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“Studies on Ecological Parameter Analysis of fresh water streams and Seasonality, Distribution Status of Freshwater Fishes in Salem district of Southern India”

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Abstract

Fresh water resources of the Shevaroy hills region. Compounds a very rich and colorful ichthys fauna, drift species of fishes have been abundantly habited in drift. Fresh water streams in the study area. Fish distribution and abundance from different parts of Shevaroy hills have been evaluated by different authors. Detail account of freshwater fishes has been provided by Day. Further, investigations on the freshwater fish fauna of Western Ghats were initiated by Hora) and Hora and Law. Silas listed 25 fish species from the Annamalai hills and 10 species from the Nelliampathi hills. Arunachalam and manimekalan reported economically important and cultivable fishes of the Nilgiri biosphere reserve later he described the assemblage structure of stream fishes in the Western Ghats. Meanwhile, Manimekalan and Das described a new species, Glyptothorax davissinghi (Pisces: Sisoridae), a new catfish from Nilambur, Nirgiri Biosphere. Manimekalan and Singh recorded Schismatorhynchus (Nukta (nukta (Sykes) (Pisces: Cyprinidae) from Moyar River. Later, Arunachalam et.al. Reported the occurrence of Neolissochilus wynaadensis, from Karnataka. Earlier, Biju et al., recorded Puntius filamentosus and Puntius melanampyx (Day) in Orukomban and Thelikal respectively. Manimekalan and Arunachalam (2002) rediscovered the critically endangered air – breathing catfish Clarias day Hora (Pisces: Claridae) in Mudumalai Wildlife Sanctuary. Johnson and Arunachalam reported the diversity, distribution and assemblage structure of fishes in streams of southern Western Ghats. Knight et.al. Described a new species of barb Puntius nigripinnis (Teleostei: Cyprinidae (from southern Western Ghats. Rema Devi and Menon described Horalabiosa palaniensis, Cyprinid fish from Shevaroy hills Western Ghats. Recently, Arunkumar et.al. Reported nearly 37 species in the Cauvery River System. Meanwhile, Mogalekar of Tamil Nadu with the growing international trade of ornamental fishes, some of the fishes like Puntius denisonil, Tetraodon travancoricus, Horabagrus nigricularis and several species of the genus Punitius, Danio, Garra, Loaches, Bagrids and Cichlids are in great demand in domestic as well as international market as aquarium fish. These fishes are being collected

from natural habitats and exported resulting into drastic in their natural population. Several studies have indicated that breeding of Therefore, few of the endemic ornamental species have been identified for captive breeding and aquaculture Mozambique tilapia (திலேப்பிய மீன்), Snakehead Murrell (விரால் மீன்), Grass carp (புல் கெண்டை மீன்), *Catla catla* (catla) (கடலா மீன்), *Nemipterus japonicus* (செங்காலை மீன்) *Labeo rohita* (Rohu), Barramundi (கொடுவா மீன்), *Cirrhina mrigala* (Mrigal), *C. striatus* ornamental as over-exploitation of wild stock of these highly-priced fishes can lead to their extinction. Water samples were collected from different fresh water streams in Shevaroy hills of Salem district. Several researchers have worked on the physiochemical parameters analysis different season, diversity, distributional pattern of fresh water streams and diversity, seasonality, distributional pattern of fresh water stream fishes were identified, to collect systematic position and biology studies from Shevaroy hills, Killyur falls, Agaya Gangai falls, Varambodi falls, Attur waterfalls, Maasila falls, Kalrayan hills falls, Team fs water falls, Megam falls, Nagalur waterfalls, Aani maduvu were Allendorf et al., 1987; Wimberger, 1992, In general, fish demonstrate greater variances in morphological traits both within and between populations than any other vertebrates, and are more susceptible to environmentally induced morphological variations.

Key words:

Fresh water streams, Parameter analysis, Fish identification, Diversity, Seasonality, Distribution

Objectives

1. Studies on the Diversity, Seasonality of Freshwater streams in Shevaroy hills of Salem district.
2. To analysis Bio-ecological studies and Conservation status of Freshwater stream fishes.
3. To analysis Distributional pattern of fresh water stream fishes.

