267. 1861 non. Torr ex Beck. 1823; Hook. f. Fl. Brit. India 6:136. 1890; Cooke, Fl. Pres. Bombay 3:221, 1958 (Repr. ed.) *H. grandifloriformis* var. aequiloba Blatt. & McC. *op. cit* 18. Chickurkanda. Pp38. Erect perennial herbs with 1-2, fusiform, white, root-tubers. Leaf solitary (or sometimes second smaller ones appears above it) radical, broadly ovate or suborbicular, 4-6 cm long and nearly as broad, cordate at base, acute or apiculate; sheaths very short. Flowers in 1-4 flowered, lax racemes; scapes 8-20 cm tall, covered with 1 or 2 sheaths; bracts ovate, 10-12 mm long, acuminate; pedicel with ovary 4-5 cm long. Lateral sepals obliquely ovate, 8-10x4-5 cm long, acute 7 nerved, dorsal sepal ovate, 7-8 x 5 mm, cucullate, obtuse, apiculate. Petals white, 2- partite; segments unequal, upper one ovate-orbicular, 5=5 x 5 mm, lower filiform, 8-10 mm long. Lip 10-12 mm long, 3-partite, the segments filiform to lanceolate. Spur ca 2cm long, curved clavate at the tip. Capsules oblong, 2-3 cm long, ribbed. Seeds numerous.

Frequent, in the forest.

Fls. & Frts.: June - August

Specimen examined: Kakpure, 1484.

Distribution: Bhingara forest.

TACCACEAE

Tacca leontopetaloides (L.) O. Ktze. Gen. Pl. 2:704. 1891; Drenth in Blumea 20: 375. 1972. *Leontice leontopetaloides* L. Sp. Pl. 313. 1753. *Tacca pinnatifida* J.R. & J.R.A. Forst. Char. Gen. 35: t. 35. 1776. Hook. f. Fl. Brit. India 6: 287. 1892; Cooke, Fl. Pres. Bombay 3: 262. 1958 (Repr. ed.) Dev-Kanda. Pp108 Herbs, perennial, erect; rootstock globose, 15-25 cm in diam.; rootlets superficial. Leaves 1-3, 30-90 cm in diam., broadly ovate, ovate or oblong-ovate, segments variously pinnatifid, margins undulate; petioles 30-90 cm long. Scapes longer than petiole, 10-40 flowered. Flowers greenish-yellow, pedicillate, drooping, c 1.75 cm across. Fruits c 2.0 x 1.7 cm, ovoid, yellow, 6-ribbed. Seeds many, ovoid to ellipsoid, flattened, ribbed.

Rare, in deciduous forest.

Fls. & Frts.: July - October

Specimen examined: Kakpure, 1425.

Distribution: Pathardi forest, Bhingara forest.

Observation table 1: Comparative analysis of earlier work & present work to flora of Buldhana district

	Dicotyledones			**Monocotyledons**			**Total**
	Earlier work	**New additions Rothe *et al* (2011)**	**New additions II**	**Earlier work**	**New additions Rothe *et al* (2011)**	**New additions II**	
Families	89	01	00	13	00	02	**105**
Genera	311	08	12	67	03	02	**403**
Species	460	13	14	107	03	02	**599**

Observation table 2: Comparative analysis of additional plant species in Polypetalae, gamopetalae, monochlamydae and monocotyledones

	Families				Genera				Species			
	Earlier work	New addition Rothe *et al* (2011)	New addition II	Total	Earlier work	New addition Rothe *et al* (2011)	New addition II	Total	Earlier work	New addition Rothe *et al* (2011)	New addition II	Total
Polypetalae	46	01	00	**47**	136	04	08	**148**	228	07	10	**245**
Gamopetalae	27	00	00	**27**	130	03	04	**137**	163	05	04	**172**
Monochlamydeae	16	00	00	**16**	45	01	00	**46**	69	01	00	**70**
Monocotyledones	13	00	02	**15**	67	03	02	**72**	107	03	02	**112**
Total	102	01	02	**105**	378	11	14	**403**	567	16	16	**599**

DISCUSSION

The present study reveals that, there is addition of a total 2 families of Monocotyledones, 14 genera and 16 species; out of which 12 genera and 14 species from Dicotyledones while, 2 genera and species from monocotyledons (as shown in observation Table 1 & 2) to the flora of Buldhana district.

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