



European Network for the durable exploitation of crop protection strategies

IA3 Activity: Human resource exchange

ENDURE - Internal Mobility

Final activity report

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

Topic of the visit

Test antimicrobial activity of polyphenols from olive oil mill waste-water (OMW) against some phytopathogenic fungi

1. Information about researcher and sending partner

Name and surname: GIANNI DELLA ROCCA

Professional status: PhD STUDENT

Sending partner: CONSIGLIO NAZIONALE DELLE RICERCHE (CNR), ITALY.

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

2. Information about hosting partner

Hosting partner: INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE (INRA), FRANCE.

Institute/Department/Research Unit: URIH. Unité de Recherches Intégrées en Horticulture. Laboratoire de Pathologie appliquée.

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* For senior scientist indicate the name of the collaborating colleague

3. Information about the visit

Duration: 6 weeks

Start date: July 21 , 2007

End date: September 1st, 2007

4. Description of the activities and outcomes

Background and context:

Olive oil extraction produces a great volume of residue. This olive mill waste-water (OMW) is a powerful pollutant, resistant to degradation and presents a severe environmental problem related to its high organic content made up largely of phenolic compounds well characterized, that have been described as being antimicrobial and phytotoxic. On the other hand the toxicity of those compounds against bacteria (Capasso et al., 1995, Ramos- Cormenzana et al., 1996), fungi (Fodale et al., 1999; Kotsou et al., 2004)), algae (Della Greca et al., 2001), plants (Casa et al., 2003), insects (Capasso et al., 1994) could be used for production of biopesticides. It is demonstrated that, biophenols that are extracted and isolated from fractioned OMW, have a selected and minimal toxicity (Obied et al., 2007).

Objective:

Verify the possibility of using the active polyphenols from olive oil mill waste-water (OMW) in an integrated disease management program for the protection of some forest trees against some important pathogenic fungi.

Activities carried out:

We tested in vitro the antimicrobial activity of polyphenols from olive oil mill waste-water (OMW) against some fungi agents of important diseases on some forest trees. The fungi selected for the test were *Seiridium cardinale* and *Sphaeropsis sapinea* agents on cypress and pinus cankers; *Cryphonectria parasitica* agent of chestnut canker; *Ophiostoma novo-ulmi* agent of dutch elm disease. We prepare some cultural media containing extracts at different concentrations of OMW collected in Florence. Mycelium plugs of the four

pathogens were transferred on Petri plates containing the medium. After an incubation at 25°C, the diametric growth of the colonies were measured after 3 weeks.

5. Links between visit activity and ENDURE

Research oriented toward plant protection technologies against diseases using sustainable low environmental impact methods.

6. Impact

Added value for the researcher:

Improvement of the knowledge on the control of the diseases using sustainable methods; Experience exchange with researchers of INRA about plant protection; Visit of some experimental plantations in the south of France; Improvement of French language.

Added value for sending partner and hosting partner:

Increasing the knowledge about the possibility of applications of OMW to control some pathogenic fungi responsible of severe diseases that are of interest for both the research units.

Date of submission

27/12/2007



Dr. Maurizio Sattin
IA3 activity leader

Approved