



## Three New Distributional Records for Floral Wealth of Khandesh Region of Maharashtra, India

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### Abstract

While documenting a flora of Jalgaon district in 2023, authors came across a species of *Crotalaria*, *Commicarpus* and *Grewia* in the forest region of Chalisgaon area. Specimens were identified as *Crotalaria gajureliana* A. Gholave, *et al.*, recently described new species from Nasik region (2021), and later as *Commicarpus boissieri* (Heimerl) Cufod. & *Grewia abutilifolia*. Vent. ex A. Juss. Collected species were not reported earlier thus these stand new distributional records for the Khandesh region of Maharashtra. Taxonomic descriptions, phenology and color photograph is provided to facilitate easy identification of specimens.

**Keywords:** New addition, *Crotalaria*, *Commicarpus*, *Grewia*, flora Jalgaon, Khandesh.

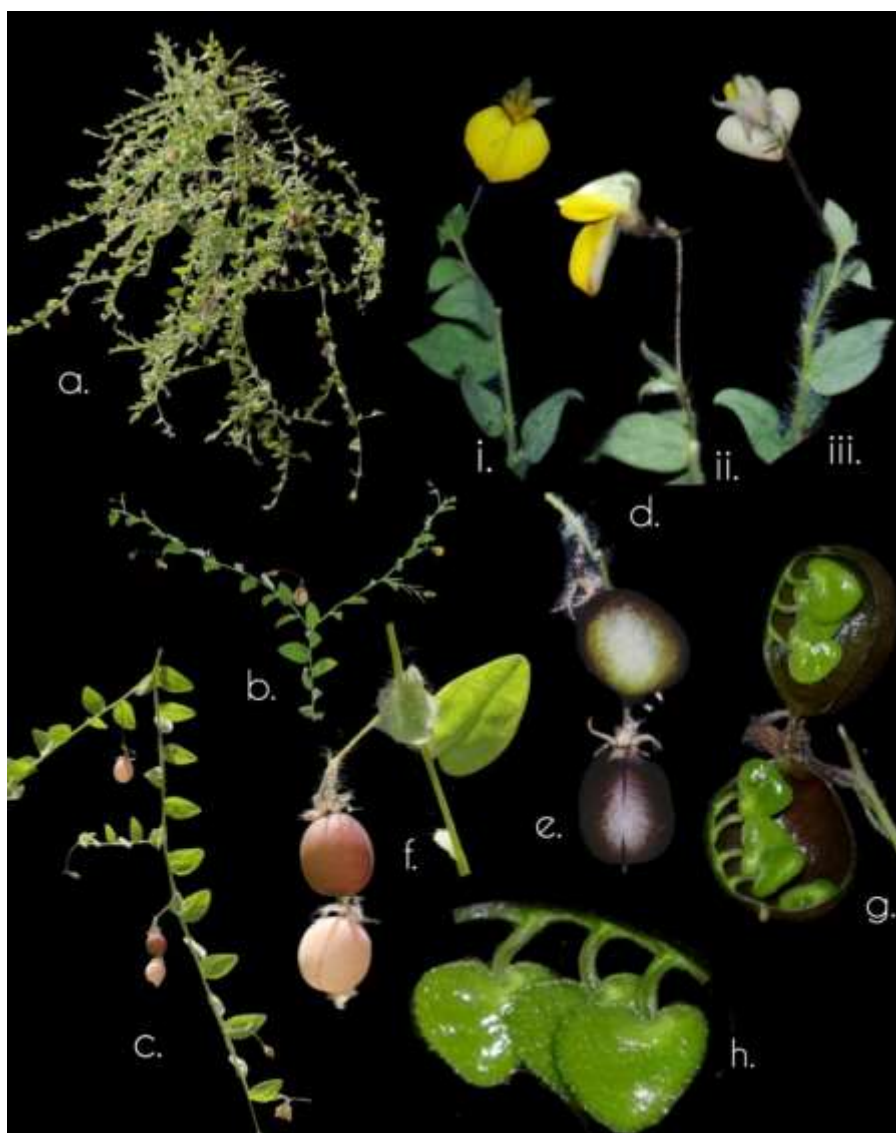
### Introduction

Khandesh is a diverse in its climatic as well as in its floral wealth. It comprises of three districts ie. Dhule, Jalgaon and Nandurbar in Maharashtra. As a part of Ph.D. thesis of first Author field trips were organized for collection of plant specimens in the Jalgaon district areas regularly. While exploring the flora of Chalisgaon region in 2023 authors came across a group of specimens of *Crotalaria* and *commicarpus* at different locations. As the collected specimens were different than the other species collected earlier morphologically created curiosity and made us to dig the literature. While referring the flora and review critically (*Flora of Maharashtra* (Almeida, 1996; 2003); *Flora of Jalgaon District*, Maharashtra (Kshirsagar & Patil, 2008); *Flora*

*of Dhule and Nadurbar District* (Maharashtra), (Patil, D. A., 2003). and research paper reviews (Gholave, A.R. *et al.*, (2019; 2022); Nandikar, M. (2017); T. Khan, *et al.*, (2020a & b); Sonawane, L. & *et al.*, (2022a & b); Undirwade, D.N. & *et al.*, (2021; 2022). Collected specimens were critically examined and identified as *Crotalaria gajureliana* Gholave A.R. *et al.*, *Commicarpus boissieri* (Heimerl) Cufod. and *Grewia abutilifolia*. Vent. ex A. Juss. belonging to Fabaceae, Nyctagineaceae and Malvaceae families respectively.

