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Current status of ichthyofauna at Khaki site, River Siran Mansehra Khyber pakhtunkhwa, Pakistan

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Abstract

A study was conducted on Khaki site at River Siran, to find out fish fauna of Order Cypriniformes, family Cyprinidae from February 2013 to March 2016. During the study a total 16 different species were collected and identified up to species level that belongs to order Cypriniformes and family Cyprinidae the identified 16 species were *C. carpio*, *C. catla*, *C. mrigala*, *L. rohita*, *L. caeruleus*, *H. molitrix*, *H. nobalis*, *S. plagiostomus*, *S. esocinus*, *S. labiatus*, *T. punitora*, *G. gotyla*, *P. sophore*, *P. ticto*, *B. vagra* and *B. pakistanicus* respectively. Genus *Schizothorax* is the rich one, because it contains the highest number of species *S. plagiostomus*, *S. esocinus* and *S. labiatus* respectively. From the obtained study, it may be concluded that Khaki Site at River Siran having rich Cyprinidae fauna.

Keywords: Khaki site, Rivers Siran, Cyprinidae, Cypriniformes, Fish Fauna

Introduction

Many fish species included in Cyprinidae are regarded as commercially and economically high valued species in Pakistan. The population of these commercially important freshwater fishes is declining in the rivers of Pakistan [1, 2]. About 20% of freshwater fishes are declared as either endangered or extinct in the world [3]. In an aquatic ecosystem fish are an effective biological indicator being sensitive to the environmental changes and having wide range of tolerance at community level [4, 5]. Fishes play a prime role in maintaining a stable aquatic ecosystem. Fishes are considered important providing a rich source of proteins, Omega-3 fatty acids, vitamins and minerals for human diet. Fishes are also important providing income and employment to millions of people all over the world [6]. Pakistan is bestowed with many freshwater sources such as rivers and their tributaries, streams, canals, natural and man-made lakes and small water ditches. The freshwater bodies of Pakistan are providing habitat to diverse fauna and flora. Freshwater Ichthyofauna of Pakistan is rich represented by 193 fish species, out of fish, 31 species are considered as commercially high valued species [7]. Fish diversity represents the fish fauna varieties, occurrence, distribution, abundance and conservation of species [8]. Fishes are not only important indicators of ecological health and the abundance, but also maintain a balance in the food chain by consuming plankton and small animals and provide food for many animals. This balance in the food chain may be affected due to pollution in aquatic systems. In addition, there are many threats to fish diversity such as construction of dam, which block the spawning migrations and the introduction of exotic species and over fishing. Therefore, knowing the status of fish fauna is indispensable to prevent the loss of particular species [9]. The objective of the current study was to find out the ichthyofauna at Khaki site, River Siran Mansehra Khyber Pakhtunkhwa, Pakistan.

Materials and Methods**Study Area**

Khaki is one of the most beautiful place of Mansehra Khyber Pakhtunkhwa, Pakistan. Geographical Khaki is situated in Mansehra. Its coordinates is 34° 24' 0" North, 73° 8' 0" East. Climate of this area is warm and temperate. The rainfall in Khaki is significant, with precipitation even during the driest month. The average annual temperature remains 18.5 °C. In a year, the average rainfall is 1445 mm.

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Fig 1: Map of Khaki site at River Siran Khyber Pakhtunkhwa, Pakistan.

Fish Sampling and Identification

Fish sampling was done randomly from the Khaki Site of River Siran since February 2013 to March 2016. Fish collections were made with assistance of local fishermen and fish contractors by using different fishing nets having variable mesh sizes. Fish samples were immediately in the field prior to preservation as Formaldehyde decolorizes the fish color on long time preservation. Collected fish specimens were preserved in 10% aqueous formaldehyde solution and were brought to the Museum of Zoology Department Hazara University, Mansehra Khyber Pakhtunkhwa. Morphometric and meristics studies were done to identify collected fish specimens. Fish specimens were identified up to the species level with the help of standard fish identification keys cited in the taxonomic literature [10-11]. Identified fish species were shifted into 70% alcohol and displayed in glass jars in the Museum of Zoology Department Hazara University Mansehra, Khyber Pakhtunkhwa.

Results

The survey was achieved to find out the fish fauna at Khaki site of River Siran. Up till now no such work was carried on the fishes of this region and this was for the 1st time to conducted a study on fish fauna of this region. In the selected 16 species, genus *Schizothorax* was the most abundant one comprising three species *Schizothorax plagiostomus*, *S. esocinus*, *S. labiatus* respectively. *Schizothorax* species were enriched one at Khaki site of River siran. These fishes provide a great food stuff and influence for human life in various manners. During the current study a total of 16 species of the order Cypriniformes belonging to family Cyprinidae which were *Cyprinus carpio*, *Catla catla*, *Cirrhinus mrigala*, *Labeo rohita*, *L. caeruleus*, *Hypophthalmichthys molitrix*, *H. nobalis*, *Schizothorax plagiostomus*, *S. esocinus*, *S. labiatus*, *Tor putitora*, *Gara gotyla*, *Puntius sophore*, *P. ticto*, *Barillius vagra* and *B. pakistanicus* respectively.

