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Cover: *Euphaea pseudodispar* shot at Kalindi River, Thirunelly, Wayanad district, Kerala. © Muneer P.K.



Report of *Euphaea pseudodispar* Sadasivan & Bhakare, 2021 (Insecta: Odonata) from Kerala, India

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Euphaea pseudodispar Sadasivan & Bhakare, 2021 is a newly described damselfly in the family Euphaeidae. It was described along with *E. thosegharensis* Sadasivan & Bhakare, 2021 based on specimens collected from Thoseghar, Satara district, Maharashtra, northern Western Ghats, India (Bhakare et al. 2021). The genus *Euphaea* Selys, 1840 currently has 35 species distributed in the Indo-Malaya (Paulson et al. 2021). India has seven known species of *Euphaea*, five of them distributed in the Western Ghats and two in the northeastern region. The two newly described species, *E. pseudodispar* and *E. thosegharensis* were considered to be confined to the northern Western Ghats of Maharashtra (Bhakare et al. 2021). We report *E. pseudodispar* from Thirunelly, Wayanad district, Kerala, at a distance of more than 650 km from the type locality (Image 1).

Thirunelly (11.9117°N 75.9933°E, 850 m) is a small temple town adjoining the forests of North Wayanad Forest Division in Kerala, southern India. River Kalindi originates in the Brahmagiri hills, flows through the temple town briefly and re-enters the forest. Odonate species commonly encountered in this stretch of the river include *Neurobasis chinensis* (Linnaeus, 1758),

Vestalis apicalis Selys, 1873, *Heliocypha bisignata* (Hagen in Selys, 1853), *Euphaea fraseri* (Laidlaw, 1920), *Copera vittata* (Selys, 1863), *Prodasineura verticalis* (Selys, 1860), *Pseudagrion rubriceps* Selys, 1876, *Anax immaculifrons* Rambur, 1842, *Gomphidia kodaguensis* Fraser, 1923, *Hylaeothemis apicalis* Fraser, 1924, and *Neurothemis fulvia* (Drury, 1773).

On 22 August 2021, during a walk along the river Kalindi, we encountered three species of *Euphaea*, viz., *fraseri*, *dispar*, and *pseudodispar* (Image 2). The river was in full spate and the authors recorded 40 individuals of *E. pseudodispar*, 35 individuals of *E. fraseri*, and four individuals of *E. dispar* in traversing 1 km along its bank (Image 3). Later, one male *E. pseudodispar* was collected for the detailed study of morphology and structure of secondary genitalia. The specimen was deposited at the insect collections of the Department of Geology and Environmental Science, Christ College, Thrissur district, Kerala. Photographs of live specimen were taken with a Nikon D850 camera and Nikkor 105 mm macro lens (Image 3). Secondary genitalia was studied under a Labomed Luxeo 6Z stereomicroscope (Images 5, Figure 1).

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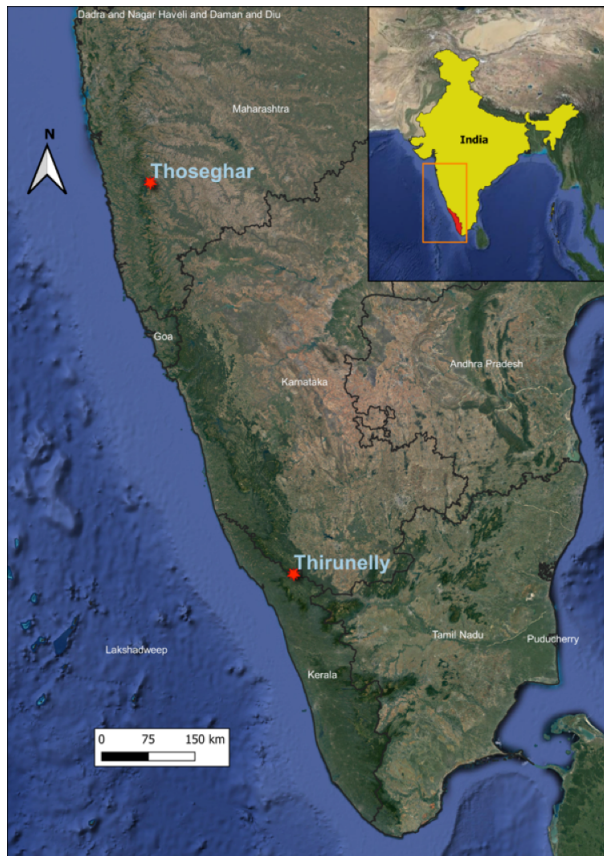


Image 1. Map showing the site of current observation (Thirunelly) and type locality (Thoseghar) of *Euphaea pseudodispar*.

Material examined: CC.G & ES.O12, 1 male, Thirunelly (11.911°N 75.993°E, 850 m), 31.x.2021, coll. Muneer P.K.

Description: Total length: 48 mm, abdomen: 38 mm, forewing: 34 mm, hindwing: 33 mm.

Head: Labium black; labrum pale bluish-white with a median black 'tongue' like mark; Mandible pale bluish-white with an upper transverse black streak; anteclypeus, postclypeus, antefrons, & postfrons black and genae pale yellowish-white. Eyes, antennae, and vertex black.

Thorax: Prothorax matte black with two yellowish spots. Ground colour of thorax orange-red; dorsal carina black; mesepisternum matte black; humeral stripe yellowish-orange; antehumeral stripe pale yellow and thin; mesepimeron yellow superiorly and orange inferiorly, and encloses a central broad black band. Legs: extensor surface of foreleg femora smoky black; hind and middle legs red; all joints black. Wings: hyaline, veins black; cubital space with three cross veins in all wings; distal fourth of hindwings coloured black.

