

**Research article**

## Some noteworthy plants record to the flora of Yavatmal district, Maharashtra, India

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**Abstract:** The present paper deals with the addition of 05 new plant species *i.e.* *Tephrosia pumila*, *Striga asiatica*, *Tecomella undulata*, *Orobanche cernua* and *Sauromatum venosum* belonging to 05 different families; from this 01 additional family *i.e.* Orobanchaceae is reported for the first time to the flora of Yavatmal district. This study provides the correct and updated detail information about morphology, phenology and occurrence of these new additional plant species for the future work.

**Keywords:** Noteworthy records - Yavatmal district - Maharashtra.

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### INTRODUCTION

Floristic study is a necessary prerequisite for fundamental research such as modeling patterns of species diversity or understanding species distribution. The India has an immense variety of climatic and altitudinal zones and is floristically rich (Ganorkar & Kshirsagar 2013). Yavatmal is one of the districts of Maharashtra state, India. It is situated in the eastern part of Maharashtra between 19° 28' and 20° 48' N latitudes and 77° 19' and 79° 07' E longitudes. This district comprises 23% of forest areas having extraordinary biodiversity of plant species. Botanically, the vegetation of Yavatmal district was explored by Karthikeyan & Kumar (1993). They reported 577 species, 1 subspecies and 1 variety under 365 genera and 98 families. About 12 species have been reported first time from Yavatmal district for Maharashtra State and 126 locally used medicinal herbs are also reported in that work. Later on Bhogaonkar *et al.* (2015) reported 09 new plant species, Lachure & Dhore (2017) reported 02 new plants and Bokhad & Rothe (2020) reported 06 new plant species to the flora of Yavatmal district. However, as much long time passes, many changes are occurring in this geographical area, therefore it is necessary to explore the present status of plant species in its natural habitat.

The Present investigation deals with the report of 05 new additional plant species [*Tephrosia pumila* (Lam.) Pers., *Striga asiatica* (L.) Kuntze., *Tecomella undulata* (Sm.) Seem, *Orobanche cernua* Loefl. and *Sauromatum venosum* (Dryand Ex. Aiton) Kunth belonging to 05 different families; from this 01 additional family *i.e.* Orobanchaceae reported for the first time to the flora of Yavatmal district which provides the information about morphology, phenology and occurrence of these 05 additional plant species for future work.

### MATERIALS & METHODS

A number of field visits were carried in all the seasons during July 2017 to December 2019, for the searching and study of new plants from widely dense forest vegetation of Yavatmal district. This study has resulted in the collection of 05 new plant species added to the flora of Yavatmal district.

Each of plant species was assigned a field notebook and documented. The plant specimens were collected and identified by using standard floras (Cooke 1901-1908, Kamble & Pradhan 1988, Sharma *et al.* 1996, Naik 1998, Singh & Karthikeyan 2000, Singh *et al.* 2001, Atek & Hui 2019). The herbarium specimens were deposited at Department of Botany, Late R. B. Arts, Commerce & Smt. S. R. Bharti Science, College, Arni, Dist Yavatmal, Maharashtra, India.

## OBSERVATION AND RESULTS

## FABACEAE

1. *Tephrosia pumila* (Lam.) Pers. Syn. Pl. 2:330. 1807; Sanj. Legumes of India 257. 1991. [Fig. 1A]

*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.); Singh and Karthikeyan, Fl. Maharashtra State 1:752. 2000.

Prostrate velvet hairy herbs; stem hairy. Leaves compound, leaflets 9–13, 0.5–2.5 × 0.3–0.6 cm, obovate-oblong or lanceolate, appressed hairy, apex truncate to retuse, base wedge-shaped, silky subacute. Flowers white, 8 mm long, in terminal or leaf opposed racemes. Bracts 5 mm, linear, calyx tube 2 mm, velvet, hairy, lobes 3 and 2 mm linear, hairy. Staminal tube 6 mm, filament 2 mm, ovary 4 mm. Pods 0.5–4.0 cm long, curved, hairy. Seeds 8–10.

*Flowering & Fruiting*: January–March.

