

Scientific Note

**Andromorphic *Crocothemis servilia* (Drury) (Odonata: Libellulidae):
new records from India**

Odonato andromórfico *Crocothemis servilia* (Drury) (Odonata: Libellulidae):
nuevos registros de la India

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Abstract. Six new records of andromorphic *Crocothemis servilia* from Eastern India are described here. Detail comparisons of the andromorphic female with mature male and female of this species are given.

Key words: Anisoptera, andromorphs, Purba Medinipur.

Resumen. Se describen cuatro nuevos registros del odonato andromórfico *Crocothemis servilia* del este de la India. Se dan comparaciones detalladas de la hembra andromórfica con machos y hembras maduras de esta especie.

Palabras clave: Anisoptera, andromórficos, Purba Medinipur.

Occurrence of andromorphs in Odonata regarded as an evolutionary response to sexual harassment by mate searching males (Fincke 2004; Miller and Fincke 2004). The functional role of male-mimicking coloration in mature females is known to reduce the sexual harassments by males (Huang and Reinhard 2012). Although, andromorphs would favoured in high population density, as their male like appearance reduces the male disturbance. But in case of low population density, andromorphic females may have lower chance of matting or risk of never matting (Hinnekindt 1987; Andrew 2013). Study also shows that, due to identical male colouration, andromorphic females also may bear the cost of rivalry aggression by males during territorial defence (Huang and Reinhard 2012). In Anisoptera, most of the mature libellulid dragonflies usually exhibit distinct sexual dimorphism (Andrew 2013). But andromorphic females are also observed scarcely in libellulids (Corbet 1999). From India, cases of andromorphic females were reported in a few libellulids, viz., *Neurothemis fulvia* Drury, 1773 (Fraser 1936); *Neurothemis fluctuans* Fabricius, 1793 (Fraser 1936); *Neurothemis tullia* (Drury, 1773) (Andrew 2013); *Neurothemis intermedia* Rambur, 1842 (Prasad *et al.* 2000) and in *Urothemis signata* Rambur, 1842 (Payra 2019).

Crocothemis servilia (Drury, 1773) is a widespread species, distributed throughout tropical and sub-tropical Asian countries. In the western Asia it occurs in Middle East

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countries (from the Arabian Peninsula to Turkey). Also accidental introduction results its distribution in Hawaii and in the Caribbean (Dow 2017). In general, the mature males of *C. servilia* are bright red and females are yellow in appearance. van der Poorten (2007) reported the existence of andromorphic female *C. servilia* from Kurunegala, Sri Lanka for the first time and stated about one past record of amber coloured female *C. servilia* during December 1996. The author also mentioned the occurrence of andromorphic female of *C. servilia* from Thailand. In the Indian region seven andromorphic specimens of *C. servilia* are recorded in the last five years, from Maharashtra (four), Tamil Nadu (two) and West Bengal (one) (Anonymous 2019). Here, additional six new records of andromorphic *C. servilia* are incorporated to the Indian region, from Purba Medinipur district of West Bengal, Eastern India (Table 1).

