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BIODIVERSITY OF AQUATIC INSECTS IN VEMBAKOTTAI WATER RESERVOIR, VIRUDHUNAGAR DISTRICT, TAMIL NADU

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Abstract

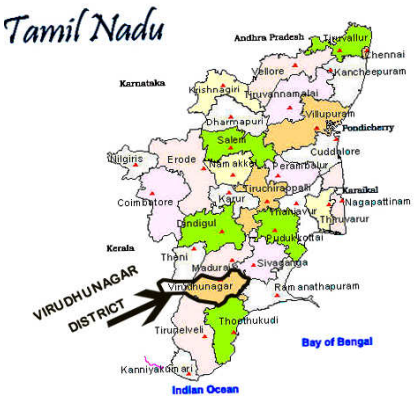
This paper deals with biodiversity of aquatic insects in Vembakottai water reservoir, Virudhunagar district, Tamilnadu. A total of 16 species & 7 genera of aquatic insects were observed from the study area between July 2012 to June 2013. In class insects six orders such as coleoptera (4sps), Hemiptera (8sps), Diptera (3sps), Odonata (2sps), Plecoptera (1sps) and Ephemeroptera (1sps) belonging to 13 families namely Dytiscidae, Notonectidae, Corixidae, Nepidae, Pleidae, Gerridae, Chironomidae, Syrphidae, Corduliidae, Coenagrionidae, Isoperlidae, Culicidae and Ephemeridae. Thus the study revealed that Hemipteran aquatic insects are predominant than others. In the present study the aquatic insects indicating very low level of water pollution.

Key words: *Biodiversity, aquatic insect, reservoir, species, genera, predominant.*

Introduction

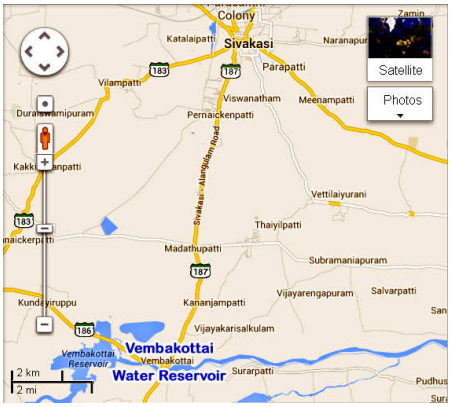
Biological diversity means the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part. This includes diversity with in species, between species and of ecosystem. The insects are the dominant group of animal kingdom on the earth today, the insects have 'Solved' in many ways the various problems of food supply, protection against enemies, adaptation to specific environmental conditions. Many aquatic insects species have more or less tolerance power against to extremes of physico-chemical parameters such as PH, alkalinity, dissolved oxygen and temperature and to industrial wastes and pesticides have broad tolerance for environmental perturbation or polluted environments. Therefore, these are also named as bio-indicator of water quality. It is very essential to formulate a sound public policy for water quality improvement therefore, the present study was made to assess the diversity and relative abundance of aquatic and relative abundance of aqutic insects in order to measure the status of water quality in vembakottai reservoir, virudhunagar district, tamilnadu.

Map showing Tamilnadu



Map showing Virudhunagar District

Map showing Vembakottai Water Reservoir



Vembakottai Dam, Virudhunagar District

Fig.1. Map Showing Study Area

Materials and Methods

Study area and Study period (Fig.1)

In the present study the biodiversity of aquatic insects in Vembakottai water reservoir, 14 kms south of Sivakasi (9o 33' N, Latitude and 77O 77' E, Longitude) was studied. The reservoir has been constructed across the river vaippar. This reservoir is one of the fresh water sources. The study was carried out for one year from July 2012 to June 2013.

Methodology

The Aquatic insects were collected with the help of suitable insects collecting net made of nylon and in some cases, drag type net, was also used. They were first inactivated slowly by putting of 5% formal dehyde solution then preserved 5% formalin. Group of Aquatic insects were isolated and identified with the help of some standard references 1,2,3,4,5.

Result

1. Species composition (Table 1)

Biodiversity of birds Aquatic insects in Vembakottai water reservoir, Virudhunagar district, Tamilnadu. A total of 13 species and 6 genera of aquatic insects were observed from the study area between July 2012 to June 2013. In class insects six orders such as coleoptera (4sps), Hemiptera (8sps), Diptera (3sps), Odonata (2sps), Plecoptera (1sps) and Ephemeroptera (1sps) belonging to 13 families namely Dytiscidae, Notonectidae, Corixidae, Nepidae, Pleidae, Gerridae, Chironomidae, Syrphidae, Corduliidae, Coenagrionidae, Isoperlidae, Culicidae and Ephemeridae.

