Proceedings of the Joint Meeting AGI-SIBV-SIGA
Assisi, Italy – 19/22 September, 2011
ISBN **978-88-904570-2-9**

Poster Communication Abstract – 7.27

CHARACTERIZATION AND DIVERSITY OF BACTERIAL ENDOPHYTES OF *VITIS VINIFERA*

BALDAN E.*, SQUARTINI A.**, ZOTTINI M.*, BALDAN B.*

*) Dipartimento di Biologia, Via U. Bassi 58/B, 35131 Padova
**) Dipartimento di Biotecnologie Agrarie, Viale dell'Università 16, 35020 Legnaro (PD)

Vitis vinifera ("Prosecco"), bacterial endophytes, ARDRA

Plant-growth-promoting-bacteria (PGPB) are associated with many plant species and are commonly present in many different environments. Recent studies have evidenced that some of these micro-organisms can also enter the root interior, move within the plant and establish endophytic populations. Endophytes can be defined as micro-organisms that colonize the internal tissues of the plant showing no external sign of infection or negative effect on their host and that could be isolated from surface-sterilized plant tissues. It has been demonstrated that they can accelerate seedling emergence, promote plant growth and yield; they also can act as biocontrol agents to manage plant pathogens: disease development is prevented through endophyte-mediated synthesis of novel metabolites which are effective on different plant enemies. In addition they may help to remove contaminants, solubilize phosphate or contribute assimilable nitrogen to plants.. This work is part of a F.S.E. research-project focusing on the biodiversity of bacterial endophytes, living in stems and roots of *V. vinifera* (Prosecco) that grow in Conegliano (TV) area. In order to evaluate and isolate culturable and non-culturable bacterial endophytes leaves, roots and shoot were sampled. Grapevine tissues were sterilized by treating with ethanol 70% for 1 min, sodium hypochlorite 1,5% for 3 min and washing with sterile water 5 times. Sterilized tissues were aseptically ground in a mortar; loopful of the ground tissue suspension was utilized for plating; overflow tissues were stored at -80°C for later culture independent molecular analyses. The diversity of culturable bacterial endophytes of grapevine was examined using plate-dependent cultivation methods in NA (Nutrient Broth Agarized Medium), and incubated. Many isolates were selected; they have already been grouped on the basis of phenotypic characteristics such as colour, form, surface, opacity, texture, cell morphology, streaked onto individual NA plates, checked for purity and stored at -80°C. These isolates have also been screened for nitrogenase activity, production of indole acetic acid (IAA) and siderophore, and phosphate solubilization. Prokariotic DNA has been extracted from the endophyte candidates using standard procedures and has been analyzed by ARDRA (Amplified Ribosomial DNA Restriction Analysis) technique. Bacteria identification will be performed by 16S rDNA amplification and sequencing; their screening for plant growth promotion and biocontrol will result in good candidates for practical application.

Obtained results suggest that certain isolates may be exploited for developing a potential endophyte application in improving grapevine productivity and disease biocontrol.