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# Studies on the Species Diversity of Damselflies and Dragonflies (Odonata: Insecta) around the Harsul and Salim Ali Lake, Aurangabad, Maharashtra, India

JB Aghade<sup>\*a</sup>, SA Saraf<sup>b</sup>, SB Dongre<sup>c</sup>, AM Shinde<sup>d</sup>

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## Abstract

Around the Harsul Lake and Salim Ali Lake in Aurangabad, Maharashtra, India, a thorough study on the species diversity of odonates was carried out in 2021–2022, recording about 12 species belonging to 03 families within 2 suborders of the order Odonata. The order Odonata's most prevalent family, the Libellulidae, had eight species, followed by the Coenagrionidae, which had three, and the Gomphidae, which had one. The months of July through September saw the mass emergence of *Brachythemis contaminata* (Fabricius, 1793) and the migratory species *Trithemis pallidinervis* (Kirby, 1889).

**Keywords:** Odonata, diversity, Harsul Lake, Salim Ali Lake, Maharashtra, India.

<sup>\*a</sup>Department of Zoology, Government College of Arts and Science, Dr. B. A. M. University, Chhatrapati Sambhaji Nagar (Aurangabad)..

<sup>b</sup>Department of Zoology, Government College of Arts and Science, Dr. B. A. M. University, Chhatrapati Sambhaji Nagar (Aurangabad)..

<sup>c</sup>Department of Zoology, Government College of Arts and Science, Dr. B. A. M. University, Chhatrapati Sambhaji Nagar (Aurangabad)..

<sup>d</sup>Department of Zoology, Government College of Arts and science, Dr. B. A. M. University, Aurangabad.

Corresponding Author: [jayeshaghade@gmail.com](mailto:jayeshaghade@gmail.com)

Co-author: [surekhasaraf@gmail.com](mailto:surekhasaraf@gmail.com), [sangitadongre24@gmail.com](mailto:sangitadongre24@gmail.com), [anurathshinde@gmail.com](mailto:anurathshinde@gmail.com)

## INTRODUCTION

The Zygoptera (damselflies), Anisoptera (dragonflies), and Anisozygoptera (a relict group having characteristics of both damsels and dragonflies) are the three suborders that make up the order Odonata under the class Insecta. They are amphibious hemimetabolon insects with terrestrial adult stages and aquatic egg and larval (nymph) phases. Odonates are classified into 693 genera and 6383 species worldwide. According to Subramanian and Babu (2020), there are 493 species and 27 subspecies in 154 genera and 18 families in India [10]. A literature review finds no comprehensive account of the Odonata fauna in and around the Aurangabad, Maharashtra, India of the Harsul and Salim Ali Lake. As a result, the current investigations made a meager effort to examine the diversity of odonates that already existed along the area of Harsul and Salim Ali Lake.

## MATERIALS AND METHODS

Between December 2021 and December 2022, a thorough odonate study was conducted in the vicinity of the Harsul and Salim Ali Lake in Aurangabad, Maharashtra, India. On the first and third Saturday/Sunday of every month, a 1-kilometer stretch of the Aurangabad, Maharashtra, India, area around the Harsul and Salim Ali Lake was subjected to thorough odonate investigations, during which time field observations of the species variety and reproductive behaviour of odonates were made. The unnamed odonates were discovered through observation, photography, and species identification. Identification of photographic specimens was done using keys provided by Fraser (1933, 1934, & 1936).

## RESULTS AND DISCUSSION

In Aurangabad, Maharashtra, India, investigations on the odonata fauna have identified roughly 12 species that are members of 3 families and 2 suborders of the odonata order. The research shows that the major species in the study region were *Orthetrum sabina* (Drury, 1770), *Orthetrum glaucaum* (Brauer, 1865), *Aethriamanta brevipennis* (Rambur, 1842), *Diplocodes*

*trivialis* (Rambur, 1842), and *Crocothemis servilia* (Drury, 1770). The months of July through September saw the mass emergence of *Brachythemis contaminata* (Fabricius, 1793) and the migratory species *Trithemis pallidinervis* (Kirby, 1889).

## Annotated Odonata checklist around the Harsul and Salim Ali Lake, Aurangabad, Maharashtra, India.

### Order – Odonata

#### (1) Suborder - Zygoptera

##### (a) Family - Coenagrionidae

1. *Coenagrion mercuriale*.
2. *Pyrrhosoma nymphula*
3. *Ceragrion tenellum*

#### (2) Suborder – Anisoptera

##### (b) Family- Gomphidae

4. *Ictinogomphus rapax*

##### (c) Family- Libellulidae

5. *Crocothemis Servilia*
6. *Acisoma panorpoides*
7. *Orthetrum sabina*
8. *Branchythemis contaminata*
9. *Orthetrum glaucaum*
10. *Aethriamanta brevipennis*
11. *Trithemis pallidinervis*
12. *Diplocodes trivialis*

The order Odonata's most prevalent family, the Libellulidae, had eight species, followed by the Coenagrionidae with three and the Gomphidae with one. Many prior researchers, such as Kumar and Mitra (1998), stated that the Libellulidae family dominated. [7] observed 42 species from Sahstradhara, Dehradun, of which 18 species represented the Libellulidae family; Prasad (2002) [8] documented 162 species from the Western Himalaya, of which 42 species represented the Libellulidae family; Kumar (2002) 40 of the 109 species documented by [8] in the state of Jharkhand belonged to the Libellulidae family. Vashishth et al. [5] documented 12 species of odonates in an irrigated rice field in Madurai, out of which 7 species represented family Libellulidae; Emiliyamma et al. (2005) [11] recorded 17 species in Rajaji National Park, out of which 9 species represented family Libellulidae 137 species of odonates were found in Kerala, of which 56 species belonged to the family

Libellulidae, according to [1]; Sharma (2019); In the four chosen areas in the Districts of Solan and Sirmaur, Himachal Pradesh, [9] discovered 22 species of Odonata, 16 of which belonged to the family Libellulidae. The current study shows that the study area of Harsul and Salim Ali Lake, Aurangabad, Maharashtra, India is rich in Odonata fauna and provide a suitable natural habitat for their survival. However, more fieldwork is needed to explore the various localities in the lakes throughout Maharashtra.

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