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## Distribution of dragonflies and damselflies (Arthropoda: Odonata) from district Jamshoro Sindh

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### Abstract

The present study was aimed to record some species of order Odonata including Dragonflies and Damselflies inhabiting in district Jamshoro during year 2017-2018. Total 350 specimens were collected from different localities of the district Jamshoro namely Almanzar, Kotri, Sehwan, Manjhand and Thano Boola Khan. The material was sorted out into 06 species of dragonflies as well as damselflies namely *Chrocothemis servilia*, *Orthetrum sabina*, *Bradinopyga geminata* belong to family Libellulidae. Whereas *Ischnure elegans*, *Ischnuramburii*, *Ischnuraverticalis* belong to the family Coenagrionidae. Two most dominant families were recorded from order Odonata such as Family libellulidae "Dragonflies" and Family Coenagrionidae "Damselflies". The present research work is first time reported from this area.

**Keywords:** distribution, dragonflies, damselflies, odonata, jamshoro & sindh

### 1. Introduction

Pakistan is situated between latitudes of 23°35' to 37°05' North and longitudes of 60°50' to 77°50' East. It stretches over 1,600 km north to south and 885 km east to west, with a total area of 796,096 km<sup>[1, 2]</sup> Jamshoro is a district of Sindh Pakistan. This district was split from District Dadu in 2004. It is present on the west bank of river Indus. Total area of the district is 11517 sq km. Agriculture is the main source of income and it is also called the city of universities. Order Odonata is one of most attractive and widely distributed group of insects and they are one of most important invertebrate predators of any ecosystem<sup>[2]</sup>.

There are 5680 species have been identified though out the world from order odonata with 31 families along with 03 sub order and odonata is the one of the smallest and oldest order insect order<sup>[3]</sup>.

Odonates are the valuable insects which help adopting decision regarding environment and crop management<sup>[4]</sup>. There is no proper work has been done on the distribution of Odonata in the District Jamshoro but So many researcher have been studied on this studies from Pakistan and other countries<sup>[5-9]</sup>.

### 2. Materials and Methods

Many surveys were conducted from district Jamshoro during monsoon season which commenced from August up to November 2017-2018. On these surveys, study sites were conducted which included in different localities of district Jamshoro. Total 350 specimens were accumulated and sorted out in to six species.

#### 2.1 Field equipments

During data collection (Ariel net, Insects jar) were utilized on survey places. For accumulating specimens "Ariel net" was utilized for capturing. Insect jars were utilized for placing the specimens.

#### 2.2 Lab equipments and chemicals

Afterwards, Amassment was brought to laboratory. Chloroform, nephthol balls, Stretching board, venire caliper, stereoscopic binocular microscope, tracing box and Insect cabinet and insect boxes were used. Chloroform was habituated to paralyzing specimens. Stretching board was habituated to stretch them venire caliper were utilized for the quantification identify the

specimens under the stereoscopic binocular microscope tracing box were habituated to trace the categorical components of the specimens insect cabinet and insect boxes were habituated to place them.

### 2.3 Methodology

During the year August 2017 to November 2018, direct methods were utilized. Method commenced with surveys

from many areas. Surveys were conducted from district Jamshoro. After many surveys from many Talukas and localities, many specimens were amassed. After data accumulation, all the samples were brought in to laboratory for further studies. In laboratory after identification material were sorted out in different species of dragonflies and damselflies.



Fig 1: Pictures Captured during the field work and lab: work

### 3. Results and Discussion

The study was carried out from district Jamshoro during 2017-18 during present research total 350 specimens were captured from different Talukas and areas of district Jamshoro. 220 specimens of dragonflies and 130 specimens of damselflies were captured from these particular areas given above. Material was sorted out into two families namely Family Libellulidae (dragonflies) and Family Coenagrionidae (damselflies) which were further sorted out into 06 species along with 03 different genera namely *Chrocothemis*, *Orthetrum* and *Bradinopyga* and (03 species from Family Libellulidae and 03 species from Family Coenagrionidae). (Table-02) shows monthly amassment of 2017 from district Jamshoro. November 2017 was the richest month for accumulation. In this month *Chrocothemis servilia* was present in highest species (13.14%) and *Ischnura ramburii* (4.85%). (Table-03) exhibits total monthly accumulation of year 2018. September 2018 was richest month for amassment as we facilely verbalize that this species were especially

present in monsoon season. In monsoon *Chrocothemis servilia* additionally highest species which were recorded approximately (14%) as well as *Ischnura ramburii* additionally and were the lowest species which were recorded approximately (2.28%) (Table-01). Kotri is considered as richest area of district Jamshoro which is presented with 98 specimens and Manjhand is considered even area of district Jamshoro which is presented with 65 specimen (Table-04). So many scientists have been studied from Pakistan <sup>[10]</sup>, Sri Lanka <sup>[11]</sup>, Thailand <sup>[12]</sup> and all over the world.