Abdomen: Proximal segments reddish-orange and distal ones black, the transition happening on S6. S2 with black, rounded genital vesicle; penis with a single seta on



Image 2. The three *Euphaea* species seen in Thirunelly (males): A—*E. fraseri* | B—*E. dispar* | C—*E. pseudodispar*. © Muneer P.K.

each side. Hair tufts present on central part of sternite and lateral aspects of tergite on S8 and lateral tufts on proximal aspect of tergite of S9. On S9, the gonopore margin is oval; gonocoxae with blunt apices, no spine. In lateral view, the sternite of S9 extends mid-ventrally like a beak. Anal appendages: General structure as in the genus; cerci and paraprocts fully black.

The studied male specimen differed from the holotype in the following details: the extensor surface of the foreleg femora had only a smoky black colouration over the basal red and the distal fourth of the hindwings were coloured black instead of the distal fifth.

Three *Euphaea* species were known to occur in Kerala before the current observation. These include *E. cardinalis* (Fraser, 1924) seen in mountain streams south of the Palghat gap in the Anamalai, Palani, and Agasthyamalai hills; *E. dispar* Rambur, 1842 confined to the mountain



Image 3. Observation site: Kalindi River, Thirunelly, Wayanad district, Kerala. © Muneer P.K.

streams north of the Palghat gap from South Kanara and Coorg to the Nilgiris; and *E. fraseri* (Laidlaw, 1920) distributed throughout the foothills of the Western Ghats (Fraser 1934; Subramanian et al. 2018). This study adds a fourth *Euphaea* species, *E. pseudodispar* to the odonate fauna of Kerala state. In Thirunelly, where it co-occurred with two of its congeners, *E. pseudodispar* stood out because of its thoracic colouration and intermediate size, *E. fraseri* being considerably smaller, and *E. dispar* slightly larger. This observation accentuates the need for undertaking more rigorous field surveys in the Western Ghats in order to have a better understanding of the distribution of its Odonata.



Image 4. Morphological details of *Euphaea pseudodispar*: A—face showing yellowish-white genae and bluish labrum with black 'tongue' | B—dorsal view of thorax | C—lateral view of thorax | D—ventral view of S9 showing the gonocoxae | E—lateral view of the abdominal tip showing the 'beaking' of S9 | F—abdominal tip showing the hair tufts on S8 & S9. © Muneer P.K.

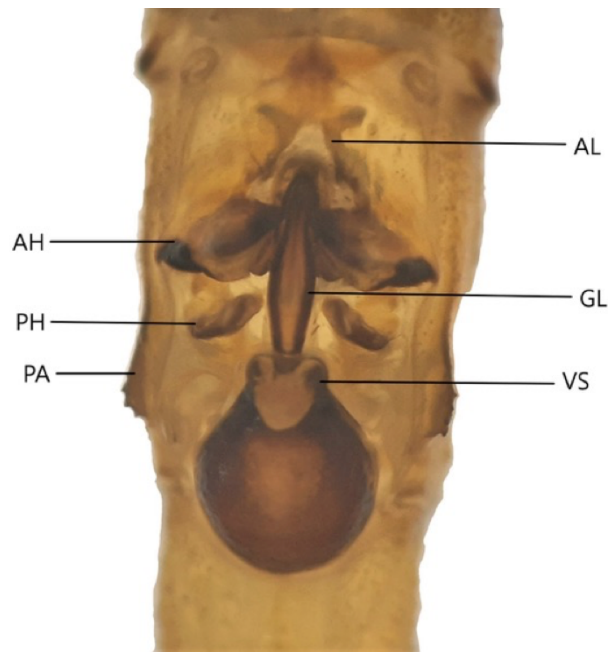


Image 5. Structure of secondary genitalia of *Euphaea pseudodispar* seen under the microscope: AL—anterior lamina | GL—genital ligula | VS—vesicaspermalis | AH—anterior hamule | PH—posterior hamule | PA—pseudoauricle. © A. Vivek Chandran.

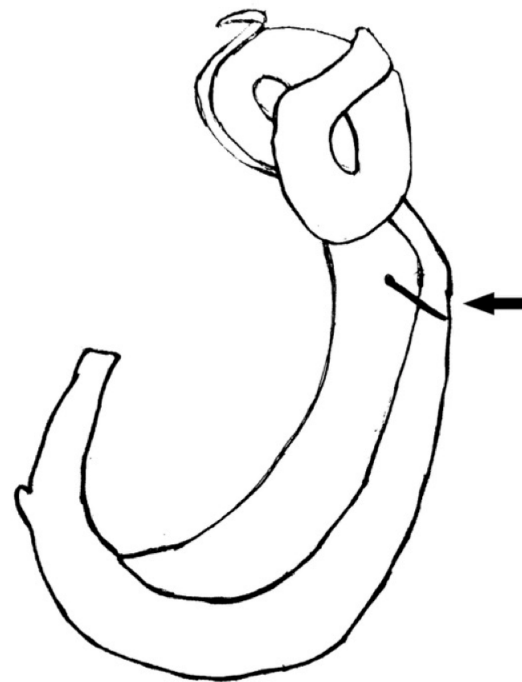


Figure 1. Genital ligula of *Euphaea pseudodispar* illustrated (arrow pointing to the seta on one side).

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