Table 1: Fish fauna (Cypriniformes; Cyprinidae) at Khaki site, River Siran Mansehra KP, Pakistan.

Order	Family	Genus	Species
Cypriniformes	Cyprinidae	<i>Cyprinus</i>	<i>carpio</i>
		<i>Catla</i>	<i>catla</i>
		<i>Cirrhinus</i>	<i>mrigala</i>
		<i>Labeo</i>	<i>rohita</i>
			<i>caeruleus</i>
		<i>Hypophthalmichthys</i>	<i>molitrix</i>
			<i>nobalis</i>
		<i>Schizothorax</i>	<i>plagiostomus</i>
			<i>esocinus</i>
			<i>labiatus</i>
		<i>Tor</i>	<i>putitora</i>
		<i>Gara</i>	<i>gotyla</i>
		<i>Puntius</i>	<i>sophore</i>
			<i>ticto</i>
		<i>Barillius</i>	<i>vagra</i>
			<i>pakistanicus</i>
Orders 1	Families 1	Genera 10	Species 16

Discussion

Khaki site of the River Siran in one of the most water rich body zone. Due to high levels of water peoples swimming over here during extreme summer season (June, July). This site is badly affected by the anthropogenic activities which result to decline the fish population. On this site illegal fishing is carried out throughout the year. In the current survey conducted at the Khaki site by River Sran a total 16 different species were recorded, that comprising one order: Cypriniformes, one family: Cyprinidae, 10 genera and 16 species *Cyprinus carpio*, *Catla catla*, *Cirrhinus mrigala*, *Labeo rohita*, *L. caeruleus*, *Hypophthalmichthys molitrix*, *H. nobalis*, *Schizothorax plagiostomus*, *S. esocinus*, *S. labiatus*, *Tor putitora*, *Gara gotyla*, *Puntius sophore*, *P. ticto*, *Barillius vagra* and *B. pakistanicus* respectively. Genes: *Schizothorax* is the rich one, because it contains the highest number of species *Schizothorax plagiostomus*, *S. esocinus* and *S.*

labiatus respectively. Hameed et al in 2015 conducted research work on biodiversity of fish fauna of Sarki Lawaghar dam, Takhte- Nasrati district, karak kpk, Pakistan. During the study about four species *Labeo rohita*, *Hypophthalmichthys molitrix*, *Cirrhinus mrigala*, *Tor khudree* class Actinopterygii, order Cypriniformes and Cyprinidae species were identified [12]. Some of these species were also studied by Zubia et al, in 2015 at Zebi dam during their survey they found total of six species, and all of the six species which were found in the Zebi dam were belonging to the same family Cyprinidae, Same order Cypriniformes and that of Same class Actinopterygii and these species were *Cirrhinus mrigala*, *Hypophthalmichthys molitrix*, *Labeo rohita*, *Carassius auratus*, *Catla catla*, *Ctenopharyngodon idella* and their Genus are *Cirrhinus*, *Hypophthalmichthys*, *Labeo*, *carassius*, *Catla*, *Ctenopharyngodon* respectively [13]. Another attempt was done by Tahir et al, in 2016 when they conducted a survey of Ghol dam and they found 6 species there, 5 of these 6 species belonging to family Cyprinidae and order Cypriniformes. And these species were *Labeo rohita*, *Hypophthalmichthys molitrix*, *Catla catla*, *Cirrhinus mrigala*, *Tor tor* and their Genus were *Labeo*, *Hypophthalmichthys*, *Catla*, *Cirrhinus* and *Tor* respectively. And only a single specie *Oreochromis niloticus* Genus *Oreochromis* family Cichlidae and order Perciformes do not belong to family Cyprinidae [14]. From the current study results its reviled that maximum fishes of the present study was found matching with the above results. The similarities in the results may due to same aquatic habitat because each fish species inhabit a specific climate. Another main factor is the presence of flora and fauna which play very important role in the fish diversity. In short, Biotic and A biotic factors greatly influence on the fish diversity in aquatic habitat. From the present research it can be concluded that Khaki site is one of the most suitable site for Ichthyo fauna.

Conclusion

From the present investigation, it can be concluded that Khaki site of River Siran having abundant fauna of Cyprinidae family and the environmental condition of this area may be more favorable for Cyprinidae family.

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