



The new larval host plant for Tawny Coster butterfly, *Acraea terpiscore* (Nymphalidae: Lepidoptera) in Chengalpattu district, Tamil Nadu.

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ABSTRACT:

Tawny Coster butterflies, or *Acraea terpiscore* L., are members of the Nymphalidae, or brush-footed, butterfly family. *Tragia involucrate* must be available for its typical larval hosts. The study was conducted at SRM College of Agricultural Sciences (SRMCAS), Vendhar Nagar, Baburayanpettai, Chengalpattu district, Tamil Nadu, from January to July 2024. We discovered *A. terpiscore* larvae in *Passiflora foetida*, *Tragia pulkenetii*, and *Tragia involucrate*. This observation clearly demonstrates that Tawny Coster larvae frequently exhibit host choice when feeding. The availability of *Tragia involucrate* limits the selection of *P. foetida*. We counted the caterpillars populations once a week over a six-month observation period. The plants *Tragia involucrate*, *Tragia pulkenetii*, and *P. foetida*, respectively, suggest that they highly prefer these first two host plant species than *P. foetida*. This is the first report identifying it as a new Tawny Coster larval host.

Keywords: lepidoptera, brush-footed butterfly, Tawny coster, *Tragia pulkenetii*, *Tragia involucrate*

Introduction:

Acraea terpiscore is a member of the Nymphalidae family and falls under the genus *Acraea*. This colourful species' wings are striking orange and black. The species then frequents open woodland and savanna during this period and subsists on various flowering plants for their nectar. Collectors and enthusiasts of butterflies often seek out the *Acraea terpiscore* butterfly for its brilliant coloration and distinctive wing spot pattern. They are important pollinators in their

natural habitats, and they help many plant species reproduce. Certain African societies have traditionally admired them for their beauty and freedom, highlighting their cultural significance. The Nymphalidae are one of the world's largest butterfly families, with over 6,000 species distributed worldwide. They belong to the Papilionoidea superfamily. Most of the species have forelegs that are much shortened; many rest with their colourful wings folded flat. This is why the term "brush-footed" or "four-footed" butterflies is used, as they appear to balance solely on four legs, with the remaining two curled up in most species where the forelegs feature a brush-like pair of bristles. Further, we will discuss *Acraea terpsicore* life cycle, behaviour, and general ecological importance. We will also consider the dangers it has been facing as well as the conservation efforts taken to assist populations. Let us learn about the intriguing and critical function that *Acraea terpsicore* plays in the African ecosystem. The tawny coster (*Acraea terpsicore*) indicates host plant preference. Literature available to the effect shows that *Passiflora* is its favourite host plant, and females of the said butterfly species lay eggs on the underside of leaves of the *Passiflora* plant. Further observations reveal that *Acraea terpsicore* larvae feed on *Turnera subulata* and *Passiflora foetida*, indicating their preference for these host plants. On the other hand, the Tawny Coster butterfly has a tendency to prefer particular larval host plants belonging to the species *Acraea terpsicore*. This category includes *Passiflora foetida*, *Hybanthus enneaspermus*, and *Ipomoea carnea*. Botanically, the Tawny Coster uses these plants from different plant families for laying eggs and providing food for its larvae. The Tawny Coster butterfly is known as *Acraea terpsicore*, with a *Passiflora* genus preference. This butterfly species is associated with a specific plant from this genus, *Passiflora foetida*, which serves as its larval host, making it an integral part of its lifecycle. The tawny coster butterfly, *Acraea violae*, is an intriguing representative of Lepidoptera, a group of insects that includes moths and butterflies. Moths and butterflies are essential pollinators in a variety of ecosystems; consequently, they enhance biodiversity [6]. The tawny coster unique coloration and rather captivating lifecycle have made it intriguing to researchers and naturalists alike. Tawny coster is among India's many butterfly species [5]. Numerous studies have demonstrated that urban forest fragments can serve as unexpected sanctuaries for rare and endemic butterfly species, including the tawny coster [2]. Therefore, it is important to conserve green areas in cities for these vulnerable species. This paper aims to report the discovery of a new host plant for the tawny coster butterfly. The plant fauna plays a significant role in the diversity of butterflies because plants provide food for larvae as well as butterflies.

Materials and Methods:

Study area:

The present study was undertaken from January to July 2024 in the SRMCAS, Vendhar Nagar, Baburayanpettai, Chengalpattu district, Tamil Nadu, India, and that is shown in figure 1(a). Baburayanpettai is situated between Elapakkam and Minnal Chithamur. The elevation of the 50 m above MSL lies between 12.3873° N latitude and 79.7356° E longitude. The Department of Genetics and Plant Breeding, SRMCAS, Baburayanpettai, identified and authenticated *Tragia involucrate* and *Tragia pulkenetii* plants.

