

ASSESSING THE TOXICITY OF PESTICIDES ON NATURAL SOIL AND PLANT ASSEMBLAGES OF AMF


Manukyan Anna¹, Karpouzas Dimitrios¹ and Papadopoulou K.Kalliope¹

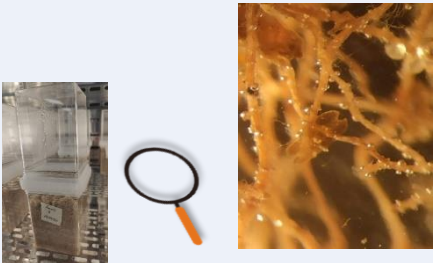
¹ Department of Biochemistry and Biotechnology, University of Thessaly, Larissa, Greece.

Introduction: Pesticide usage is regulated by the international standardized methods, to assess their toxicological effects on the environment. However, how these compounds affect the off-target soil microorganisms, remains elusive, due to the no-well-defined regulatory-tiered scheme for assessing the soil microbial toxicity of pesticides. The main aim of this work is to develop and implement advanced experimental lab and field tests to assess the toxicity of pesticides on natural soil assemblages of Arbuscular mycorrhizal fungi, which will result in designing guidelines and protocols for further usage.

OBJECTIVE 1

Detection of functionally important members of AMF community.

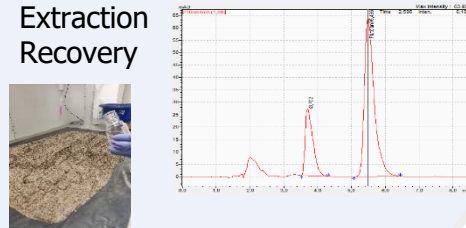
1.  extraction
2. Amplification of AMF specific region (SSU+ITS+LSU amplicon)
3. Design species specific primers



OBJECTIVE 2

Detection of pesticides and determination of their possible transformation rate in natural soils, for identifying the correlations between exposure and effects.

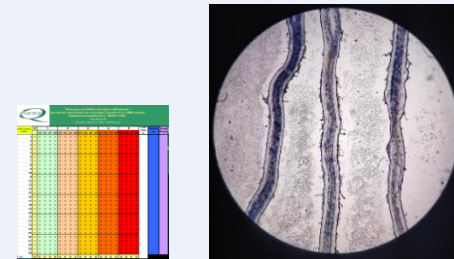
1. Soil fortification
2. Extraction
3. Recovery



OBJECTIVE 3

Defining effects of pesticides on the function and diversity of natural soil assemblages of AMF.

1. Amplicon sequencing
2. Expression levels of P transporters in roots
3. AMF colonization level



OBJECTIVE 4

Identification of the potential toxicity mechanisms of pesticides.

1. Direct/indirect
2. Different stages of AMF development
3. Host plant response