Materials and Methods

Study area

Shevaroy hills are a beautiful hills and an important ecotourism spot in South India. The top hill station of Shevaroy hills is salem. Throughout the year, tourists are visiting this place, but the mass tourism found in two times in a year (summer: April to June and winter: December to January). The maximum rainfall received at monsoons namely south-west monsoon (July-September) and north-east monsoon (October-November). Of these, the highest rainfall received during north-east monsoon.

Collection of sample

Geography and climate in Salem is located at 11.67°N 78.14°E, at an average elevation of 278 m (912 ft.). The city is surrounded by hills: Nagaramalai on the north, Jarugumalai on the south, Kanjamalai on the west, Godumalai on the east and the Shevaroy Hills on the northeast. Kariyaperumal Hill is in southwestern Salem. The thirumanimutharu River flows through the city, dividing it in two. The fort area is the oldest part of Salem. Location: Salem lies in the foothills of Shevaroy hills which houses the famous hill Station 'Yercaud'. It is located about 140 kilometres (87 mi) northwest of Tiruchirappalli, 170kilometres (106 mi) northeast of Coimbatore, 206 kilometres (128 mi) southeast of Bangalore and about 340 kilometres (210 mi) southwest of the state capital, Chennai. Water bodies Mettur Dam is the main water resource for Salem District. Climate Salem has a tropical savanna climate (climate classification Aw). January and February are generally pleasant; the hot summer begins in March, with the year's highest temperatures during April. Pre-monsoon thunderstorms occur during April and May. The Southwest monsoon season lasts from June to September. The northeast monsoon occurs from October to December. Shevaroy hills of salem district has Killyur falls, Agaya Gangai falls, Varambodi falls, Attur waterfalls, Maasila falls, Kalrayan hills falls, Team waterfalls, Megam falls, Nagalur waterfalls, Aani maduvu in total of 10 sites (5 Low, 5 Mid elevation) will be selected from Shevaroy hills of Salem district. In each site, three replicas will be made

between 1 m intervals. Month-wise sampling will be carried out for a year. The Physic-chemical parameters of sampling site will be measured by following: Latitude, Longitude and elevation of sampling sites will be taken from GPS (Global Positioning System); temperature, pH, dissolved oxygen, velocity depth, substrates, etc will be measured.

