

NF-POGO-IEO Shipboard Training Fellowship – RADMED cruise hosted by the Instituto Español de Oceanografía (IEO), Spain.

Fellowship Report

Name of Trainee: Sipai Nazirahmed A.

Name of Supervisor (Parent Institution): Dr. Arvind Singh

Supervisor (Host Institution): Dr. Mari Carmen Garcia Martinez

Dates of Training: 22 June 2023 to 13 September 2023

Training topic:

Section A

(To be completed by the fellow)

It is the responsibility of the trainee to forward this form to the host and parent supervisor, and to submit a fully completed version to the POGO Secretariat. Please note that the complete report will be made public on the OTP website; Private comments should be included in a separate confidential form.

1) Please provide a brief description of activities during the training period:

I have been trained to use different instruments such as algaelab, microscope using phase contrast technique, Zoo scan, Flow cytometer and Autoanalyzer. I learnt the physiology of phytoplankton and its identification using various criteria. I have collected the seawater samples from beach near the institute every day to monitor the temperature and chlorophyll concentration. I learnt the preservation of Zooplankton and sample processing for its identification. In addition, I acquainted with Zoo scan instrument to capture the high-resolution images and the image processing tool. The EcoTaxa tool were explained for the identification of Zooplankton. Also, I did the measurement of zooplankton biomass. I acquired good knowledge of procedures to measure the nutrients on Autoanalyzer. I gained experience on flow cytometer to measure picophytoplankton and bacterial abundance in the sample. I studied the physical and chemical properties of the Spanish Mediterranean Sea. I have participated in the scientific cruise expedition in the Spanish Mediterranean Sea where I was familiarized with sea water sample collection and its preservation for chlorophyll concentration, nutrient concentration, picophytoplankton abundance, alkalinity and salinity measurements. I learnt the zooplankton collection procedure using plankton net and its preservation technique. I measured the size of phytoplankton to calculate the biovolume. Furthermore, I explored the bioinformatics tools for the DNA sequencing analysis to study the microbial ecology in the ocean.

2) What applications of the training received do you envision at your parent institution?

The most important technique I learnt was identification of phytoplankton which I will use to explore the phytoplankton diversity in the northern Indian Ocean that would be beneficial data in biological oceanography. We have flow cytometer in the institute but the training and discussion with scientist improve my knowledge of techniques and the software tools. The troubleshooting procedure on Autoanalyzer that I learnt will be helpful to resolve the issue quickly during sample analysis. Also, I will use the bioinformatic tools in our recent studies to explore microbial diversity.

3) Please provide your comments on the Fellowship Programme.

The fellowship program might prove to be an important phase in for me in my research career. The fellowship has provided the international platform and great opportunity to explore the science with the eminent scientists. The funding from NF-POGO alleviate my financial burden and provided me to excel in my studies and actively engage in the research activities. I would highly recommend to early career researcher to apply for this program.

Sipai Nazirahmed A.

Date: 18/09/2023

Section B

(To be completed by the host supervisor and returned to the trainee)

Please note that the complete report will be made public on the OTP website; Private comments should be included in a separate confidential form.

1) Please provide your comments on the performance of the trainee.

Nazir has been doing a very good work during his stay at the Oceanographic Centre of Malaga (Spanish Institute of Oceanography). He has been trained in multiple laboratory tasks: inverse microscopy, flow cytometry, zoo scan, pH determination, chlorophyll a, etc. He has been trained and has collaborated in the analysis of nutrient concentrations. He has established relationships and attended talks with the microbial oceanography group (Dr. Isabel Ferrera Ceada).

He has also worked in the preparation of the RADMED cruise in which he has participated being very active and helpful for the rest of the team. He also has been involved in the analysis of the samples collected during the cruise.

During his fellow training Nazir gave a talk to the IEO staff (in person in Malaga) about his work in his parent institution.

2) Is this exchange likely to lead to future collaboration with the trainee's parent institution? If so please give example(s) of how this collaboration may be pursued.

This exchange is a good starting point for future collaborations with his parent institution. It's the first time we collaborate with an Indian University.

3) Please provide your comments on the Fellowship Programme.

In my opinion this type of programme allows international collaborations that would not otherwise be possible. It is a fantastic way to establish contacts with other researchers working in similar lines of research, and to compare different working methodologies.

Dr María del Carmen García Martínez

Date: 06/09/2023

SECTION C

(To be completed by the parent supervisor and returned to the trainee)

Please note that the complete report will be made public on the OTPwebsite; Private comments should be included in a separate confidential form.

1) Do you agree with the above comments and do you have any additional feedback you wish to provide?

Yes, I fully agree with the above observations. NF-POGO trainings are quite useful in the early career of any researcher from the developing nations. They provide numerous opportunity of not just learning science but to understand the research environment in the developed world, which the applicants do not have access in their home countries. Nazir's understanding of microbial oceanography has definitely improved. I am expecting him to use the knowledge gained in his upcoming research.

Dr. Arvind Singh

Date: 19 /09/2023