



European Network for the durable exploitation of crop protection strategies

IA3 Activity: *Human resource exchange*

ENDURE – PhD Scholarship

Final activity report

(The form has to be filled in and sent to the activity leader – message should be sent to his p.a. elisa.scanzi@ibaf.cnr.it – within 15 days after the end of the visit)

Topic of the visit

1. Information about researcher and sending partner

Name and surname: Agnieszka Wegierek

Professional status: PhD student

Sending partner:

Institute/Department/Research Unit:

**Plant Breeding and Acclimatization Institute/ National Research Institute/
Department of Plant Pathology/ Laboratory of quarantine diseases.**

Address: Radzików, 05-870 Błonie.

E-mail and phone number of the researcher: a.wegierek@ihar.edu.pl

Supervisor name*: Edward Arseniuk

Supervisor e-mail*: e.arseniuk@ihar.edu.pl

Supervisor phone number*: (+48 22) 725 30 95

*Supervisor information only for PhD student, post-doc and junior researchers

2. Information about hosting partner

Hosting partner:

Instituto Valenciano de Investigaciones Agrarias

Institute/Department/Research Unit: Laboratorio de Bacteriología

Address: Address: Carretera de Monada a Náquera km 4,5, 46113 Moncada, Valencia

Supervisor name*: María M. López

Supervisor e-mail*: mlopez@ivia.es

Supervisor phone number*: 34-963424075

* For senior scientist indicate the name of the collaborating colleague

3. Information about the visit

Duration: 2 months

Starting date: 1Th of June

Ending date: 30Th of July

4. Description of the activities and outcomes

Background and context: *maximum 10 lines*

The research of IVIA focuses on the epidemiology and diagnosis of biological control of various bacterial diseases of plants (including vegetables and citrus fruits) through a variety of biotechnological methods. Preventive control methods against bacteria phytopathogenic are manifold, but are essentially based in:

- a) the application of sensitive diagnostic techniques to detect specific bacteria in the material plant;
- b) analysis of the characteristics of the strains of each molecular species and their comparison with those of other sources;
- c) knowledge of the source of inoculums and each bacterial reservoirs in our conditions;
- d) the study of survival strategies pathogenic bacteria in different habitats;
- e) the use of preventative treatments, among which the biological control.

All these activities lead to the eradication of plant pathogens and the same to reduce the spread of disease.

Objective: *maximum 10 lines*

The project was designed to investigate using molecular methods (Rep-PCR, Box-PCR, ERIC-PCR, RAPD, VNTR method), differences in intracellular collections of 100 Polish CMS strains isolated in 2006-2010 from various Polish regions. Differentiation of strains this bacterium is associated with their virulent so it is very important to the most accurately do molecular characterization and then develop the best methods of detection and eradication.

Activities carried out:

maximum 20 lines

Investigation carried out in IVIAI laboratory was focused on:

- use different molecular method of differentiation bacteria (RAPD, PCR-RFLP, Rep-PCR, Box-PCR, ERIC-PCR) (Molecular analysis 15 strains CMS coming from different parts of the Polish by using the above mentioned methods didn't reveal variability)
- VNTR method, MLSA method (elaboration optimal conditions operating of methods to differentiate strains CMS)
- use biochemical method- test API (get used to operation of the method on several examples of strains CMS coming from different country collected by IVIA)
- set up of Real-Time PCR for *Clavibacter michiganensis* ssp. *sepedonicus*. (*knowledge of methods and comparison with convencional PCR*)

5. Links between visit activity and ENDURE

Describe links and relevance of your visit in relation to a specific ENDURE activity(ies) and sub-activity(ies) – maximum 15 lines

My research activities in ENDURE network are connected with the ENDURE project which has been conducted during my stay in Instituto Valenciano de Investigaciones Agrarias. In particular the project impacted the SA4 activity, by collecting data for the EIC (Endure Information Centre). All methods I have learned may be used for detecting *Clavibacter michiganensis* ssp. *sepedonicus* and that knowledge can be used for prevention of spreading very dangerous pest as *Clavibacter michiganensis* ssp. *Sepedonicus*. Molecular methods for differentiation of strains are necessary to design effective methods to combat this pathogen. It is very important for project ENDURE because it would reduce the occurrence of CMS responsible for blackleg in potato and thus reduce the cost of plant protection products.

6. Impact

Added value for the researcher: maximum 10 lines

The main advantage of my two month scholarship in IVIA was learning, understanding and using of molecular, serological and biochemical techniques such: test API, RAPD, PCR-RFLP, Rep-PCR, Box-PCR, ERIC-PCR, VNTR method, MLSA of *Clavibacter michiganensis* ssp. *sepedonicus*. By this scholarship I gained experience and expanded knowledge that will be useful in my future laboratory experiments and write my PhD thesis.

Added value for sending partner and hosting partner: maximum 10 lines

For sending partner: learning new technique characterization very important bacteria *Clavibacter michiganensis* ssp. *Sepedonicus* which are causative agents of potato diseases. and obtaining the results of the PhD thesis.
For hosting partner: Helping with running currently carry on research and cooperation with one of the biggest polish national institute as IHAR-PIB is.

Date of submission

06/10/2010



Dr. Maurizio Sattin
IA3 activity leader

Approved