**International Journal of Zoology Studies**
**ISSN: 2455-7269**
**www.zoologyjournals.com**
**Volume 1; Issue 2; February 2016; Page No. 09-11**

# Odonata nymphs from Chakwal, Punjab, Pakistan

**Shahmshad Ahmed Khan**

University College of Agriculture, University of Sargodha, Pakistan.

**Abstract**
Odonata naiads were collected from different localities of the district Chakwal Punjab Pakistan. A series of collection was conducted during the year 2013 to explore the Odonata naiads. The specimens were collected from different aquatic habitats includes water filled holes, temporary ponds, and seasonal streams. As a whole 10 Zygoptera and 25 Anisoptera species were identified.

**Keywords:** Dragon flies, Odonata naiads, Fenland

## Introduction

Order Odonata is a flying insect includes damselflies and dragonflies. They are the most ancient flying insects and are medium to large sized insects (REHEN, 2001) [14]. Their immature are aquatic and can be found in stagnant as well as in flowing water bodies. Some species are generalists but others needs narrow in their bodies. Some species prefer to live in still water like marshes and bogs, others live in running water (ZIA, 2010) [18].

Punjab province of Pakistan is an important agricultural region in Pakistan. It is surrounded by north east province of Sindh to south, Balochistan province to southwest province of Khyber Pakhtoonkhwa to west and capital. Punjab province possess three seasons i.e. hot weather which exists from the month of April to June, Rainy season and cold weather prevails during the months of October to March.

Most species of order Odonata during the early summer lay eggs which hatch during the same season depends on the specific life cycle. Adults as well as the immature are the important predators of wide range of pests of different crops (A. Din, 2012; Yousuf, Khaliq, & Najam, 1998.) [4, 16]. Adults of dragon flies and damselflies are known to feed on jassid, thrips and whiteflies (ZIA, 2010) [18]. Immature stages are voracious feeders and popularly feeds mosquito larvae, protozoans and small crustaceans (Irshad, 2008) [10].

Large numbers of studies have been conducted in the past recording species composition and diversity of adults of Odonata in different parts of Pakistan. But it is important to note that work on immature stages is negligible. Knowing the importance of naiads of Odonata as effective predators in aquatic environment it was planned to study the immature stages of dragon flies and damselflies in district Chakwal.

## Materials and Methods

Naiads of dragonflies and damselflies were collected during the months January 2013 to December 2013 from district Chakwal. Collection surveys were carried out in five localities of the district Chakwal i.e. Ghurab Dam (L1), Kattas (L2), Chakwal (L3), Odharwal (L4) and Dhok tallian Dam (L5). Collection sites were selected by keeping in view the habitat requirements of Odonata naiads.

Collected specimens were killed in 95% alcohol as naiads' carries lot of water with their bodies that cause dilution of the alcohol in killing vials. In laboratory naiads were preserved in 70% alcohol.

Specimens were identified by following taxonomic literature of (Bouchard, 2004; Chishti, 1988; R. Hussain, 1988; Khaliq, Aslam, & Anjum, 1995; Khaliq, Aslam, & S.A. Anjum, 1994; Musser, 1962; Subramanian, 2005; Yousuf, Khan, & Kaliq, 1996) [2, 3, 7, 11, 12, 13, 15, 17]. Information regarding habitat descriptions, correct names distribution was for all the recorded species.

## Results and Discussion

The study revealed record of 10 Zygoptera (Damselflies) and 25 Anisoptera (Dragonflies) species collected under three families. Details for the collected species are as follows,

### Family Coenagrionidae

*Agrion aurora* Brauer (1865)
*Ischnura delicata* Hagen (1876)
*Nanosura aurora* Kennedy (1920)
*Ishnura bhimtalensis* Sahni (1965)
*Ischnura senegalensis* Rambur, (1842)

### Material examined

Material examined: 15 specimens (Zygoptera). Ghurab Dam (L1) =1, Kattas (L2) =3, Chakwal (L3) =5, Odharwal (L4) =6 and Dhok tallian Dam (L5) = 0.