*Ecological notes*: Frequent, found in the open forest area in a prostrate form.

*Specimen examined*: Maharashtra, Yavatmal, Mandev forest dam area.

*Date of collection & Collection number*: 12/01/2018; MRK002

*Distribution*: India, Pakistan, Afghanistan, Bangladesh, Myanmar, Oman.

## SCROPHULARIACEAE

2. *Striga asiatica* (L.) Kuntze. Rev. Gen. Pl. 1: 466. 1861; Sant. in Rec. Bot. Surv. India in 16(1): 183. 1967 (3<sup>rd</sup> Rev. ed.). [Fig. 1B]

*Buchnera asiatica* L. Sp. Pl. 630. 1753.

*Striga lutea* Lour. Fl. Cochinch. 22. 1790; Hook. f. Fl. Brit. India 4:299. 1994; Cooke, Fl. Pres. Bombay 2:375. 1958. Singh, Lakshminarasimhan, Karthikeyan and Prasanna, Fl. Maharashtra State 2:550. 2001.

*Vernacular name*: Takala.

A parasitic root herbs, 10–15 cm high, erect, slender, parasitic; stem ribbed, hispid hairy. Leaves green, sessile, 0.5–2.0 × 0.1 cm, linear. Stem and leaves sparsely covered in scabrid hairs. Flowers white, axillary, solitary, sessile. A small leafy bract and two-minute bracteoles present at base of each sessile flower. The calyx tubular, 5 mm long, ribs 10 in number, corolla is also tubular about twice length of the calyx and with sharp bend just below the expanded lobes. Five stamens attached within the corolla tube, ovary has a single style with small round stigma. Capsules ca. 0.4 × 0.2 cm, oblong, loculicidal. Seeds are dark brown is about 0.3 mm long.

*Flowering & Fruiting*: July–January.

*Ecological notes*: Occasionally, found as a root parasite on *Sorghum* spp. in a dry and stony field.

*Specimen examined*: Maharashtra, Yavatmal, Mahagaon.

*Date of collection & Collection number*: 25/09/2017; MRK001

*Distribution*: India, Africa, Kenya, Pakistan, Tanzania, Uganda.

## BIGNONIACEAE

3. *Tecomella undulata* (Sm.) Seem. in Ann. Mag. Nat. Hist. 3, 10: 30. 1862; Cooke, Fl. Pres. Bombay 2: 408. 1958 (Repr.). [Fig. 1C]

*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; Singh, et al., Fl. Maharashtra State 2: 586. 2001.

*Vernacular name*: Rakta Rohida.

Trees, 7 m tall, with drooping hairy branches. Leaves simple, narrow 3.1 × 1.4 cm, oblong.lanceolate, entire margin and obtuse apex. Inflorescence racemes on short lateral branches. Flowers orange.yellow in few-flowered corymbose racemes; calyx and corolla campanulate; Calyx lobes short, ovate. Carolla orange-yellow, five lobes, veined, unequal, rounded. Stamens 4, exserted, anther cells divergent and pendulous. Ovary oblong, ovules many. Capsules linear.oblong, laterally compressed, beaked at apex. Seeds winged.

*Flowering & Fruiting*: February–May

*Ecological notes*: Rare, found along roadsides, easily distinguished due to orange flowers.

*Specimen examined*: Maharashtra, Yavatmal, Hiwari.

*Date of collection & Collection number*: 18/04/2018; MRK003

*Distribution:* India, Arabia, Southern Pakistan.

#### OROBANCHACEAE

#### 4. *Orobanche cernua* Loefl. Shah, Fl. Gujarat 1: 512. 1978.

[Fig. 1D, E]

*Orobanche nicotiana* Wight, Illus. 2: 179, t. 158. 1850; Hook. f. Fl. Brit. India 4: 326. 1884.

*Orobanche cernua* var *desertorum* R. Beck. Mon. Orob. in Bibl. Bot. 19: 142, t. 33(1). 1890; Cooke, Fl. Pres. Bombay 2: 387. 1958 (Repr.); Singh, et al., Fl. Maharashtra State 2: 561. 2001.