### Taxonomic Treatment

*Crotalaria gajureliana* Gholave A.R. *et al.*, in or. Jou. of Botany, e03359 :1-6, 2021 (**Fig.1**).



**Fig. 1:** *Crotalaria gajureliana* Gholave A.R. *et al.*,

**a.** Habit **b.** Twig with flowers **c.** Twig with pods **d. i.** Flower front view **ii.** Flower side view **iii.** Flower back view **e.** Young pods **f.** Mature dried pods **g.** Pod split open **h.** Hyaline glands distributed irregularly on seeds.

Prostrate annual herb, branched, 30-36 cm long; stem filiform, slender, clothed with long silky hairs. Leaves simple, alternate, exstipulate, sessile to sub-sessile; lamina 5-10 × 4-6 mm, ovate, covered with silky hairs, cordate to subcordate, acute at apex. Inflorescence axillary or leaf-opposed, usually single, rarely 2 flowered; peduncles 1.5-2.6 cm long, filiform. Flowers 6-7 × 6-7 mm, pedicellate; Bracts clothed with silky hairs, linear to elliptic, acute at apex. Sepals 5, clothed with silky hairs, linear, acute at apex. Corolla bright yellow; petals 5; standard petal, acute at apex, glabrous, with claw up to 1 mm long; wing petals glabrous, with ridges on the

lower middle, with claw, glabrous; keel petals sparsely hairy along margins, fused and slightly twisted at apex. Stamens 10, monadelphous, dimorphic, basifixed; anthers on longer filament ovoid; anthers on shorter filament ovate-oblong. Gynoecium ca 6 mm long; ovary slightly stalked, glabrous, oblong-elliptic; ovules 6-10; style hairy on one row. Stalk of pods slender, filiform, pendent. Pod, globular, glabrous, sometime purplish in young condition, cream white when mature; beak minutely curved. **Seeds** 1-8, unequal, cordate, yellowish-brownish, dark gray-colored with yellow-colored blotches, rows of

hyaline irregular shaped glands throughout seeds.

**Phenology:** Flowering and fruiting from November to February.

**Distribution:** *Crotalaria gajureliana* is found at 'Kanergadh' in Chalisgaon, Dist. Jalgaon as an extended distribution other than Nasik district.

**Occurrence:** Its rare in its occurrence, in earlier reports is known only from two localities in Nasik district and now from Chalisgaon Dist. Jalgaon.

*Commicarpus boissieri* (Heimerl) Cufod. in Bull. Jard. Bot. Bruxelles 23, Suppl. 79.1953; Meikle in Hook. Ic. Pl. Ser. 5.t. 3694, 7: 34. 1971 et in Notes Roy. Bot. Gard. Edinburg 36 (2): 245, f. 3M. 1978. *Boerhavia boissieri* Heimerl. in Denkschr. Akad. Wiss. Wein. Math. Nat. Kl. 71: 346. 1907. *B. verticillata* auct. non Poir. (1804); Hook. f. Fl. Brit. India 4: 710. 1885; Cooke, Fl. Pres. Bombay 2: 564. 1958 (Repr.). *B. stellata* Wight, Ic. t. 875. 1844.45. 'Satura'. (Fig.2).



**Fig. 2:** *Commicarpus boissieri* (Heimerl) Cufod. a. Habit b. Leaf c. Inflorescence d. & e. Flowering pattern f. Flower enlarged g. Flower side view h. Stamens & stigma. i. Anthocarp j. Anthocarp pattern k. & l. Anthocarp with warty glands

Prostrate to straggling, perennial herb, often climbing. Branches, branches long, pale, terete, glabrous with pinkish tint. Leaves thick, fleshy, 3-6 cm long, nearly as broad as or sometimes broader than long, broadly ovate or suborbicular rarely oblong, apex acuminate, base usually cordate, mucronate. Petiole 1-2 cm long, stout. Flowers in long pedunculate raceme, arranged distantly along rachis, whorled 3-5 on each node, in superposed umbel. Bractioles small ca.2-4 mm, acute, deciduous, pedicels nearly equal or unequal in length, slender. Flowers pink, violet or white, 2.5-5 mm long. Stamens are 3-4, nearly protruding, filaments 5-6 mm long, slender; style as long as or longer than the filament; stigma capitate; fruit is 5-6 mm long, top shaped, nodding, with a ring of large wart like glands around tip.

