

ADDITION TO THE FLORA OF MAHARASHTRA STATE, INDIA

Harshal V. Poojari*

Department of Botany, Faculty of Science, S.D Arts, V.S Apte Commerce and M.H. Mehta Science College, Palghar, University of Mumbai, Maharashtra, India. *Corresponding Author

Jayananda Tosh

Department of Botany, Faculty of Science, S.D Arts, V.S Apte Commerce and M.H. Mehta Science College, Palghar, University of Mumbai, Maharashtra, India.

ABSTRACT

Crotalaria goreensis Guill. & Perr., *Mitracarpus hirtus* (L.) DC., and *Spermacoce remota* Lam. Tabl., are three plant species reported for the first time in Palghar taluka, Palghar district, Maharashtra state, India and is a new addition to the flora of Maharashtra state.

KEYWORDS : *Crotalaria goreensis*, *Mitracarpus hirtus*, *Spermacoce remota*, Palghar taluka, Palghar district, Maharashtra state, New record, Papilionaceae, Rubiaceae.

1. INTRODUCTION

Biota is a collective composition of all the plant and animal species residing in the particular region. It won't be wrong in considering plants as the main component of forest, grassland, terrestrial ecosystem etc., due to their innate ability to synthesize food material through photosynthesis. Flora of a region deals with the study of floristic diversity which eventually helps in documenting abundance and rarity status of plant species. Such data are indeed helpful in developing conservation strategies which makes it easier for the plants to flourish again in their natural habitat. After the release of Flora of Maharashtra state by Botanical Survey of India, Monocotyledone edition (Sharma et al. 1996), Dicotyledone Vol. 1 and Vol. 2 (Singh et al., 2000, 2001) and other researchers like Dr. M. R. Almeida (Almeida, 1996, 1998, 2001a, 2001b, 2003a, 2003b and 2009) there have been an addition in the number of plant species through various research papers and books (Yadav and Sardesai, 2002; Potdar et al. 2012; Gaikwad and Garad, 2015). It is not possible to gather all the research work as a lot has been published on floristic diversity of Maharashtra state.

2. Materials and Methods

Palghar taluka extends between 18°42' and 20°20' North latitude and 70°45' and 73°45' East longitude covering an area of 1,023.03 sq.km. It is bounded by Dahanu taluka in the northern part, Jawhar taluka and Wada taluka in the East and Southeast part, Vasai falls in its South and Western boundaries are contiguous with Arabian Sea (Tosh, 2012). Palghar taluka is characterized by medium black soil of p^h 6.0-7.5 slightly alkaline with maximum water holding capacity. It experiences rainfall ranging from 2000-3000mm with high humidity up to 90%. The total forest cover in the taluka is 325.357sq.km. It is rich in floral diversity (Poojari and Tosh, 2017a, 2017b; Poojari and Tosh, 2018). While investigating the Flora of Palghar taluka, authors collected three interesting species of plant which are identified and shown in Figure 1 and Figure 2 as *Crotalaria goreensis* Guill. & Perr., Figure 3 and Figure 4 as *Mitracarpus hirtus* (L.) DC., and Figure 5 and Figure 6 as *Spermacoce remota* Lam. Tabl. (Bhatt, 1991, 2003; Narasimhan et al. 2011). All the three plant species are not previously recorded from Maharashtra state and therefore forms a new record and addition to the flora of Maharashtra (Sharma et al. 1996, 2000, 2001; Almeida, 1996, 1998, 2001a, 2001b, 2003a, 2003b and 2009). The plants were processed as per Botanical Collector Manual (Santapau H, 1955) and finally herbarium were prepared and deposited in Sonopant Dandekar Shikshan Mandal's M.H. Mehta Science College, Department of Botany Herbarium, Palghar Taluka, Palghar Dist.

3. Results**Enumeration**

Family: Papilionaceae Giseke.

1) *Crotalaria goreensis* Guill. & Perr., Fl. Seneg. Tent. 165. 1832; Bhatt in J. Bombay Nat. Hist. Soc., 96(1): 174. 1999; *Crotalaria macrostipula* Steud. Ex. A. Rich., Tent. Fl. Abyss. 1: 153. 1847; *Crotalaria goreensis* subsp. *macrostipula* (Steud. Ex. A. Rich) Bak. F. in Journ. Linn. Soc. Bot. 42(286): 413. 1914. (Figure 1 and 2)