Non-Photosynthetic Scapigerous root parasites; erect, fleshy. Scales scattered, ovate to ovate-lanceolate-anchored above ground, multiple stems arise sometimes arise from a single tubercle below ground leafless flowering stem 15–40 cm high bearing alternating scales less than 1 cm long. The base of the stem below ground is typically swollen and tuberous. Flowers in dense terminal spikes each subtended by bract 7–12 mm long. Calyx four free segments, 7–12 mm long. Corolla tube white, 12–30 mm long, is inflated near the base, conspicuously down curved, with narrow reflexed lips, up to 10 mm across. The tube is mainly white while the lips are contrastingly blue or purple without distinct venation. Capsules 0.5–1.0 cm long, ellipsoid or ovoid. Seeds many, each about 0.2 × 0.4 mm, ovoid, reticulate, black.

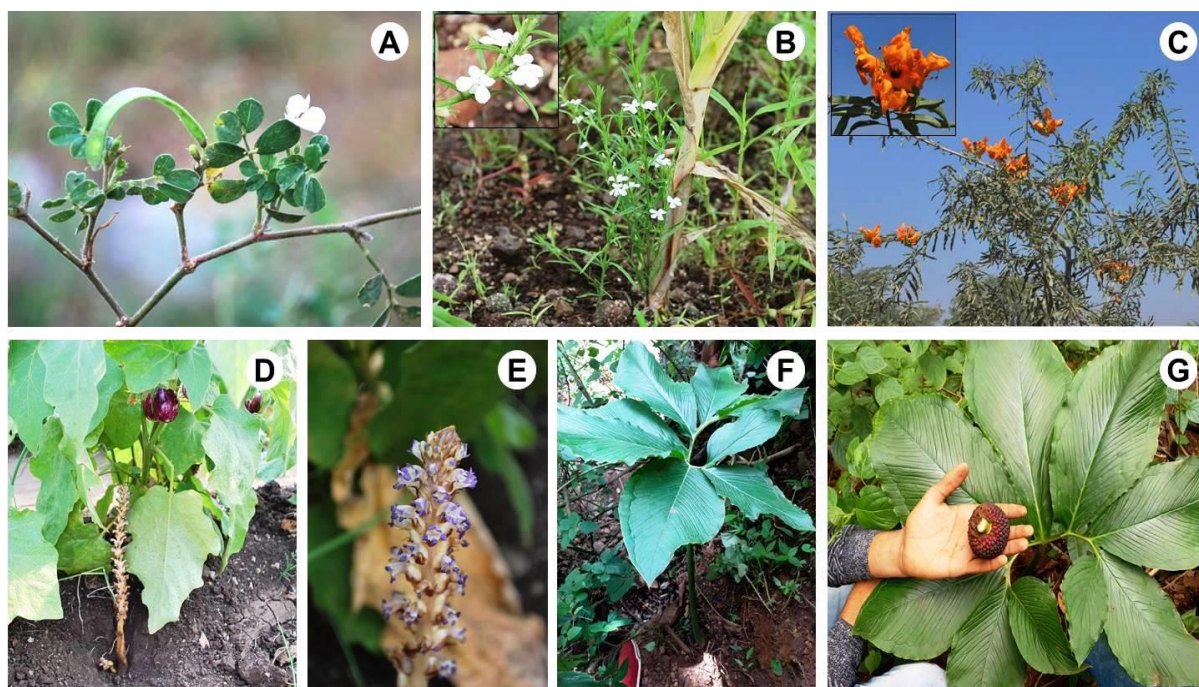
*Flowering & Fruiting:* January–March.

*Ecological notes:* Rare, root parasite on *Solanum melongna* in a cultivated field, it infects the roots of host and causes several damage.

*Specimen examined:* Maharashtra, Yavatmal, Jawala.

*Date of collection & Collection number:* 07/02/2019; MRK004

*Distribution:* India, Arabia, Southern Pakistan.