2. Relative abundance of aquatic insects (Table 2)

Biodiversity of birds Aquatic insects in Vembakottai water reservoir, Virudhunagar Ardeidae, followed by Ciconiidae (3 Sps), Threskiornithidae (3 Sps), Anatidae (3 Sps), Pelecanidae (2 Sps), Scolopacidae (2 Sps), Alcedinidae (2 Sps) and one species each belonging to the families Sternidae, Burhinidae, Meropidae Cerylidae, Charadriidae, Pecurvirostridae, Turnicidae, Accipitridae, Phalacrocoracidae, Coraciidae, Apodinae and Anhingidae. Thus the study revealed that Hemipteran aquatic insects are pderominant than Coleoptera, Diptera, Odonata, Plecoptera and Ephemeropteran insects.

Table 1:- Diversity of aquatic birds observed at Vembakottai Water Reservoir, Virudhunagar District

S.No.	Order	Family	Common name	Scientific name
1.	Coleoptera	Dytiscidae	Diving beetle	*Dytiscus Verticalis*
		Dytiscidae	Diving beetle	*Coptotomus interrogatus*
		Dytiscidae	Diving beetle	Genus *cybister*
		Dytiscidae	Diving beetle	Genus *Laccophitus*
2.	Hemipitera	Notonectidae	Backswimmer	*Noctonecta undulate*
		Corixidae	Water boatman	*Micro nectar Scutellaris*
		Nepidae	Water scorpion	*Laccotrephes Griseus*
		Nepidae	Water stick insect	*Ranatra filiformis*
		Pleidae	Pleid water bugs	*Plea liturata*
		Gerridae	Water striders	*Geris graciliornis*
		Gerridae	Water striders	*Geris Marginatus*
3.	Diptera	Chironomidae	Midge	Genus *chironomus*
		Syrphidae	Syrphidfly	Genus *Eristalis*
		Culicidae	Mosquito	Genus *Anopheles*
		Culicidae	Mosquito	Genus *Clux*
4.	Odonata	Cordriliidae	Dragontlynymph (skimmer)	Genus *Macromia*
		Coenagrionidae	Damseltlicy	*Ischnura verticalis*
5.	Plecoptera	Isoperlidae	Storeflynymph	*Isoperla transmorrina*
6.	Ephemeroptera	Ephemeridae	Maytlynymph	*Heptagenia diabasi*

Table 2: Relative abundance of aquatic birds families in Vembakottai Water Reservoir Virudhunagar District

S.No.	Family	No.of species	Relative Abundance %
1.	Dytiscidae	4	21.05
2.	Notonectidae	1	5.26
3.	Corixidae	1	5.26
4.	Nepidae	2	10.53
5.	Pleidae	1	5.26
6.	Gerridae	2	10.53
7.	Chironomidae	1	5.26
8.	Syrphidae	1	5.26
9.	Culicidae	2	10.53
10.	Cordriliidae	1	5.26
11.	Coenagrionidae	1	5.26
12.	Isoperlidae	1	5.26
13.	Ephemeridae	1	5.26
	Total	**19**	**100.00**

Discussion and Conclusion

In the present study, aquatic entomofaunal survey of Vembakottai water reservoir, Virudhunagar district were studied and 16 species, 7 genera of aquatic insects belonging to 13 families were recorded from July 2012 to June 2013. The study revealed that Hempiteron insects were comparatively more abundant than coleopteran (Aquatic beetles, Diptera (Midges, flies, Mosquitoes), Odonata (Dragonfly nymph, Damselfly nymph), Plecoptera (Stone fly nymph) and Ephemeroptera (May flies nymph). In the present study, Hemipteran aquatic insects organisms. Effective predator at varied aquatic organisms their role in nature may be beneficial. They are control the larva of dipteran species. Hemipteran aquatic insects were found in more in submerged aquatic weeds6.7,8. They were provided breeding as well as feeding ground. Aqutic insects were effective tools of water quality parameter insense of bioindicators9,10,11,12. In the Chiron families as act as biomonitoring tool, according to bioticmatric calculation. These result Indicate the very low level of water polluted in vembakottai water reservoir.

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