Figure 1: *Crotalaria goreensis* Guill. & Perr

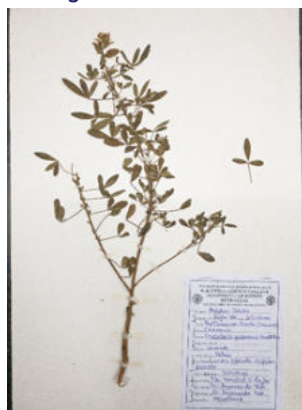


Figure 2: Herbarium of *Crotalaria goreensis* Guill. & Perr.,

Erect herb with densely hairy stem. Leaves compound pinnately 3 foliate, leaflets obovate-oblongate with entire margin. Stipule falcate. Flowers in terminal raceme. Calyx campanulate, sepals acute. Corolla yellow with red streaks, petals unequal papilionaceous. Pods pubescent sub sessile.

Flowering and Fruiting: July-October

Specimen Examined: Poojari 186

Locality: Gowade Palghar taluka Palghar.

Ecology: Among grasses.

Status: Not very common

Note: *Crotalaria goreensis* Guill. & Perr., was recorded so far from the southern part of India in states like Karnataka and Kerala but during the survey it was also recorded from Palghar taluka which clearly extends its distribution in Maharashtra state also.

Family: Rubiaceae Juss.

2) *Mitracarpus hirtus* (L.) DC. Prodr. 4: 527. 1830; Bhatt in Fl. Udupi Dist. 284. 2003; *Spermacoce hirta* L. Sp. Pl. ed. 2: 148. 1762; *Staurospermum verticellatum* K. Schum. Beskr. Guin. Pl. 73. 1827; *Mitracarpus scaber* Zucc. in Schult. and Schult. Mant. 3: 210. 1827; *Mitracarpus verticellatus* (K. Schum) Vatke. Linnaea 40: 196. 1876; Nicolson and Saldanha in Fl. Hassan Dist. 581. 1978. (Figure 3 and 4)



Figure 3: *Mitracarpus hirtus* (L.) DC

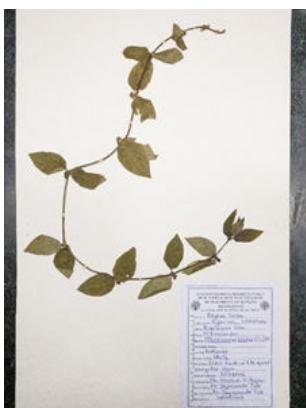


Figure 4: Herbarium of *Mitracarpus hirtus* (L.) DC

Erect pubescent herb with quadrangular stem, slightly purplish in colour. Leaves are opposite, sessile, elliptic-ovate with distinct nerves and acute apex. Stipules connate with the petiole showing distinct bristly apex. Flowers in axillary and terminal condensed fascicles. Calyx hairy, sepals dissimilar and acute. Corolla white funnel shaped, petals obtuse. Fruit circumscissile capsule.

Flowering and Fruiting: June-September

Specimen Examined: Poojari 203

Locality: Kokaner Palghar taluka Palghar.

Ecology: Among grasses.

Status: Not very common

Note: *Mitracarpus hirtus* (L.) DC., was recorded so far from the southern part of India in states like Karnataka and Kerala but during the survey it was also recorded from Palghar taluka which clearly extends its distribution in Maharashtra state also.

Family: Rubiaceae

3) *Spermacoce remota* Lam. Tabl. Encycl. 1: 273. 1791; Narasimhan et al., in J. Econ. Taxon. Bot. 35 (4): 645-647. 2011; *Spermacoce assurgens* Raiz. And Pav., Fl. Peru 1: 60. t. 92. 1798; Bhatt in J. Bombay Nat. Hist. Soc. 99: 566-567. 2002. (Figure 5 and 6)



Figure 5: *Spermacoce remota* Lam.

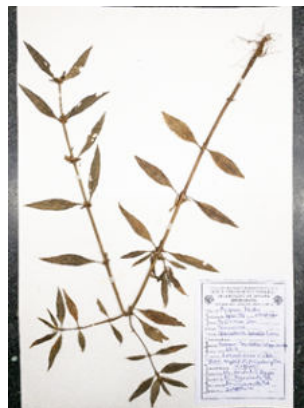


Figure 6: Herbarium of *Spermacoce remota* Lam.

Erect herb with purplish stem and slightly purplish margin leaves. Leaves subsessile, elliptic-lanceolate with entire margin and acute apex. Flowers in axillary and terminal cyme. Calyx slightly pubescent, sepals linear. Corolla funnel shaped white. Capsule pubescent.

Flowering and Fruiting: September-November

Specimen Examined: Poojari 396

Locality: Sonopant Dandekar College campus and Kharekuran Palghar.

