ISOLATION OF *Bacillus spp.* FROM THE RHIZOSPHERE OF OLIVE TREES PLANTED IN CASTELAR

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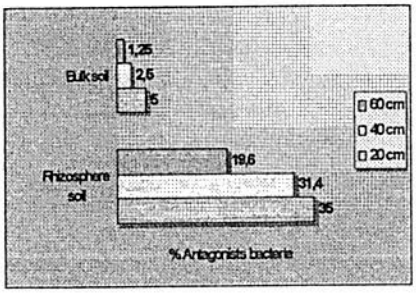
Drechslera, Fusarium, Verticillium **are important soilborne pathogen,causing losses in a wide variety of important crops (Tjamos *et al.*, 1997). Alternative to chemical control are antagonistic microorganisms that can supress other soilborne microorganisms (Weller, 1988). The rhizhosphere is defined as a the layer of soil influenced by root metabolism. In comparison to root-free soil, the rhizosphere forms a nutrient rich niche for microorganisms as a result of exudation of compounds (Lorenz Hiltner, 1904).**

MATERIALS AND METHODS

Rhizosphere soil from 60 year-old olive plantation at INTA Castelar was used to isolate *Bacillus* strains that were tested against *Fusarium* and *Drechslera.* Antifungal activity was evaluated by dual culture. Data was analyzed by R-program

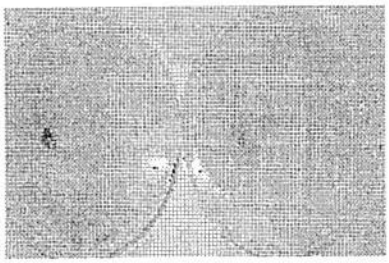
RESULTS AND DISCUSSION

Bacillus **strains 51.1, 51.2, 51.4, 51.35, 51.6, 51.7, 51.18 were obtained from olive soil. The thermo-resistant microorganisms ranged between 1.10^5 to 1.10^6 colony forming unites per gram of dried soil. 400 isolates were tested for antifungical activity. 19 *Bacillus* strains displayed inhibitory propierties against *Verticillium.* A total of 19 termo-resitant bacteria showed antifungal activity (17 from rhizospheric soil, and 2 of the soil bulk). Samples taken at 40 or 60 cm from soil surface were significantly different (P=0.004) regarding the amount of microorganism possesing antifungal activity. The same was valid when considering soil bulk (P=0.0000001)**

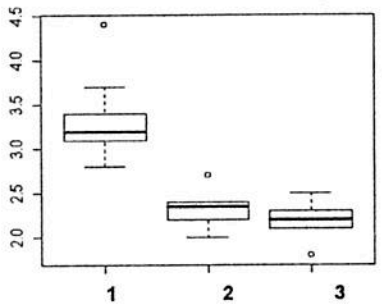


1. Distance of sampling: 20, 40, and 60 cm (n=4). Depth sampling: 20 cm in rhizospheric soil, and 20, 40, 60 cm for bulk soil (n=4).

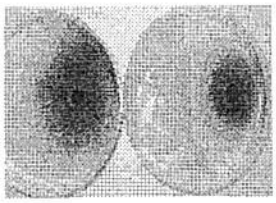
The *Bacillus* strain 51.18 had capability bioantagonist against *Fusarium* and *Drechslera.*



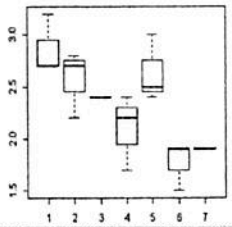
Biocontrol of *Fusarium* by *Bacillus* strain 51.18



Biocontrol capability (n=30) 1. Control of *Fusarium*, 2. *Bacillus* strain 51.18; 3. Strain 51.19



Biocontrol of *Drechslera* by *Bacillus* 51.7



1, Drechslera control; 2. *Bacillus* strain 51.1; 2, Strain 51.2; 3, Strain 51.3; 4, Strain 51.4; 5 Sstrain 51.5; 6, Strain 51.6; 7, Strain 51.7

The strain 46.8 of *Bacillus* was able to reduce *Fusarium* and *Drechslera* growth by 60% (P=0.002)

•**Tjamos, E, Rowe, R, Heale, J, Fravel, D.** 2000. Advances in *Verticillium* research and disease management. APS Press. St. Paul, Minnesota.

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