Table 1: Status of collected specimen at species level

| S.No | Name of species              | Collected Specimen | %     |
|------|------------------------------|--------------------|-------|
| 1    | <i>Chrocothemis servilia</i> | 95                 | 27.14 |
| 2    | <i>Bradinopyga geminate</i>  | 56                 | 16    |
| 3    | <i>Orthetrum sabina</i>      | 69                 | 19.71 |
| 4    | <i>Ischnura elegans</i>      | 60                 | 17.14 |
| 5    | <i>Ischnura verticalis</i>   | 45                 | 12.85 |
| 6    | <i>Ischnura ramburii</i>     | 25                 | 7.14  |

Table 2: Monthly status of collected specimen during 2017

| S. No | Name of species              | August 2017 | September 2017 | October 2017 | November 2017 | %     |
|-------|------------------------------|-------------|----------------|--------------|---------------|-------|
| 1     | <i>Chrocothemis servilia</i> | 08          | 15             | 11           | 12            | 13.14 |
| 2     | <i>Bradinopyga geminate</i>  | 10          | 05             | 04           | 09            | 08    |
| 3     | <i>Orthetrum sabina</i>      | 06          | 13             | 12           | 03            | 9.71  |
| 4     | <i>Ischnura elegans</i>      | 04          | 08             | 06           | 11            | 8.28  |
| 5     | <i>Ischnura verticalis</i>   | 06          | 04             | 07           | 03            | 5.71  |
| 6     | <i>Ischnura ramburii</i>     | 03          | 03             | 05           | 06            | 4.85  |

Table 3: Monthly status of collected specimen during 2018

| S. No | Name of species              | August 2018 | September 2018 | October 2018 | November 2018 | %    |
|-------|------------------------------|-------------|----------------|--------------|---------------|------|
| 1     | <i>Chrocothemis servilia</i> | 09          | 12             | 14           | 14            | 14   |
| 2     | <i>Bradinopyga geminate</i>  | 12          | 05             | 09           | 02            | 08   |
| 3     | <i>Orthetrum sabina</i>      | 10          | 07             | 03           | 15            | 10   |
| 4     | <i>Ischnura elegans</i>      | 08          | 03             | 11           | 09            | 8.85 |
| 5     | <i>Ischnura verticalis</i>   | 09          | 07             | 03           | 06            | 7.14 |
| 6     | <i>Ischnura ramburii</i>     | 03          | 02             | 02           | 01            | 2.28 |

**Table 4:** Status of Collected Specimen at the locality level.

| Name of species              | Al-manzar | Kotri | Sehwan | Manjhand | Thanoboola khan |
|------------------------------|-----------|-------|--------|----------|-----------------|
| <i>Chrocothemis servilia</i> | 12        | 38    | 14     | 12       | 19              |
| <i>Bradinopyga geminate</i>  | 12        | 10    | 06     | 18       | 10              |
| <i>Orthetrum sabina</i>      | 09        | 22    | 06     | 12       | 20              |
| <i>Ischnura elegans</i>      | 15        | 16    | 12     | 08       | 09              |
| <i>Ischnura verticalis</i>   | 14        | 06    | 09     | 08       | 08              |
| <i>Ischnura ramburii</i>     | 06        | 06    | 06     | 07       | 00              |
| Total                        | 68        | 98    | 53     | 65       | 66              |

#### 4. Conclusion

The present investigation was conducted in year 2017-2018 during the survey of district Jamshoro, total 350 specimens of Odonata were collected from different localities of District Jamshoro including Almanzar, Kotri, Sehwan, Manjhand and Thanoboola khan [Table-04]. Above all specimen researched out into 06 species of dragonflies as well as damselflies and these species were first time recorded and most abundant species namely *Chrocothemis servilia*, *Bradinopyga geminate*, *Orthetrum sabina*, *Ischnura elegans*, *Ischnura verticalis* and *Ischnura ramburii* (Table-01). This study will be helpful to begin and guess the vision administration implement for this research in district Jamshoro and also this study will also good quality rank result in the scientific literature of Sindh, Pakistan.

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