



## ***Epeorus petersi*, a new species of Heptageniidae (Ephemeroptera) from the Western Ghats of southern India**

T. SIVARUBAN<sup>1,5</sup>, S. BARATHY<sup>2</sup>, M. ARUNACHALAM<sup>3</sup>, K. VENKATARAMAN<sup>2</sup> &  
K.G. SIVARAMAKRISHNAN<sup>4</sup>

<sup>1</sup>Department of Zoology, The American College (Autonomous), Madurai-625 002, India

<sup>2</sup>Department of Zoology, The Madura College (Autonomous), Madurai-625 011, India

<sup>3</sup>Sri Paramakalyani Centre for Environmental Sciences, Manonmaniam Sundaranar University, Alwarkurichi - 627 412, India

<sup>4</sup>Department of Zoology, Madras Christian College (Autonomous), Tambaram East, Chennai- 600 059, India

<sup>5</sup>Corresponding author. E-mail: rooban2002@yahoo.com

Heptageniidae is a family of mayflies (Ephemeroptera) distributed mainly in the Holarctic, Oriental and Afrotropical regions (Webb & McCafferty 2008). This family is Laurasian in origin and is a conspicuous component of the benthic community in the hill streams of the Western Ghats of southern India. This is a global hotspot of biodiversity endowed with a high degree of species endemism and is considered a significant reservoir of ancient lineages (Bossuyt *et al.* 2005).

As part of the taxonomic study of the mayflies of the Western Ghats (Sivaruban 2010), a new species of the genus *Epeorus* Eaton, 1881 is described herein based on the larvae and reared imagos. Its life cycle, along with co-occurring heptageniids were published already (Sivaruban *et al.* 2010). There is paucity of information on the systematics of *Epeorus* in India, with just one species, *Epeorus gilliesi* Braasch, 1981 recorded from the Western Ghats, in the state of Maharashtra (Braasch 1981) and Kerala (Braasch & Soldan 1987). Besides that, six species of *Epeorus* have also been described from Himalayas (Sivaramakrishnan *et al.* 2009; Stauder 2000).

The generic limits of *Epeorus* remain controversial as a result of ambiguity whether to treat *Epeorus* and the closely allied *Iron* Eaton, 1883 as separate genera or to recognize a diverse and speciose *Epeorus* encompassing the species originally described in the genus *Iron*. Although some authors choose to recognize *Iron* as a separate genus (Braasch 2006a; 2006b), we follow the classification scheme of Wang & McCafferty (2004) who recognize a more inclusive concept of *Epeorus*. Either way, even if *Epeorus* and *Iron* are considered distinct genera, the new species herein described fits the concept of *Epeorus s.s.*

### ***Epeorus petersi* Sivaruban, Venkataraman & Sivaramakrishnan, n. sp.**

**Male imago** (in alcohol). Body length: 13.0 mm; fore wings: 13.5mm; cerci 50.0 mm. Head yellow, area between lateral ocelli and covers of head dark brown (Fig. 1). Scape and pedicel of antennae light brown, flagellum pale. Eyes pale pinkish violet. Basal half of lateral ocelli dark brown, apical half pinkish white; median ocellus pinkish white, apical half white. Thorax: pale yellow, edges brownish yellow; dark brown fuscous stripes on thoracic pleurae; venter pale; mesothoracic sternum pale yellow with lateral reddish brown sub circular maculae. Legs: yellow with dark brown patches; femora brownish yellow with a proximal suboval dark brown macula, a median, transverse, wide dark brown, band and distal edge washed with reddish brown tibiae yellowish brown washed with reddish brown distally; tarsi dark brown except at base, claws yellowish brown. Wings (Figs. 2, 3): membrane of fore and hind wings hyaline, except base of fore wings reddish brown; longitudinal veins and cross veins of fore and hind wings reddish brown, all cross veins between costa and radial sector of fore wings surrounded with narrow, reddish brown clouds, apical of costal and subcostal area of fore wings washed with dark brown; apical of costal area of fore wings with about 15 cross veins. Abdomen (Fig. 4): terga I–IX brownish yellow, tergum X yellowish brown washed with dark brown except sub medially, terga III–IX with median dark brown longitudinal bar tapering posteriorly, terga I–IX with dark brown lateral maculae as in Figure 3 and terga II–VIII with light brown sub median, longitudinal broad band as in Figure 4; posterior margin of all terga with a narrow, dark brown band; sterna I–IX with sub median dark brown longitudinal bar, sterna I–VI with sub

(Fig. 5); (2) longitudinal and cross veins of fore and hind wings reddish brown, all cross veins between costal and radial sector of fore wings surrounded with narrow, reddish brown clouds, apical of cells on costal and subcostal area of fore wings washed with dark brown; and apical of costal area of fore wings with about 15 slanting cross veins (Fig. 2). Larva: (1) abdominal terga yellowish brown, a pair of sub median bars in segment II–VIII, and a pair of sub median spines and a row of sparse setae on posterior margin of segment I–X (Fig. 7); (2) posterolateral spines on abdominal segment II–VII, progressively longer and curved inwards posteriorly (Fig. 7); and (3) posterior edge of the lamellate portion of gill 1 bluntly pointed (Fig. 8).

There have been sporadic descriptions of species of *Epeorus* from India, especially from Himalayas (e.g. Eaton 1885; Kapur & Kripalani 1963). The only species from Western Ghats, *E. gilliesi* was described by Braasch (1981) from Khandala of the Northern Western Ghats, located in the state of Maharashtra. Then, Braasch & Soldan (1987) reported the species from Southern Western Ghats, based on an immature larva from Kerala. *Epeorus petersi* n. sp. is described from the Kumbakkarai stream, extending the range of this genus further down on the southern segment of the Western Ghats.

The larva of *E. petersi* n. sp. can be differentiated from that of *E. gilliesi* by the shape of posterior edge of the lamellate portion of gill 1 (Figs. 8, 9), tergal colour pattern (Figs. 7, 12), and by the presence of dorsal femoral patches (Figs. 13, 14). The male imago of *E. gilliesi* remains unknown.

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