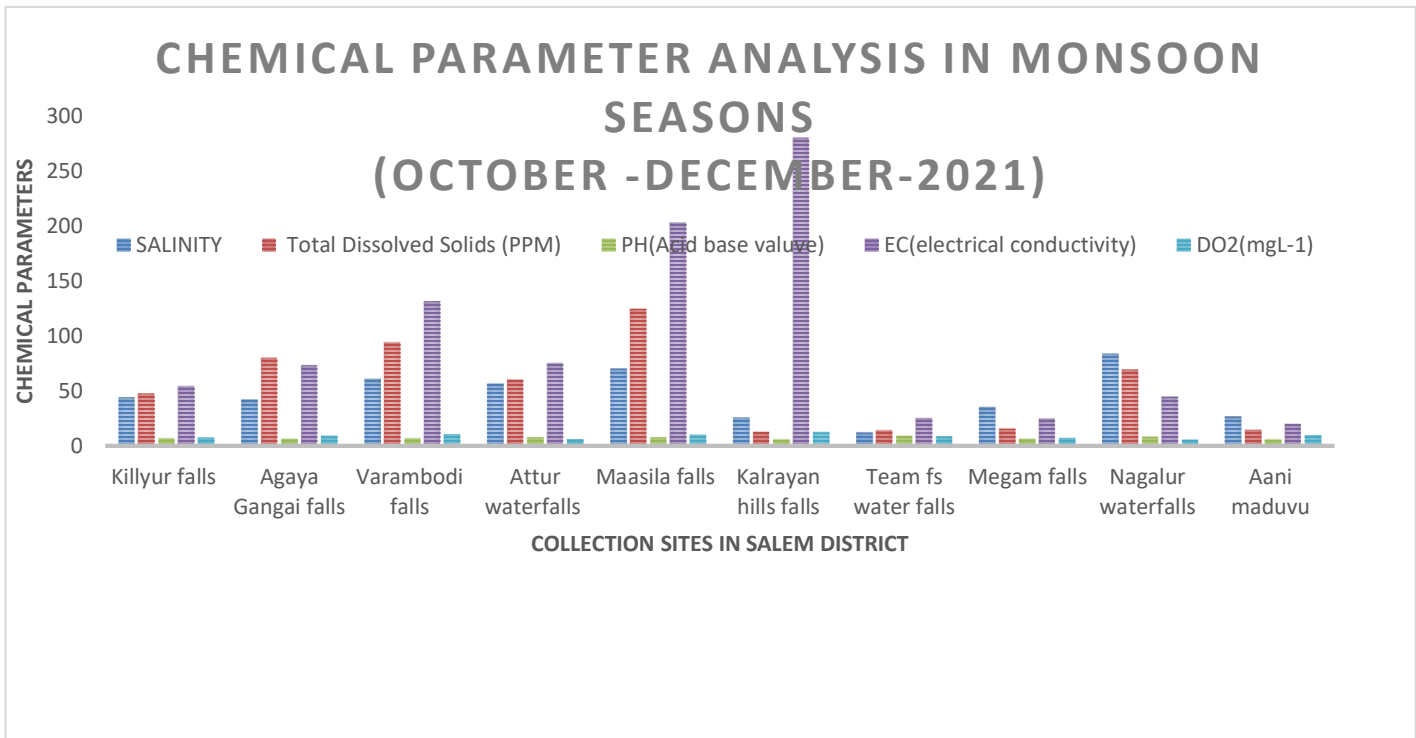
Identification of stream fishes

The fish surveys and identification will be carried out through non-destructive sampling by using sampling methods suited to the nature of river course, stream order, flow, presence of aquatic vegetation and local human disturbance. Visual surveys, cast nets, gill-nets and hooks and lines were used to sample fish species. Fish species will be identified with the aid of taxonomic keys and field guides (Jayaram 1981, 2010). Information on threats to and ecology of species will also be collected based on observation, measurements of stream related ecological covariates and semi structured interviews with local key informants. The collected fishes will be preserved separately in the field using 99% ethanol.

