

# Final Progress Report

## **“DIVERSITY AND TAXONOMY OF HELMINTH PARASITES OF COMMERCIALY IMPORTANT CLUPEOID AND PERCIFORM FISHES OF PARANGIPETTAI COAST”**

Project period April 2013 to March 2017

TO THE MAJOR RESEARCH PROJECT (SCIENCE-Zoology) OF  
UNIVERSITY GRANTS COMMISSION, NEW DELHI

PROJECT File No: 42-556/2013(SR)dt.25.03.2013



Submitted by  
PRINCIPAL INVESTIGATOR

**DR.N.VEERAPPAN**

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**ANNAMALAI UNIVERSITY**  
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TAMILNADU, INDIA  
**2017**



**UNIVERSITY GRANTS COMMISSION  
BAHADURSHAH ZAFAR MARG  
NEW DELHI-110002**

**PROFORMA FOR SUBMISSION OF INFORMATION AT THE TIME  
OF SENDING THE FINAL REPORT OF THE WORK DONE ON THE  
PROJECT**

1.	UGC Reference No. & Date	F.No. 42-556/2013(SR) dated: 25.03.2013
	UGC Reference No. & Date	F.No. 42-556/2013(SR) dated: 01.07.2016
2.	Name of the Principal Investigator	<b>DR.N. VEERAPPAN ,Professor</b>
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3	Department and University/ College where the project has undertaken	CAS in Marine Biology, Faculty of Marine Sciences Annamalai University Parangipettai-608 502
4.	Title of the Project	““Diversity and taxonomy of Helminth parasites of commercially important Clupeoid and Perciform fishes of Parangipettai Coast”
5.	Date of Implementation	06.04.2013
6.	Tenure of the project	01.04.2013 to 31.03.2017 (4 Years)
7.	Total Grant Allocated	Rs.12,30,300/-
8.	Total Grant Received	Rs.11,45,000/-
9.	Final Expenditure Unspent amount to be returned to UGC	Rs. 10,31,361/- Rs 1,13,639/-

10	Title of the Project	"Diversity and taxonomy of Helminth parasites of commercially important Clupeoid and Perciform fishes of Parangipettai Coast"
11.	Objectives of the Project	Separate Sheet attached (Appendix-I)
12.	Whether objectives were achieved	Separate Sheet attached (Appendix-II)
13.	Achievements from the Project (Methodology, Experiment Results)	Separate Sheet attached (Appendix-III)
14.	Summary of the findings(in 500 words)	Separate Sheet attached (Appendix-IV)
15.	Contribution to the Society(Give Details)	Separate Sheet attached (Appendix-V)
16.	Whether any Ph.D enrolled /produced out of the Project	One Candidate Ph.D awarded Mr P.Vijayakumar.(Roll no.0922040012 Separate Sheet attached (Appendix-VI)
17.	No.of Publications out of the Project(Please attach)	13 nos. Separate Sheet attached (Appendix-VII)

*NV*  
SIGNATURE OF THE  
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## **EXECUTIVE SUMMARY AND OUTCOME OF MRP- PROJECT(Appendix-IV)**

UGC Major Research Project entitled “**Diversity and taxonomy of Helminth parasites of commercially important Clupeoid and Perciform fishes of Parangipettai Coast**” undertaken by Prof. N.VEERAPPAN, Centre of Advanced Study in Marine Biology, Faculty of Marine Sciences, Annamalai University , Parangipettai-608 502 , Tamil Nadu during the period of April 2013 to March,2017.

### **1. Survey the food fish for the incidence of helminth parasitic infestations**

The above work on Biodiversity of parasites and fishes has been carried-out from the coastal waters of from Parangipettai-Annankovil, Mudasalodai Pitchavaram -Coleroon coastal areas, Pazhayaru landings, Puthukuppam, samiyarpettai, Cuddalore coastal areas.

- A total of 29 species of Clupeoids, 4 species of Atheriniformes and 121 species of Perciforms were collected.
- Most of the fishes were collected from Parangipettai landing centres, Mudasalodai landings, Samiyarpettai. Colereoon estuarine complex and Pazhayar landing centre.
- Cuddalore fish landing centre is the old town of Cuddalore harbor. More number of trawlers and mechanized boats are deployed in fishing activities. Annankovil fish landing and trade centre has been constructed recently.
- A total of more than 28 samplings were made with trawlers including fortnight collections. Fish samples were also collected from local fish markets for 51 times.