### Habitat

Most of the specimens were collected from water ponds with vegetation, some were found in nearby temporary rain water filled holes. In these temporary holes mosquito nymphs and fly maggots were their major source of food.

### Subfamily Pseudagrioninae

*Agrion cerinum* Rambur (1842)
*Agrion coromandelianum* Fabricius (1798)
*Ceriagrion coromandelianum* Fabricius, (1898)

**Material examined**
Material examined: 25 specimens (Zygoptera). Ghurab Dam (L1) = 6, Kattas (L2) = 3, Chakwal (L3) = 7, Odharwal (L4) = 4 and Dhok tallian Dam (L5) = 5.

**Habitat**
Most of the specimens were collected from water ponds with vegetation, some were found in nearby temporary rain water filled holes. In these temporary holes mosquito nymphs and fly maggots were their major source of food.

**Subfamily Ischnurinae**
*Ischnura nursei* Morton (1907)

**Material examined**
Material examined: 2 specimens (Zygoptera). Ghurab Dam (L1) = 0, Kattas (L2) = 1, Chakwal (L3) = 0, Odharwal (L4) = 0 and Dhok tallian Dam (L5) = 1.

**Habitat**
Collection was carried out from stagnant water surrounded by the grassy vegetations. Collection was also done from temporary middy ponds of Dhok tallian dam.

**Family Gomphidae**
Gomphidia t- nigrum Selys, (1854).

**Material examined**
Material examined: 5 specimens (Anisoptera).

**Habitat**
Specimens of naiads were collected from marshes and stagnant muddy waters of seasonal streams.

**Family: Libellulidae**
*Trithemis festiva* Rambur, 1842
*Erythemis servilia* Brauer (1866)
*Orthetrum chrysis* Selys, 1891
*Crocothemis servilia* Brauer (1868)
*Orthetrum Sabina* Drury, 1770
*Crocothemis erythraea* Selys (1878)
*Crocothemis soror* Rambur (1842)
*Crocothemis servilia erythraea* Selys (1879)
*Libellula ferruginata* Fabricius, 1781
*Crocothemis reticulate* Kirby (1886)
*Crocothemis soror* Kirby (1866)
*Libellula soror* Rambur (1842)
*Crocothemis servilia servilia* Fraser (1936)
*Libellula servilia* Drury (1770)
*Pantala flavescens* (Fabricius, 1798)
*Libellula ferruginata* Fabricius (1781)
*Selysiothemis nigra* Vander Linden, 1825
*Libellula ferruginea* Fabricius (1793)
*Trithemis aurora* (Vander Linden, 1825)
*Crocothemis erythraea* Subrace (1898)

**Material examined**
Material examined: 50 specimens (Anisoptera). Ghurab Dam (L1) = 10, Kattas (L2) = 21, Chakwal (L3) = 7, Odharwal (L4) = 10 and Dhok tallian Dam (L5) = 2.

**Habitat**
Specimens of naiads were collected from marshes and stagnant muddy waters of seasonal streams. Few exuviae were also observed attached to tender stalks of surrounding vegetation.

***Orthetrum glaucum* (Brauer, 1965)**
*Orthetrum gangi* Sahni (1965)
*Libellula sabina* Drury (1770)
*Orthetrum sabina* Kirby (1889)
*Orthetrum nigriscens* Bartenev (1929)

**Material examined**
Material examined: 11 specimens (Anisoptera). Ghurab Dam (L1) = 1, Kattas (L2) = 2, Chakwal (L3) = 7, Odharwal (L4) = 0 and Dhok tallian Dam (L5) = 1.