First andromorphic *C. servilia* was observed on 17-vi-2019, 09:10 am. It was perched on an *Acacia* tree branch next to a large pond, near the salt pan area of Kuliyata village (Lat 21° 39' 36.3198" N, Long 87° 34' 19.1604" E). Other species observed were *Macrodiplax cora* (Brauer, 1867), *Trithemis pallidinervis* (Kirby, 1889), *Brachythemis contaminata* (Fabricius, 1793) and *Ischnura senegalensis* (Rambur, 1842). Second andromorphic *C. servilia* was recorded on 10-x-2019, 03:00 pm, from Bara Solemanpur Village (Lat 21° 40' 20.3514" N, Long 87° 34' 33.1968" E). Single individual was perched on a *Ziziphus* tree branch, besides the agricultural land, in addition to *Orthetrum sabina* (Drury, 1770); *B. contaminata* and mature females of *C. servilia*. Third and fourth observations were made on 11-xi-2019 and 16-xi-2019, from Kaluya Sanda village (Lat 21° 40' 16.4748" N, Long 87° 34' 28.707" E) in an open field area, while perched on shrubs. Individuals of *O. sabina*; mature males and females of *C. servilia*; and *Pantala flavescens* (Fabricius, 1798) were also recorded from the vicinity. On 28-xi-2019, 03:00 pm, fifth andromorphic female was observed from coastal forest of Shankarpur (Lat 21° 38' 13.9236" N, Long 87° 34' 28.5522" E), adjacent to the sea beach. The individual was perched on dry twigs along with the four females and five males of *C. servilia*. Other species observed were *O. sabina* and *Diplacodes trivialis* Rambur, 1842. The sixth andromorphic *C. servilia* was recorded near the sluice gate of Kuliyata village (Lat 21° 39' 46.8252" N, Long 87° 34' 13.1808" E) on 5-xii-2019, 02:45 pm, along with eight males and six females of this species. They were perched on bank vegetation of a pond, with other libellulids such as *P. flavescens*; *O. sabina*; *D. trivialis* and *Neurothemis fulvia* Drury, 1773. Photographs of observed specimens were taken by Nikon P900 Camera. Identification was done with the help of Fraser (1936). Detail comparisons of the colour pattern of andromorphic female *C. servilia* with mature male and female of this species were described below.

Diagnosis. In observed andromorphic females, frons, labrum and clypeus are creamy yellow with reddish tint. While blood red in mature male and creamy yellow in mature female. Eyes, red above and greenish yellow to sky blue laterally in andromorphs. In mature male eyes blood red and in case of females pale red above, olivaceous below. Wing base of andromorphs amber colored as in male, while golden yellow wing base in mature female. Thorax amber red above and reddish yellow laterally, in andromorphs. In mature male, thorax blood red and in mature female thorax brownish yellow. Amber red abdomen with narrow middorsal black stripe in andromorphs, while abdomen blood red in mature male and matt yellow in mature female. Reddish cerci and ovipositor in andromorphic female, while cerci and ovipositor yellow in mature female.



Figure 1. *Crocothemis servilia* (Drury, 1773). A-F. Andromorphic females. G. Mature female. H. Mature male (Photographs Arajush Payra).

Table 1. Records of andromorphic *Crocothemis servilia* from India.

Sl. No.	State	Locality and District	Date	Reference
1	Maharashtra	Sindhudurg District	3-vii-2015	Anonymous 2019
2	Maharashtra	Thane District	12-i-2019	Anonymous 2019
3	Maharashtra	Chimur Taluka, Chandrapur District	8-x-2015	Anonymous 2019
4	Maharashtra	Aarey Milk Colony, Mumbai District	3-ix-2018	Anonymous 2019
5	Tamil Nadu	Mannavanur Village, Kodaikanal, Dindigul District	15-x-2014	Anonymous 2019
6	Tamil Nadu	Mannavanur Village, Kodaikanal, Dindigul District	29-x-2014	Anonymous 2019
7	West Bengal	Barddhaman District	22-vii-2018	Anonymous 2019
8	West Bengal	Salt pan, Kuliyata village, Purba Medinipur District	17-vi-2019	Present study Fig. 1A
9	West Bengal	Bara Solemanpur village, Purba Medinipur District	10-x-2019	Present study Fig. 1B
10	West Bengal	Kaluya Sanda village, Purba Medinipur District	11-xi-2019	Present study Fig. 1C
11	West Bengal	Kaluya Sanda village, Purba Medinipur District	16-xi-2019	Present study Fig. 1D
12	West Bengal	Shankarpur, Purba Medinipur District	28-xi-2019	Present study Fig. 1E
13	West Bengal	Near sluice gate, Kuliyata village, Purba Medinipur District	05-xii-2019	Present study Fig. 1F

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