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EUROPEAN COOPERATION
IN SCIENCE & TECHNOLOGY

SHORT TERM SCIENTIFIC MISSION (STSM)
SCIENTIFIC REPORT

This report is submitted for approval by the STSM applicant to the STSM coordinator

Action number: CA17108 - Aedes Invasive Moquitoes
STSM title: Basic taxonomy for species identification of mosquitoes and maintenance of laboratory breeding mosquito colonies
STSM start and end date: 28/01/2019 to 08/02/2019
Grantee name: Horváth Cintia

PURPOSE OF THE STSM:

The main purpose of this STSM was to gain experience in learning the basic taxonomy of mosquito species at the Laboratory for Medical and Veterinary Entomology, University of Novi Sad.

Another important objective was to learn the the maintenance of laboratory mosquito colonies.

Firstly, it was my aim to be able to observe and participate at the breeding procedure and the maintenance of the laboratory colonies because this method is not yet performed at the University of Agricultural Sciences and Veterinary Medicine in Cluj-Napoca, it represents a valuable method to implement in the future research carried out at our University, and in starting our own mosquito colony.

Secondly, another purpose of this STSM, as stated above, was to become familiar to mosquito taxonomy and preparation.

Both aims are fulfilled, and will significantly contribute to further involvement of the University of Agricultural Sciences and Veterinary Medicine in Cluj-Napoca in WG1 activities under the umbrella of AIM COST Action.

Finally, this STSM provided the opportunity for me to acquire a set of practical skills for the laboratory work and also improve my dexterity. I consider gaining experience in this field as a beginner will help my future development as a researcher. Not only this STSM allowed me to do better my practical work but also offered me the possibility to really understand the theoretical aspects behind each step of the process I was interested in.

In conclusion, I firmly believe that this Short Term Scientific Mission at the Laboratory for Medical and Veterinary Entomology, in Novi Sad under the guidance of Professor Dušan Petrić will help me to perform and implement mosquito identification and preparation techniques, and to maintain the mosquito colonies at the University of Agricultural Sciences and Veterinary Medicine in Cluj-Napoca, and also increase the quality of my scientific work.

DESCRIPTION OF WORK CARRIED OUT DURING THE STSMS

The training at the Laboratory for Medical and Veterinary Entomology, in Novi Sad was divided into two parts: a theoretical and a practical one, which were included on an everyday basis; additionally after the completion of the scheduled tasks for the day, time was allowed for background research or documentation on the tackled topics. Below I am including a detailed work plan for the two weeks of my stay.

In the first week (28.01-01.02.2019), the focus was mainly on mosquito identification and lab colony maintenance.

I started the practical session by identifying different mosquito species. First I practiced on adult females,

then I did larval identification, I also have practiced adult male identification using the key by Becker et. al. and MosKeyTool. During the identification session I participated to lectures about basic taxonomy of mosquitoes and conservation techniques- I learnt about the colony, how to keep the larvae clean, what to feed them, how to collect egg batches, how to separate pupae. I also participated to an experiment on *Aedes albopictus*, where we were testing different diets on mosquito larvae to see if the different food affects their development. During this experiment I learned how to hatch *Aedes albopictus* eggs and how to take care of the larvae. I also practiced how to separate male and female pupae.

The second week (04.02-08.02.2018) was dedicated to performing preparation techniques on mosquito larvae and adults. I have learned how to dry pin adult males and females, how to conserve larvae and male genitalia. The first step of this procedure was to treat the larvae and the male genitalia with 5% KOH. The second step was the dehydration phase. For this purpose I used different concentrations of alcohol (50%, 70%, 80%, 95%- each for 15 minutes) to dehydrate the material. The last step was to fix the material on slides: afer the dehydration I used Eukit to stabilize the body parts on slides, but before this step I treated the male genitalia with xylol.

During the second week I also practiced dissection of mosquitoes, to see the different organs such as the salivary gland, spermatheca, mid-gut, Malpighian tube and the ovaries.

DESCRIPTION OF THE MAIN RESULTS OBTAINED

During my stay at the Laboratory for Medical and Veterinary Entomology, in Novi Sad I believe that I have accomplished the main goal of my Short Term Scientific Mission, which was to get familiar with mosquito taxonomy, laboratory colony maintenance and also preparation methods.

I have learned the basic taxonomy of the adult mosquitoes and larvae, I practiced conservation methods such as dry pinning the adult mosquitoes, or fixing body parts on slides. I also had a chance to practice dissection of the adult mosquitoes. During my Short Term Scientific Mission I gained experience and knowledge in lab colony maintenance, which I consider the most important part of this experience, because I had the opportunity to learn everything about how to start a colony, how to take care of the larvae, how to feed them and all the additional informations that I need to start a colony back at our University.

This experience will help in increasing capacity of our working group and in starting our own colony at the University of Angricultural Sciences and Veterinary Medicine of Cluj-Napoca, which will further contribute to our involvement in activities of WG1 of AIM COST Action.

FUTURE COLLABORATIONS

I received some advice for my PhD project in Romania about the trapping methods of the invasive mosquito species. Taking into consideration this, I will participate to a field work lead by Professor Petrić, to be held in Montenegro in this summer, to learn further methods and techniques about mass trapping and monitoring adult mosquitoes, and also to gain knowledge in mark-relese-recapture method used for evaluation of the Sterile Male Technique. Hopefully we will establish a collaboration for further research on this topic between our University and the researchers team involved in this STSM from the University of Novi Sad.

The STSM grantee
Horváth Cintia
University of Agricultural Sciences and Veterinary Medicine in Cluj-Napoca

Date: 20/02/2019

Signature:

Confirmation by the host institution of the successful execution of the STSM

I confirm that Cintia Horváth´s STSM, entitled "Basic taxonomy for species identification of mosquitoes and maintenance of laboratory breeding mosquito colonies" has been organized at the Laboratory for Medical and Veterinary Entomology, University of Novi Sad within the activities of the WG1 AIM COST Action, from 28 January to 8 February 2019, and it was concluded with success.
Cintia Horváth closely worked with myself and with the colleagues Prof. Aleksandra Ignjatović Ćupina and Dr Mihaela Kavran both from the Laboratory for Medical and Veterinary Entomology. Both of them greatly contributed to finalizing the activities planned and the success of the STSM.
As already pointed out, the STSM has been an opportunity for planning possible joint research activities and further successful collaboration under the umbrella of AIM COST Action.

For the Host Institution
Prof. Dušan Petrić
Head of the Laboratory for Medical and Veterinary Entomology
Faculty of Agriculture
University of Novi Sad

Date: 20/02/2019

Signature: