

CEROPEGIA SAHYADRICA: A NEW LARVAL FOOD PLANT OF PLAIN TIGER *DANAUS CHRYSIPPUS* L. (LEPIDOPTERA: NYMPHALIDAE)

CHINTAN BHATT^{1*} & AMEYA DESHPANDE²

¹Department of Biosciences & Technology, Dr. Vishwanath Karad MIT World Peace University, Kothrud, Pune, 411038, India

²Department of Environmental Studies, Dr. Vishwanath Karad MIT World Peace University, Kothrud, Pune, 411038, India

Corresponding email: *chintanb331@gmail.com

Reviewer: Peter Smetacek

ABSTRACT

The study reports the first ever observed butterfly-plant interaction for a vulnerable plant species *Ceropegia sahyadraca* Ansari & B.G.P. Kulk. The plant is endemic to Northern Western Ghats otherwise known as Sahyadri range hence the plant's name. Plain Tiger *Danaus chrysippus* larvae was observed feeding on the leaves of *C. sahyadraca* which has been documented and discussed for the first time here.

Keywords: Apocynaceae, *Ceropegia*, Larval Food Plant, Nymphalids

The Nymphalidae butterflies are known to have their host plants in the plant family Apocynaceae, especially Danainae butterflies, also known as milkweed butterflies (Wynter-Blyth, 1957; Kunte, 2000; Robinson *et al.*; 2010; Nitin *et al.*, 2018). These butterflies are also known to feed on ecologically important and rare species within the Apocynaceae family. One such genus under this family is *Ceropegia* L., 1753. *Ceropegia* spp. in Indian sub-region such as *Ceropegia attenuata* Hook., *Ceropegia bulbosa* Roxb., *Ceropegia evansii* McCann,

Ceropegia fantastica Sedwg., *Ceropegia hirsuta* Wight & Arn., *Ceropegia intermedia* Wight, *Ceropegia lawii* Hook. f., *Ceropegia vincifolia* Hook., are reported previously as the larval host plant of several Nymphalidae members such as *Danaus chrysippus chrysippus* (Linnaeus, 1758), *Danaus genutia genutia* (Cramer, [1779]), and *Parantica aglea aglea* (Stoll, 1782) (Table 1).

Among these Danaids, the most migratory and widespread butterfly is *D. chrysippus* or the Plain Tiger butterfly (Smetacek, 2001; Kehimkar, 2016). However, this species is reported to have only two larval host plants in the genus *Ceropegia* viz. *C. lawii* & *C. vincifolia* (Table 1) and its interactions with the other *Ceropegia* spp. of India remains unknown and unreported till date. This study reports the first ever observation of Plain Tiger caterpillars feeding on *C. sahyadraca*.

Table 1. A list of Butterflies (Nymphalidae: Danainae) and their larval host plants from the genus *Ceropegia* based on literature and observations (Nitin *et al.*, 2018 and Lovalekar *et al.*, 2023).

Sr No	Nymphalids (Danaids)	Larval Host (<i>Ceropegia</i> spp.)
1	<i>Danaus chrysippus</i>	<i>C. lawii</i> , <i>C. vincifolia</i>
2	<i>Danaus genutia</i>	<i>C. attenuata</i> , <i>C. evansii</i> , <i>C. fantastica</i> , <i>C. hirsuta</i> , <i>C. intermedia</i> , <i>C. lawii</i> , <i>C. media</i> , <i>C. vincifolia</i>
3	<i>Parantica aglea</i>	<i>C. bulbosa</i> , <i>C. evansii</i> , <i>C. hirsuta</i> , <i>C. lawii</i> , <i>C. media</i> , <i>C. vincifolia</i>

