

Elisa Gamalero

Curriculum vitae

PERSONAL DATA

Born in Alessandria 02.05.1972

Living in Alessandria

BIO AND EDUCATION

1. 1997. Degree in Biological Science (University of Turin) - 110/110 *cum laude*. Title of the thesis: "Suppressive activity of mycorrhizospheric pseudomonads on phytopathogenic fungi: role of siderophores".
2. 2001. Ph.D. in Environmental Sciences at the Università del Piemonte Orientale "Amedeo Avogadro". Title of the thesis: "Use of beneficial microorganisms in *Lycopersicon esculentum* in order to improve plant growth in a sustainable agriculture context".

UNIVERSITY CAREER

2013	Assistant Professor in General Microbiology at the Università del Piemonte Orientale "Amedeo Avogadro"
2006	Assistant Professor in Agricultural Microbiology at the Università del Piemonte Orientale "Amedeo Avogadro".

MAIN FIELDS OF INTEREST

1. bacteria
2. biofertilizers
3. biocontrol agents
4. soil
5. bioremediation

CURRENT ISSUES OF RESEARCH

1. Plant-microbes interactions

Bacterial density in soil is very high. These bacteria can interacting among them, with soil fungi, phytopathogenic organisms and plants. They can promote plant growth through mineral nutrition improvement, synthesis of phytohormones, soil-borne disease suppression and increase of the stress tolerance by ethylene level modulation. Data

obtained by this research can be useful for the development of new, more sustainable strategies in agriculture and phytoremediation.

2. **Soil quality: microorganisms as bioindicators**

Microorganisms can be a useful tool and excellent indicators of the soil quality since they responses to environmental stress are very fast. Evaluation of the density, activity and diversity of soil microorganisms are a fundamental requirement to define the quality, the fertility and the tolerance of the soil to environmental stresses.

3. **Assisted phytoremediation**

Phytoremediation is the direct use of living green plants for in situ, or in place, removal, degradation, or containment of contaminants in environment. Microorganisms associated to the plants can support the bioremediation activity of the plant by: 1) promoting plant growth and enhancing the biomass 2) increasing the heavy metal bioavailability 3) improving the tolerance of the plants exposed to stress 4) degrading the organic pollutant

4. **Description of the soil metagenome**

Metagenomics (also referred to as environmental and community genomics) is the genomic analysis of microorganisms by direct DNA extraction. This technique, coupled with next generation sequencing tool, allow to identify the bacterial strains living in a specific environment, as well as their functions and role.

5. **Effetti degli oli essenziali nei confronti di patogeni opportunisti umani**

Candida spp. and *Staphylococcus aureus* are human opportunistic pathogen. Due to the spreading of drug-resistant strains, attention has been focused on possible alternative therapies. Essential oils are mixture of volatile organic compounds synthesized by aromatic plants. Since essential oils show inhibitory activity against yeast and bacteria, they can be considered as a valid approach to contrast *Candida* and *S. aureus* cutaneous infections.

TOP FIVE PAPERS

1. Gamalero E., Glick BR. 2015. Bacterial modulation of plant ethylene levels. *Plant Physiology* 169: 13-22.
2. Berta G., Copetta A., Gamalero E., Bona E., Cesaro P., Scarafoni A., D'Agostino G. 2013. Maize development and grain quality are differentially affected by mycorrhizal fungi and a growth-promoting pseudomonad in the field. *Mycorrhiza* 24:161-170.
3. Gamalero E., Berta G., Massa N., Glick B.R., Lingua G. 2010. Interactions between *Pseudomonas putida* UW4 and *Gigaspora rosea* BEG9 and their consequences on the growth of cucumber under salt stress conditions. *Journal of Applied Microbiology* 108: 236-245.
4. Gamalero E., Berta G., Lingua G., Glick B.R. 2009. Effects of plant growth-promoting bacteria and AM fungi on the response of plants to heavy metal stress. *Canadian Journal of Microbiology* 55: 501-514.
5. Gamalero E., Trotta A., Massa N., Copetta A., Martinotti M.G., Berta G. 2004. Impact of two fluorescent pseudomonads and an arbuscular mycorrhizal fungus on tomato plant growth, root architecture and P acquisition. *Mycorrhiza* 14: 185-192.