Observation and Record

At SRMCAS, Baburayanpettai, the tawny coster butterfly is one of the most prevalent and abundant species. Host plant availability was the justification. *Tragia involucrate*, *Tragia pulkenetii*, commonly known as Indian Stinging Nettle, and Cannabis Leaf Nettle are plant species belonging to the Euphorbiaceae family. It has a long history of traditional medicinal use in South Asian countries, including Sri Lanka and India and Another host plant *Passiflora*

foetida has been used in traditional medicine for a variety of purposes, and the slender climber, native to tropical South America, also found in India.

Result and Discussion:

We observed a total of 300 *Tragia involucrate*, *Tragia pulkenetii*, and 64 *Passiflora foetida* individuals during the survey. Because of its trailing behavior, the latter appeared to dominate in area coverage, even though the abundance ratio is roughly 15:2. However, we found the majority of Tawny Coster butterfly larvae in 300 *Tragia involucrate*, *Tragia pulkenetii*, and just 64 *P. foetida* individuals. This observation demonstrates that Tawny Coster larvae frequently exhibit host choice when feeding and are shown in Table 1. *Tragia involucrate* and *Tragia pulkenetii* are more abundant, which results in a limited selection of *P. foetida*. We counted the caterpillar populations once a week during a six-month observation period, from January to July 2024. *Tragia involucrate*, *Tragia pulkenetii*, and *P. foetida* plants observed 465 and 70 caterpillars, respectively. They favoured their hosts, *Tragia pulkenetii* and *Tragia involucrate*, over the *P. foetida* plant and are shown in the figure 1(a), 1(b). These results concur with other studies showing that *Acraea terpsicore* L., commonly known as the Tawny Coster butterfly, belongs to the Nymphalidae, or brush-footed butterfly family. Its common larval hosts depend on *Turnera subulata* availability. We found *A. terpsicore* larvae in *Turnera subulata* and *Passiflora foetida*. This observation clearly demonstrates the prevalence of host preference in Tawny Coster's larval feeding. *T. subulata* is the more preferred host plant for larvae than *Passiflora foetida*, and its preference for *P. foetida* is very meagre. For the first time, we report it as a new larval host for Tawny Coster [1]. In the study area of Mohan Garden, West Bengal, India, we found that *Turnera ulmifolia* (Passifloraceae) L. is the new host plant for the *Acraea terpsicore* butterfly species [3]. This is in line with what we found. Despite these limitations, the present study has enhanced our understanding of the relationship between plants and butterflies. We hope that the current research will stimulate further investigation of this important area.

Conclusion:

The study highlights the importance of understanding the relationships between *Acraea terpsicore* butterfly species and their host plants in a specific geographic region. Coevolution between host plants and butterflies is indeed crucial for maintaining butterfly diversity, and further fieldwork and surveys can help uncover new host plant associations, ultimately aiding in conservation efforts to protect these species in their native habitat.