**Habitat**
Specimens were collected from temporary water ponds.
Present study was conducted by keeping in view the previous studies that focused on diversity and specie composition of adult Odonates in Pakistan. Aim of present study is to explore the immature stages in different aquatic habitats of the surveyed area. Results of this study showed that 35 species of Odonata were recorded from district Chakwal Punjab Pakistan. According to (A. U. Din, Zia, Bhatti, & Khan, 2013) [6] seventeen species of Odonata naiads were recorded from Chakwal. This shows the need for extensive surveys to be taken throughout the Punjab province to explore the immature stages of more species of this very important bio control agent. Before this study important work on naiads was conducted by(A. Din, 2012) [4] (Anjum, 1997; Bouchard, 2004; R. Hussain, 1988; R Hussain & K.B. Ahmed, 2004; R Hussain & Riaz, 2000; Khaliq *et al*., 1994; Subramanian, 2005; ZIA, 2010) [1, 2, 7, 8, 9, 12, 15, 18] these studies were either based on a limited localities or few species. A recent studies was conducted by (A. Din, 2012) [4] to explore the Odonata naiads of Potohar plateau reporting about 34 species.

**References**

1. Anjum SA. Biosystematics of odonate naiads of the Punjab by rearing techniques. M. Sc. thesis, Deptt. Agric. Entomol., Univ. Agric., Faisalabad, Pakistan, 1997.
2. Bouchard RWJ. Guide to aquatic macroinvertebrates of the Upper Midwest. Water Resources Center, University of Minnesota, St. Paul, MN, 2004, 208.
3. Chishti MJK, Odonate naiads of the Punjab province. M.Sc. Thesis, Univ. Agric. Faisalabad, Pakistan, 1988.
4. Din A. Spatial and temporal distribution of Odonata naiads in lentic and lotic ecosystems of Potohar Plateau, Punjab. M.Sc. thesis. Dpt. Plant & Environmental Prot., Kp. Agric. Univ. Peshawar, Pakistan, 2012.
5. Din AU, Zia A, Bhatti AR, Khan MN. Odonata Naiads of Potohar Plateau, Punjab, Pakistan. Pakistan J Zool. 2013; 45(3):695-700.
6. Hussain R. Odonate naiads of the Sind province. M.Sc. thesis. Univ. of Agric. Faisalabad, Pakistan, 1988.
7. Hussain R, Ahmed KB. The description of naiads of Orthetrum, Trithemis and Sympetrum (Odonata: Libellulidae) from Sindh Province. Pak. J BioI. Sci. 2004 7(3):419-422.

8. Hussain R, Riaz M. Description of the naiads of Gomphidia t-nigrum Seleys and Anax parthenope Selys (Anisoptera: Odonata). Int. J Agric. BioI. 2000; 1:167-168.
9. Irshad M. Biological control of insects and weeds in Pakistan, Pub. Higher Education commission, Islamabad Pakistan., 1st ed. 2008, 315.
10. Khaliq A, Aslam S, Anjum SA. Description of the naiads of six species of Odonata from Poonch Valley of Azad Kashmir. Pak. J Zool. 1995; 27(1):71-76.
11. Khaliq A, Aslam S, Anjum SA. Description of the last instar naiad of Anax immaculifrons Rambur (Aeshnidae: Odonata). Pak. Entomol, 1994; 16:75-76.
12. Musser RJ. Dragonfly nymphs of Utah (Odonata: Anisoptera). Univ. Utah, Biol. Ser. 1962; 12:6.
13. REHEN AC. Phylogenetic analysis of higher-level relationship of Odonata. System. Ent, 2001; 28:181.
14. Subramanian KA. Dragonflies and damselflies of Penisular India - A field guide, Project Lifescape. Indian Academy of Sciences, Banglore, India, 2005, 118.
15. Yousuf M, Khaliq A, Najam MA. Population and feeding capacity of dragonflies on insect pests of rice in Pakistan (Anisoptera: Libellulidae). Notul. Odonatol 1998; 5(2):17-19.
16. Yousuf M, Khan MJ, Kaliq A. Description of some final instar naiads (Libellulidae: Odonata) from Punjab and Sindh. Pak. Entomol, 1996; 18(1, 2):17-23.
17. ZIA A. Biosystematics of Damselflies (Zygoptera: Odonata) of Pakistan. Ph. D. thesis, Department of Agriculture Entomology, Pir Mehr Ali Shah Arid Agriculture Univesity, Rawalpindi, Pakistan, 2010.