Research Group of Plant and Environmental Biotechnology (BIOPLANET)

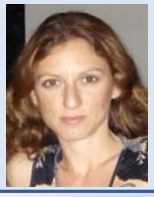
University of Thessaly
Department of Biochemistry and Biotechnology
http://plantenvlab.bio.uth.gr

Who are we?

Assoc. Prof. Kalliope Papadopoulou
Plant – Microbe Interactions
Plant Biotechnology

Assoc. Prof. Dimitrios Karpouzas
Environmental Microbiology and Biotechnology

Dr. S. Vasileiadis
Marie Curie
Postdoc Fellow

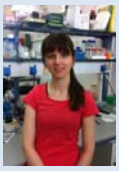


Dr. D. Tsikou
Postdoc Fellow
IKY

……and the rest of the gang plus…

Dr Evangelia Papadopoulou
PostDoc IKY

Konstantina Rousidou
PhD student

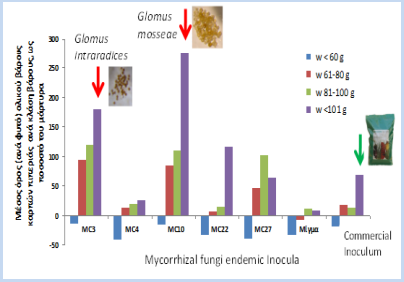


What are our research priorities?

Plant Microbe – Interactions

- **Arbuscular mycorrhizal fungi: ecology and function**

THALIS *Contribution of Mycorrhizae to the sustainability of marginal Med. ecosystems – development of mycorrhizal inocula*



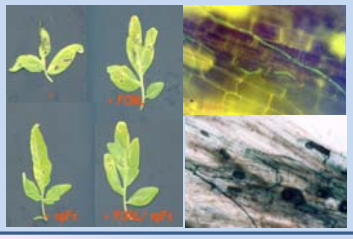
Support of New SMEs: *Isolation of indigenous AM fungi and development of mycorrhizal inocula used for rhizosphere inoculations and the production of soil improvers*

Collaborators:

Dr K. Ehaliotis
Agricultural Univ. Athens

Dr I. Ipsilantis
Aristotle University Thessaloniki

- **Endophytic fungi suppressive to plant pathogens**

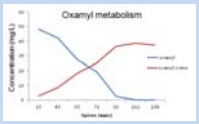


An endophytic Fusarium solani strain which is suppressive to tomato soil pathogen F. oxysporum f.sp. rl and induces systemic resistance to foliar pathogens

Environmental Microbiology & Biotechnology

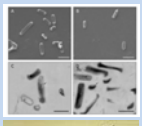
- **Microbial degradation of pesticides**

Functional analysis of the microbial metabolism of **carbamate** and **organophosphorus pesticides** and study of the ecology, evolution and function of relevant hydrolases

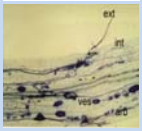


- **Toxicity of pesticides to soil microbes**

Assessing the toxicity of pesticides on soil microbes using a wide array of **standardized methods** and **bioindicator functional microbial groups**



Ammonia oxidizers

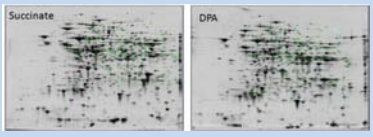


Arbuscular mycorrhizal fungi

MSCA-FP7-IAPP project LOVE TO HATE
IKY PostDoc project 2017-19

- **Biodepuration of agro-industrial effluents**

Degradation of pesticides used in the fruit packaging industry by soil bacteria and bacterial consortia: Elucidating the genetic mechanisms driving thes pathways via omics and their use in biodepuration and bioaugmentation



ΑΡΙΣΤΕΙΑ ΙΙ, BIOREMEDIATOMICS

MSCA-IF-H2020, EMIGRATE

Recent Relevant Publications

1. **Karpouzas, D.G.,** et al (2014) A tiered assessment approach based on standardized methods to estimate the impact of nicosulfuron on the abundance and function of the soil microbial community. *Soil Biol Biochem* 75: 282-291
2. Hadar Y, **Papadopoulou KK.** (2012) Suppressive composts: microbial ecology links between abiotic environments and healthy plants. *Ann. Rev. Phytopath.* 50:133-153
3. **Papadopoulou E.S**., ……**Karpouzas D.G.,** (2016) Land spreading of wastewaters from the fruit packaging industry and potential effects on soil microbes: Effects of the antioxidant ethoxyquin and its metabolites on ammonia oxidizers. *Appl. Environ. Microbiol.* 82: 747-755
4. Ipsilantis I., Samourelis C., **Karpouzas D.G.,** (2012) The impact of botanical pesticides on arbuscular mycorrhizal fungi. *Soil Biology and Biochemistry* 45: 147-155
5. **Rousidou C.,** ……**Karpouzas D.G.** (2017) Distribution and function of carbamate hydrolase genes cehA and mcd in soils: the distinct role of soil pH. FEMS Microbiology Ecology DOI: http://dx.doi.org/10.1093/femsec/fiw219
6. **Perruchon C.,** Chatzinotas A., Omirou M., **Vasileiadis S.**, Menkissoglu-Spiroudi U., **Karpouzas D.G.,** (2017) Isolation of a bacterial consortium able to degrade the fungicide thiabendazole and determination of its metabolic pathway: the key role of a Sphingomonas phylotype. Applied Microbiology and Biotechnology doi:10.1007/s00253-017-8128-5