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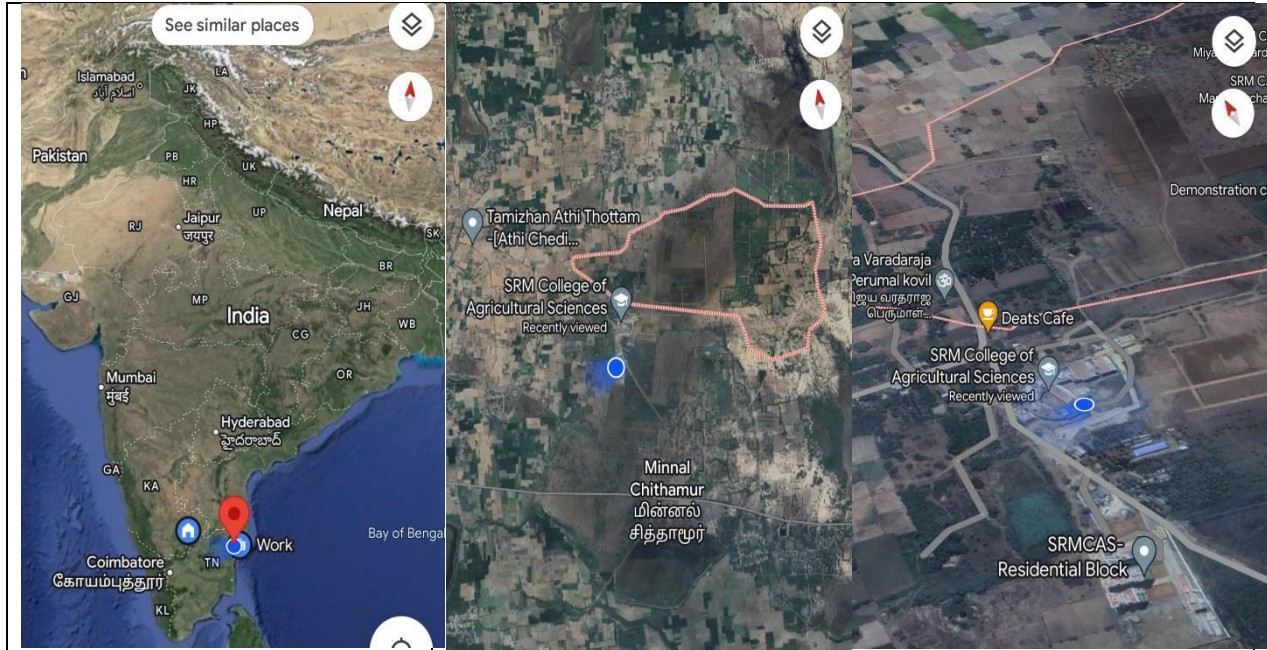
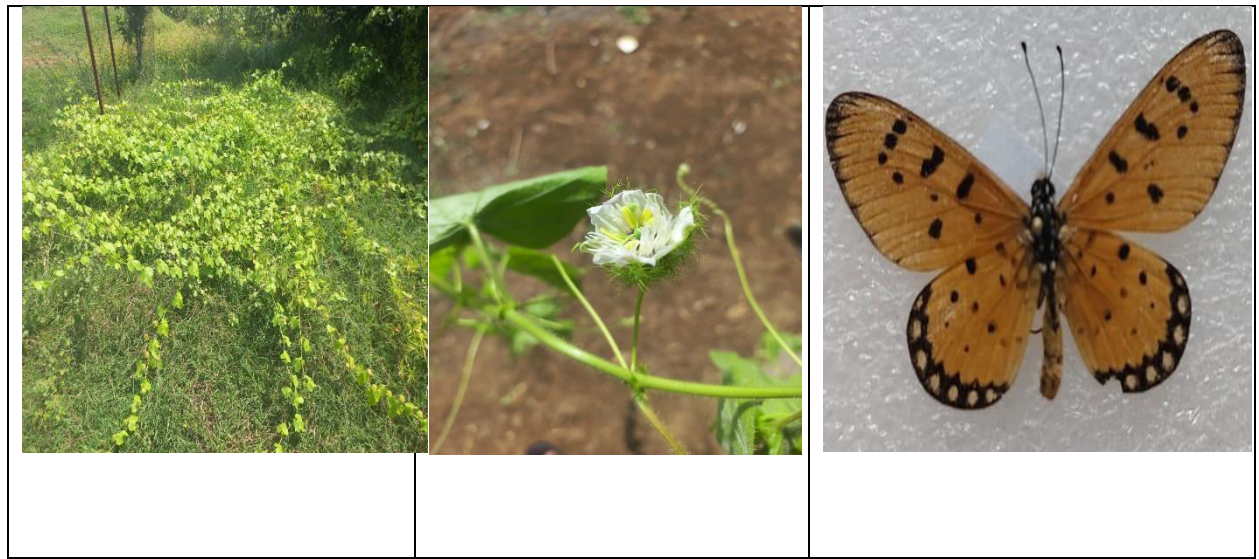


Figure 1 (a) Map of study area



Indian stinging nettle, *Tragia involucrate* host plant with Tawny coster butterfly larvae



Stinking Passion fruit, *Passiflora foetida* host plant with Tawny coster butterfly



Cannabis Leaf Nettle, *Tragia pulkenetii* host plant with Tawny coster larvae and pupae

Figure 1(b) Larval host plant and life stages of Tawny coster

Table 1: Previously reported host plants and new larval host plants of *Acraea terpiscore*.

Host plant	Scientific name	Family name	Reference
Indian stinging nettle	<i>Tragia involucrate</i>	Euphorbiaceae	New larval host plant
Cannabis Leaf Nettle	<i>Tragia pulkenetii</i>	Euphorbiaceae	New larval host plant
Stinking Passion fruit	<i>Passiflora foetida</i>	Passifloraceae	Kunte, 2000; Robinson <i>et al.</i> 2010, Kehimkar 2008; Das <i>et al.</i> 2010