Guido Lingua

BIO AND EDUCATION

Guido Lingua obrained his degree cum laude in Biological Sciences at the University of Torino, and his PhD in Environmental Sciences (XIII ciclo) at the University of Piemonte Orientale, within the frame of a EU funded project (AIR-3-CT 94-0809 - Biological control of root pathogens by VA mycorrhizas: research into the mechanisms involved) and including periods of study at Rothamsted Experimental Station (Harpenden, UK).
The research carried out by Guido Lingua concerns plant biology, and in particular the study of phenomena involving arbuscular mycorrhizae.
Guido Lingua has obtained the habilitation as full professor in the scientific sector of General Botany (BIO/01). Winner of a OECD grant for a period of study at the Montana State University (Bozeman, USA, 2009), visiting professor at the University of Waterloo (Canada, 2013).

UNIVERSITY CAREER

2015-	Associate professor, Università del Piemonte Orientale
2001-2015	Assistant professor, Università del Piemonte Orientale

UNIVERSITY POSITIONS

2015-	Coordinator of the XXXI cycle of the PhD course in Chemistry and Biology, Università del Piemonte Orientale
2014-	Member of the Steering committee and Board of the CLUPO (Linguistic Committee of the Università del Piemonte Orientale)
2014-	Member of the Technical-Scientifical Board of the Interdipartimental Centre of Excellence for Health Management (CEIMS)
2008	Member of the Inter-University Joint Commission for the Integrated Territory Plan between Università del Piemonte Orientale "A. Avogadro" and Politecnico di Torino
2004-2011	Member of the Board of the Dipartimento di Scienze dell'Ambiente e della Vita – Università del Piemonte Orientale
2004-2007	Member of the Commissione Orientamento, Facultà di Scienze M.F:N., Università del Piemonte Orientale

SCIENTIFIC POSITIONS

2015-	Member of the Steering committee of the Workgroup on Differentiation and Biotechnology, Società Botanica Italiana
2009-	Member of the Editorial Board of the journal Mycorrhiza
2006-	Member of the International Mycorrhiza Society
1997-	Member of the Società Botanica Italiana

MAIN FIELDS OF INTEREST

1. Plant microbe interactions
2. Arbuscular mycorrhizae
3. Plant growth-promoting bacteria
4. Phytoremediation
5. Quality of agricultural products

CURRENT ISSUES OF RESEARCH

1. **Microbe-assisted phytoremediation of polluted soils**

The efficiency of phytoremediation, that is the use of plants to reclamate polluted environmental matrices, can be increased by the use of beneficial soil microbes, like arbuscular mycorrhizal fungi and plant growth-promoting bacteria, able to improve the nutrition and stress tolerance of the plants. Our studies concern both practical applications and the study of the plant mechanisms affected by the microorganisms.

2. **Effects of beneficial microorganisms on the quality of agricultural products**

Beneficial soil microorganisms support plant growth, allowing to reduce chemical inputs (fertilizers and pesticides) in the cultivation of crops. In addition, the same microorganisms can increase the concentration of vitamins, antioxidants and compounds related to the sensory features of crops, increasing their healthiness, nutritional value and overall quality.

3. **Interactions between plants, arbuscular mycorrhizal fungi and plant growth-promoting bacteria**

Arbuscular mycorrhizal fungi and plant growth-promoting bacteria, alone or in combination, can affect the growth, development, tolerance to biotic (pathogens, competition) and abiotic (drought, salinity, pollutants) stress. The study of these phenomena is tackled with morphological, biochemical and molecular methods.

TOP FIVE PAPERS

1. **Lingua G.**, D'Agostino G., Massa N., Antosiano M., Berta G. 2002. Mycorrhizal induced differential response to a yellows disease in tomato. *Mycorrhiza* 12: 191-198.
2. Copetta A., **Lingua G.**, Berta G. 2006. Effects of three AM fungi on growth, distribution of glandular hairs and essential oil production in *Ocimum basilicum* L. var. Genovese. *Mycorrhiza,* 16: 485-494.
3. **Lingua G.**, Franchin C., Todeschini V., Castiglione S., Biondi S., Burlando B., Parravicini V., Torrigiani P., Berta G. 2008. Arbuscular mycorrhizal fungi differentially affect the response

to high zinc concentrations of two registered poplar clones. *Environmental Pollution*, 153: 137-147.

4. Castiglione S., Todeschini T., Franchin C., Torrigiani P., Gastaldi D., Cicatelli A., Rinaudo C., Berta G., Biondi S., **Lingua G.** 2009. Clonal differences in survival capacity, copper and zinc accumulation, and correlation with leaf polyamine levels in poplar: a large-scale field trial on heavily polluted soil. *Environmental Pollution,* 157: 2108-2117.
5. Todeschini V., **Lingua G.**, D'Agostino G., Carniato F., Roccotiello E., Berta G. 2011. Effects of high zinc concentration on poplar leaves: a morphological and biochemical study. *Environmental and Experimental Botany,* 71: 50-56.