**Phenology:** Flowering and fruiting from August- December.

**Distribution:** found at Shivapur and Ghodegaon of Chalisgaon Dist. Jalgaon.

**Occurrence:** Moderate in plains, grasslands and along the bundhs of farms in Jalgaon.

*Grewia abutilifolia*. Vent. ex A. Juss. in Ann. Mus. Natl. Hist. Nat. 4: 92. 1804; Mast. in Hook. f. Fl. Brit. India 1: 390. 1874 p. p.; Cooke, Fl. Pres. Bombay 1: 152. 1958 (Repr.); Daniel & Chandrab. In Sharma, *et al.*, Fl. India. 3: 493. 1993. *G. aspera* Roxb. Fl. Ind. 2: 591. 1832; Almeida, Fl. Mah. 1: 155. 1996. 'Kirmith'. (Fig.3).



**Fig.3:** *Grewia abutilifolia*. Vent. ex A. Juss. a. Habit b. Leaf c. Inflorescence d. Flowers e. Young Flower f. Dried flower



Shrubs, 3-4 m high. Hairy, Petiole 1-2 cm long; lamina broadly ovate to orbicular or broadly oblong, 8.3-13.5 x 5-11 cm, base sub-cordate, apex acute, irregularly serrate, occasionally lobed along margins, scabrous and stellately hairy; 3-nerved from base; Inflorescence axillary, pedunculate umbels usually 3-flowered; peduncles short, 1-4 mm long, stellate-puberulous; pedicel ca. 2 mm long, stellate-puberulous; buds ovoid to ellipsoid. Flowers white to yellow; sepals oblong, tomentous, green, white within; petals oblong, emarginate or rounded at apex, glabrous along margins, glabrous within, upper half of the gland sparsely hirsute; gonophores small, hirsute at apex; filaments ca. 3 mm long, glabrous; ovary ovoid, densely hirsute; styles exceeding the stamens; stigma green, 5-lobed. Drupes usually 2-4 lobed, dark green, brown when dry, hirsute; wrinkled.

**Phenology:** Flowering and fruiting from throughout the year.

**Distribution:** Found at Junone, Chalisgaon Dist. Jalgaon.

**Occurrence:** Common in deciduous forests of Jalgaon & Dhule.

### Discussion

All the three species reported at different localities in different period of time from Jalgaon region. *Crotalaria gajureliana* A. Gholave, *et al.*, A species morphologically resembling *C. filipes*, but differing in having solitary to rarely 2-flowered inflorescences (versus up to 4-flowered raceme in *C. filipes*), 6-10 ovules per pod (versus ca 18-20 ovules per pod), globular pods (versus oblong), up to 8 seeds per pod (versus up to 12 seeds per pod), and the seeds are dark grey with yellow blotches and hyaline irregular glands on the surface (versus light yellow and glabrous). This species was recorded in Dec 2021 from hilly regions of Nasik. Then after it was collected from on walls of Kanergadh fort present in jungles of Patnadevi forest of Chalisgaon. It stands as extended second distributional record for India.

Second species collected was *Commicarpus boissieri* (Heimerl) Cufod. which is very different than its the allied species *C. chinensis* in having campanulate perianth with an inconspicuous basal tube (infundibuliform with a conspicuous basal tube); anthocarp with a ring of wart like comparatively bigger glands at apex appearing top shaped from top view. Almeida, 2003, he treated it as *Boerhavia helenae* J. Schult. giving two reasons one, there is earlier name available to replace *B. verticillata* auct.(Non poir.) which is *B. helenae* Schult. Secondly, *B. boissieri* is a species from Afganistan and Baluchistan from where Boissier collected this plant. And *Grewia abutilifolia* Vent. ex Juss. is found growing along the road sides and has a similarity with *G. macrophylla* G. Don.(was treated as synonym for *G. abutilifolia*) but differs in having leaves with irregularly serrate sometimes lobed margins ( bi-serrate, never lobed) leaf base is sub-cordate ( rounded to oblique).

After perusal of literature it's found that all the three specimens collected are new to the Khandesh region of Maharashtra, are not reported or describe earlier.

### Acknowledgement

Authors are grateful to Principal, B.P. Arts, S.M.A. Science & K. K. C. Commerce College, Chalisgaon for providing facilities to carry out this work.

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**Source of support:** Nil;

**Conflict of interest:** The authors declare no conflict of interests.

**Cite this article as:**

Undirwade, D.N. and Anil, S.B. "Three New Distributional Records for Floral Wealth of Khandesh Region of Maharashtra, India." *Annals of Plant Sciences*.12.09 (2023): pp. 5970-5975.