Ecology: Along lane and roadsides.

Status: Occasional

Note: *Spermacoce remota* Lam. Tabl. was recorded so far from the southern part of India in states like Karnataka and

Kerala and from Nicobar island but during the survey it was also recorded from Palghar taluka which clearly extends its distribution in Maharashtra state also.

ACKNOWLEDGEMENT

Authors are thankful to the Principal and Management of S.D Arts, V.S Apte Commerce and M.H. Mehta Science College for providing necessary facilities to carry out the entire research work.

REFERENCES

- Almeida M.R. (1996). "Flora of Maharashtra Ranunculaceae to Connaraceae, Vol. 1" *Orient Press Publisher*, Mumbai.
- Almeida M.R. (1998). "Flora of Maharashtra Fabaceae to Apiaceae, Vol. 2" *Orient Press Publisher*, Mumbai.
- Almeida M.R. (2001a). "Flora of Maharashtra Rubiaceae to Ehretiaceae, Vol. 3a" *Orient Press Publisher*, Mumbai.
- Almeida M.R. (2001b). "Flora of Maharashtra Cuscutaceae to Martyniaceae, Vol. 3b" *Orient Press Publisher*, Mumbai.
- Almeida M.R. (2003a). "Flora of Maharashtra Acanthaceae to Balanophoraceae, Vol. 4a" *Orient Press Publisher*, Mumbai.
- Almeida M.R. (2003b). "Flora of Maharashtra Bischofiaceae to Ceratophyllaceae, Vol. 4b" *Orient Press Publisher*, Mumbai.
- Almeida M.R. (2009). "Flora of Maharashtra Hydrocharitaceae to Typhaceae, Vol. 5a". *Orient Press Publisher*, Mumbai.
- Bhatt K.G. (1999). "Crotalaria goreensis Guill. & Perr. (Leguminosae) A new record for India", *Journal of Bombay Natural History Society*, Vol. 96, Issue., 1 pp. 174-176.
- Bhatt K.G. (2003). "Flora of Udupi District" *Indian Naturalist Publisher*, India..
- Gaikwad S.P. & Garad K.V. (2015). "Flora of Solhapur District" *Tatis Enterprises and Publishers*, India.
- Narasimhan D., Gnanasekaran G. & Nehru P. (2011). "Spermacoce remota Lam. (Rubiaceae) A potential invasive weed of wetlands", *Journal of Economic and Taxonomic Botany*, Vol. 35, Issue., 4, pp. 645-647.
- Poojari H.V. & Tosh J. (2017a). "Wild beautiful plants of ornamental potential of Palghar taluka, Palghar District, Maharashtra State, India", *International Journal of Scientific Research* Vol. 6, Issue., 1, pp. 32-35. doi: 10.36106/ijsr.
- Poojari H.V. & Tosh J. (2017b). "Enumeration of Chasmophytic vegetation of Shirgaav fort of Palghar taluka, Palghar District, Maharashtra State, India", *Management Guru Journal of Management Research*, Vol. 5, Issue., 2, pp. 22-23.
- Poojari H.V. & Tosh J. (2018). "Study of Psammophytic diversity on Mahim beach from Palghar taluka, Palghar District, Maharashtra State, India", *Paripex Indian Journal of Research* Vol. 7, Issue., 3, pp. 442-445. doi: 10.36106/paripex.
- Potdar G.G., Salunke C.B. & Yadav S.R. (2012). "Grasses of Maharashtra", *Shivaji University Press*, Kolhapur.
- Santapau H. (1955). "Instructions for field collectors of the Botanical Survey of India", *Ministry of Natural Resources and Scientific Research*, New Delhi.
- Sharma B.D., Karthikeyan S. & Singh N.P. (1996) "Flora of Maharashtra State Monocotyledone", *Botanical Survey of India*.
- Singh N.P. & Karthikeyan S. (2000) "Flora of Maharashtra State Dicotyledone, Vol. 1." *Botanical Survey of India*.
- Singh N.P. & Karthikeyan S. (2001). "Flora of Maharashtra State Dicotyledone, Vol. 2." *Botanical Survey of India*.
- Tosh J. (2012). "Ethnobotanical Study from Taluka Palghar of Dist. Thane, Maharashtra State", *Journal of Economic and Taxonomic Botany*, Vol. 36, Issue., 4, pp. 693-701.
- Yadav S.R. & Sardesai M.M. (2002). "Flora of Kolhapur District, Shivaji University" *Rajhans Printing Press*, Kolhapur.