### **2. Seasonal variations of the parasitic infestations in food fishes**

➤ Identification of fish parasites was made with regard to seasonal variations. Marine fishes were collected from the fish landing centre were dissected and their alimentary canals were traced out for intestinal parasites. For their identification, dimension and shape of proboscis, the numbers of hooks in longitudinal and transversal rows, their dimension, shapes, number and arrangements of cement glands, testes are important in taxonomy of nematodes, trematodes, cestodes and Acanthocephalans.

3. **In the category of other parasites –for isopods**, body shape , head distinction and thorax and frontal lamina were noticed. Antenna, maxilla, maxilliped, mandible, pereopod, pleopod and uropod were differed in each species. The availability of each parasite and fish hosts were noted in all collections.
4. Samplings were collected for four seasons –Pre-monsoon (July-September), Monsoon-(October -December), Post- monsoon (January-March), Summer(April-June) in two sites for two years.
5. **The mode of parasitic infestation under laboratory conditions was carried out with a suitable fish host**

Experiments on maintenance of fish host and parasites under laboratory condition was made. The stages and tolerance of fish host were also studied. The mode of parasite infestation was observed and the transmission pattern was also ascertained

6. **Histological examination of fish skin muscle, spleen liver and kidney infested with parasites.**

- The incidence of parasites was correlated with the site of infection and favourable conditions for parasitic infections. The parasitic infestation in relation to hosts tissues (Sectioning of liver, spleen, intestine and kidney ) was also compared.
- For each parasite species, separate histological sections were examined and the differences between parasitized and non-infected tissues were studied .

7. **Continuous monitoring of parasites obtained from different fish hosts are recorded from Vellar landings and Pitchavaram mangroves landings.**

- **identification of fish hosts and parasites associated with food fish**

A pictorial picture along the key characters were studied efforts will be taken to preparation of manual in future, so that the fisheries workers, researchers, public will be benefited in accurate and easy identification of edible fish and their parasites.

- **Helminth parasite calendar for the food fish**

A comprehensive documentation was made on the fishes available for the human consumption and their parasitic infestations. Previous records on those aspects were compared in the available of the fishery resources and a separate fish parasite calendar has been prepared.

**8. Awareness programmes, international, national conferences were conducted as outreach activity**

- Based on the inferences, what type of fish and which season and where it occurs were also noticed. Based on these data, awareness was made on fish consumptions (consumers) and quality control measures to scientific community, students and public. Hands on trainings also conducted.
- Training was conducted on 'Fish parasites and Diseases' on 10<sup>th</sup> and 11<sup>th</sup> March,2014. Second Training was organized with the help of other funding sources of MHRD a separate Training was conducted on 9<sup>th</sup> March,2016 on "Fisheries Management" (MANUAL copy enclosed). Academicians, scientists, research scholars, PG students of various Universities of other states (Andhrapradesh, Kerala, Karnataka and Pondicherry) were benefited.

**9. International conference on Aquatic Animal Health and Parasitic Diseases - 2017(ICAAP-2017) was held on 6<sup>th</sup> and 7<sup>th</sup> March,2017.**

The International Conference was organised with the financial support of UGC -SAP programme of our centre. It mainly focused on epidemiological studies of aquatic animal diseases for sustainability of marine aquaculture industry. Eminent scientists, researchers and faculty from all over the world participated. Proceedings was published with ISBN : 978-81-925094 -3-3 , conference was held on 6<sup>th</sup> and 7<sup>th</sup> March 2017 published with i-XX +1-184pp (copy enclosed).

**10. Contribution to the Society:**

The above project work undertaken is useful to know the current biodiversity status of fish parasites and food fishes from the coastal ecosystem. A large number of human population is dependent on the fish resources for livelihood and consumption. The identified fish fauna and parasites reveals role of vector damage caused to fisheries. This will be useful to determine the safety of fish for human consumption. The results also giving the guidelines for the conservation of diversity of fish and management of fish resources with regard to fish parasites.

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