During our field visit to Sinhagad Fort, Pune on 27th June 2023, we came across two individual of plants that attracted our attention. Upon closer examination, the plant was identified as *Ceropegia sahyadrica* Ansari & B. G. Kulkarni (1971:688) (Kambale & Yadav, 2019). We observed two caterpillars actively feeding on both the plant specimens, one was younger and one was matured i.e., the caterpillars were of different instars. This was observed during the advent of rainy season and we were unsure whether the plant was previously reported as the larval host of Plain Tiger at the time of the visit. The plant fall into 'Vulnerable' category (Gore *et al.*, 2014; Shigwan *et al.*, 2020) therefore we did not collect leaves of the specimen along with the caterpillar for rearing. After a fortnight the site was visited again in search of further larval stages but there were no signs of it. This might be due to continuous heavy rains in the region. Therefore, the full life cycle was not observed on the plant. It was inferred that the plant is an unreported larval host plant from the fact that two different instars of the butterfly were feeding on the leaves.

Ceropegia belong to the milkweed family and are the species of concern from the point of view of its distribution, ecology, and vulnerability. The fact that they are larval host plants of a few danaine butterfly species and this observation adds

new information to the known larval hosts plants of *D. chrysippus*,

ACKNOWLEDGEMENT

We are grateful to both the Departments (Biological Sciences and Environmental Studies) of MIT World Peace University for the necessary support.

REFERENCES

- Ansari, M.Y. & B.G. Kulkarni. 1971. *Ceropegia sahyadrica* Ansari et Kulkarni- a new species of Asclepiadaceae from Sahyadri ranges in Maharashtra state. *Indian Forester* 97: 688– 690.
- Gore, R., K. Garad & S. Gaikwad. 2014. Endemic flowering plants of northern Western Ghats (Sahyadri Ranges) of India: A checklist. *Check List* 10(3): 461-472.
- Kambale, S. S., & S.R. Yadav. 2019. Taxonomic revision of *Ceropegia* (Apocynaceae: Ceropegieae) in India. *Rheedea* 29(1): 1-115.
- Kehimkar, I. D. 2016. *Butterflies of India: BNHS Field Guides*. Bombay Natural History Society. Mumbai. xi + 509 pp.
- Kunte, K. 2000. *Butterflies of Peninsular India*. Universities Press, Hyderabad. 254 pp., 31 pl.

Lovalekar R., K. Saji, V. Barve, T. Bhagwat & Manoj P 2023. *Danaus chrysippus* (Linnaeus, 1758) – Plain Tiger. In Kunte, K., S. Sondhi, and P. Roy (Chief Editors). *Butterflies of India*, v. 4.12. Published by the Indian Foundation for Butterflies. URL:

<https://www.ifoundbutterflies.org/danaus-chrysippus>, accessed 2023/07/29.

Nitin, R., V.C. Balakrishnan, P.V. Churi, S. Kalesh, S. Prakash & K. Kunte. 2018. Larval host plants of the butterflies of the Western Ghats, India. *Journal of Threatened Taxa* 10: 11495-11550.

Robinson, G.S., P.R. Ackery, I.J. Kitching, G.W. Beccaloni & L.M. Hernández. 2010. HOSTS - A Database of the World's Lepidopteran Hostplants. Natural History Museum, London. <http://www.nhm.ac.uk/hosts>. (Accessed on 30 July 2023).

Shigwan, B. K., A. Kulkarni, S. Vijayan, R.K. Choudhary & M.N. Datar. 2020. An assessment of the local endemism of flowering plants in the northern Western Ghats and Konkan regions of India: checklist, habitat characteristics, distribution, and conservation. *Phytotaxa* 440(1): 25-54.

Smetacek, P. 2001. Forms of *Danaus chrysippus* Linn. (Lepidoptera: Nymphalidae) in the Kumaon Himalaya. *Journal of Bombay Natural History Society* 98(1): 131-132.

Wynter-Blyth, M. A. 1957. *Butterflies of the Indian Region*. Bombay Natural History Society, Bombay. xx +523 pp. 72 pl.



Fig. 1. (A) *Ceropegia sahyadrica* in its habitat — High elevation hill slopes (Captured at Sinhagad Fort). (B) *Danaus chrysippus* larva on *C. sahyadrica*. (C) Young caterpillar feeding on leaves (D) Matured caterpillar. (Photo credits: Ameya Deshpande & Chintan Bhatt)