**Figure 1.** A, *Tephrosia pumila* (Lam.) Pers.; B, *Striga asiatica* (L.) Kuntze.; C, *Tecomella undulata* (Sm.) Seem.; D, *Orobanche cernua* Loefl. - Habit; E, *Orobanche cernua* Loefl. - Flowers; F, *Sauromatum venosum* (Dryand. ex Aiton) Kunth - Habit; G, *Sauromatum venosum* (Dryand. ex Aiton) Kunth - Fruit.

#### ARACEAE

#### 5. *Sauromatum venosum* (Dryand. ex Aiton) Kunth. Prodr. Aroid. 71. 1860. Lakshmi. In Sharma *et.al.* Fl. Maharashtra State. Monocot. 220. 1996; Yadav & Sardesai, Flora of Kolhapur, 519 (2002). [Fig. 1F, G]

*Arum venosum* Ait., Hort. Kew. Ed.10.3.315.1789.

*Sauromatum guttatum* (Wall) Schott in Schott & Endl. Meletem. Bot. 1:17.1832; Hook. f. Fl. Brit. Ind. 6:508. 1894. Cook, Fl. Pres. of Bombay, 3:335.1958 (Reprnt.).

*Vernacular name:* Nurki.

Herb, tuber depressed globose, 2.5–4.0 cm high, producing 2–3 offsets annually. Leaves solitary, pedate, pale green. Cataphylls 4–5, 3 cataphylls common for both inflorescence and leaf, one separate cataphyll for leaf, mottled with green and purple, lanceolate, acute, 5–10 cm long. Petiole 28–85 cm high. Mottled with yellowish-

green, dark green with rounded purplish-brown spots; leaflets 9–17, gradually smaller towards the distal end of rachis, middle leaflet large, oblong, oblanceolate, 33.0 × 8.7 cm. Inflorescence solitary, appearing before emergence of leaf; peduncle greenish-white, 2.3–3.2 long; spathe tuber, slightly constricted, 10–14 cm long. Spadix slightly shorter than or equal to spathe. Stipe 1.0–1.8 cm long, 2 cm wide. Female zone 1.5–2.5 × 1.0–1.5 cm, central part expanded, drum-shaped, both ends tapering, sub-cylendric, ovary obovoid. Male zone white to yellow, 1.5–2.0 cm long, cylindrical, stamens white-yellow, pink at the tip. Berries sub-globose, crowded, bright purple, apex truncate.

*Flowering & Fruiting:* May–August.

*Ecological notes:* Rare, on the hilly forest area, it emits an odor to attract the insect for pollination, tuber is having medicinal uses.

*Specimen examined:* Maharashtra, Yavatmal, Mandev forest area.

*Date of collection & Collection number:* 22/07/2019; MRK005

*Distribution:* India, China, Indonesia, Bhutan, Nepal, Bangladesh, Myanmar, Thailand, Vietnam, Cambodia.

## CONCLUSION

The present study reveals that there is an addition of 1 family (Orobanchaceae) and 05 genera & species are newly reported, out of which 04 genera & species of Dicotyledones while, 01 genera from monocotyledons to the flora of Yavatmal district (Table 1). The importance of such floristic research work is the detection of novel additions to a floristic region, which subsequently improve our understanding of plant biogeography and species diversity. The present study is a step ahead to study the flora of Yavatmal district, which is one of the rich biodiversity areas. Therefore, this study will also help to identify the plant species which needs conservation.

**Table 1.** Comparative analysis of earlier work & present work to flora of Yavatmal district.

	Dicotyledones			Monocotyledons			Current Total
	Earlier work	New plant added by Bhogaonkar <i>et al.</i> , 2015; Lachure & Dhore 2017; Bokhad & Rothe 2020	Current noteworthy plants	Earlier work	New plant added by Bhogaonkar <i>et al.</i> , 2015; Lachure & Dhore 2017; Bokhad & Rothe 2020	Current noteworthy plants	
Families	79	00 + 02 + 00	01	19	00 + 00 + 01	00	102
Genera	271	08 + 02 + 04	04	94	00 + 01 + 02	01	387
Species	418	08 + 02 + 04	04	159	00 + 01 + 02	01	599

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