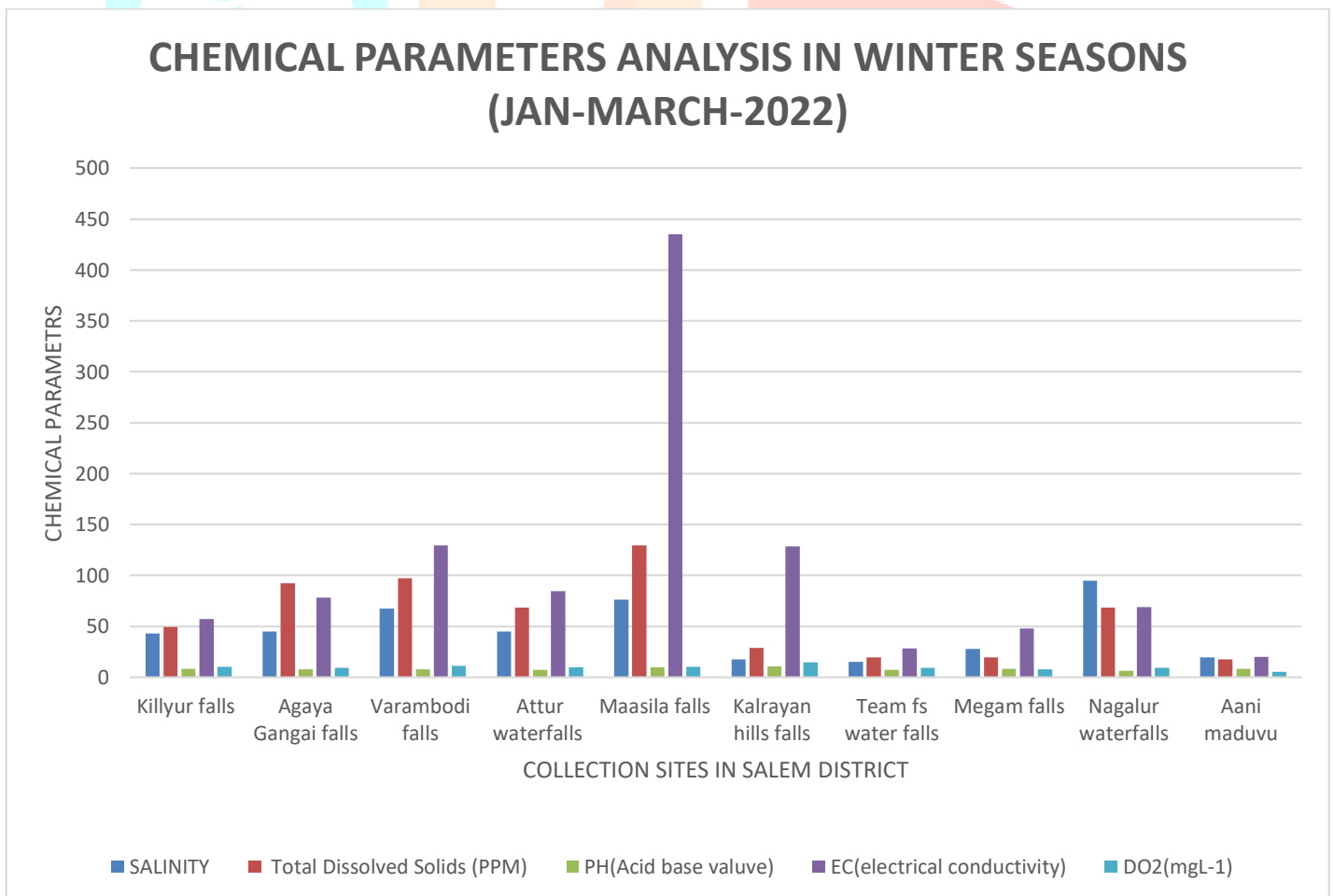
Result

The fish fauna were surveyed from the streams and rivers of the Southern Shevaroy hills of Salem district during one year period of seasonality wise analysis. The collection sites were selected based on the earlier fish faunal distribution in literature. Shevaroy hills is a mountain range that runs almost parallel to the Shevaroy hills of the Indian peninsula well known for its splendid biodiversity both in terms of richness and endemism. The physical and chemical climatic records of the selected study sites (Killyur falls, Agaya gangai falls, Varambodi falls, Attur waterfalls, Maasila falls, Kalrayan hills falls, Team fs water falls, Megam falls, Nagalur waterfalls, Aani maduvu) is given tabulation. The chemical parameters recorded from the study sites different collection sites wise Sample-I. The chemical parameters were collected their Salinity, TDS, PH, EC valves, DO₂. Maximum water temperature (24.1⁰C) was recorded at Kalrayan hills falls and a minimum water temperature (13.4⁰C) was noted at Agaya gangai falls. Characteristic features of small streams such as stream width, water depth, current velocity and the percentage canopy cover, bedrock, boulder, pebbles, and sand in the study sites are provided in large scale studies performed in other areas, geomorphologic ally variables such as climate and altitude have been considered as the major factors responsible for macro-invertebrate distribution. Results indicate that large scale variables were responsible for determining the diversity of fresh water stream fish communities. Multivariate analysis suggests that physical and chemical variables significantly influence the distribution and abundance of fresh water stream fishes in streams of Shevaroy hills. Apart from these variables, elevation was an important factor. Identified some fish species in that collection area of Shevaroy hills of Salem district and collect fish identification and fish morphological studies, feeding habit, biology studies, distribution, IUCN status, threat to human and its uses was graphical presentation.

GRAPH: 1: CHEMICAL PARAMETERS SAMPLING SITES MONSOON SEASONS



GRAPH: 2: CHEMICAL PARAMETERS SAMPLING SITES WINTER SEASONS



Conclusion:

Study will be useful to carry physic chemical Parameter of streams of Shevaroy hills of salem district Based on my studies clear understanding physic chemical parameters can affected based on seasonality, distributional status of fresh water streams, and responsibility of fish bio diversity through this study, the water quality assessment of freshwater of streams and rivers will be made helpful to living of endemic freshwater fishes and its ecology and physic chemical parameter analysis of streams of Shevaroy hills in South India is care and received little attention during Different Seasonality, Distributional analysis study would be useful to understand the conservation status of freshwater streams fishes of Shevaroy hills, and its endemic freshwater fishes biology studies useful to clear evidence of their fish fauna diversity were collected through Fish base, Fish identification was given in the form of tabulated. Concluded that stream fish diversity and distributional pattern based on their habitat seasonality and bio ecological physico-chemical parameters and human activity. Finally future research to analysis molecular based studies to analysis their molecular characterization to give the result of identification of fishes and known the phylogenetic relationship of stream fishes in sampling area.

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