PROSODOL

PRESENTATION OF PROSODOL PROJECT
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Strategies to improve and protect soil quality from the disposal mills' wastes in the Mediterranean region

BENEFICIARIES

Consejo Superior de Investigaciones Cientificas
Centro de Edafologia y Biologia Aplicada del Segura
Spain

National Agricultural Research Foundation
Soil Science Institute of Athens

Foundation for Research and Technology
Institute of Mediterranean Studies

Centro Regionale di Sperimentazione e Assistenza Agricola
Albenga Italy

Technical University of Crete
Department of Mineral Resources Engineering

CO-FINANCIERS

Municipality of Nikiforos Fokas, Rethgymnon, Crete, Greece

Agricultural Association of Rethymnon, Crete, Greece

Objectives

- ✓Development and dissemination of innovative, environment friendly, low cost technologies for the protection of soil and water pollution from olive oil mills' wastes
- ✓Establishment of an info-library/knowledge-base system to assess environmental impacts from olive oil mills' wastes to Mediterranean region
- ✓Design, implementation and support a monitoring system for the assessment of the soil and water quality affected directly or indirectly from oil mills' activities in relation to factors pressures and responses

- ✓Identification of potential safest uses in the agricultural sector of olive oil mills' wastes and its possible contribution to agricultural production
- ✓Facilitate the implementation of Soil Thematic Strategy in areas close to olive oil mills.

Municipality of Nikiforos Fokas, Rethymnon, Crete, Greece

- Periodical monitoring of soil and water quality
- Study of active and inactive disposal areas
- Drillings, piezometers installation
- Implementation of remedial and protective technologies at a pilot waste disposal area
- Composting

Implementation Areas

Budget 1.628.911€

2009-2012

16.200 soil chemical analyses

Implementation Areas

500 soil samples collected

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2009-2012

Implementation Areas

16.200 soil chemical analyses

Albenga, Liguria, Italy

- Use of olive oil mills' wastes in young olive trees cultivation
- Useful guide for the safe application of wastes in agriculture
- Development of rapid methods for the determination of COD and BOD

Results

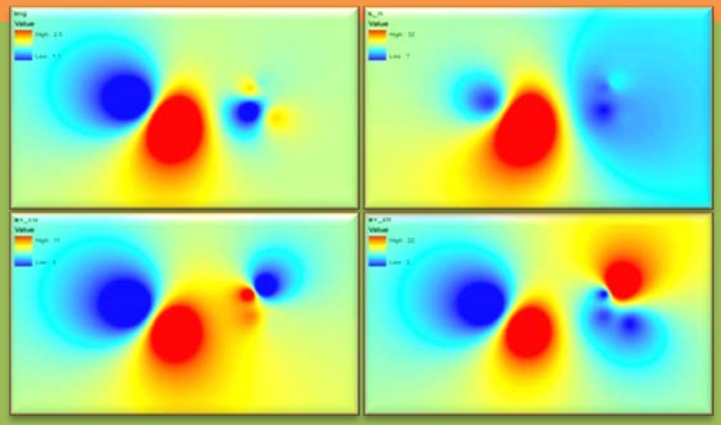
Soil quality degradation due to

- ✓ Increased values of Electrical Conductivity
- ✓ Increased polyphenols concentration

- ✓ High concentrations of Potassium, Phosphorous, Magnesium, Nitrogen, Boron (very close or above to phytotoxicity values)
- ✓ High concentrations of available Iron, Copper, Zinc and Manganese (very close or above to phytotoxicity values)

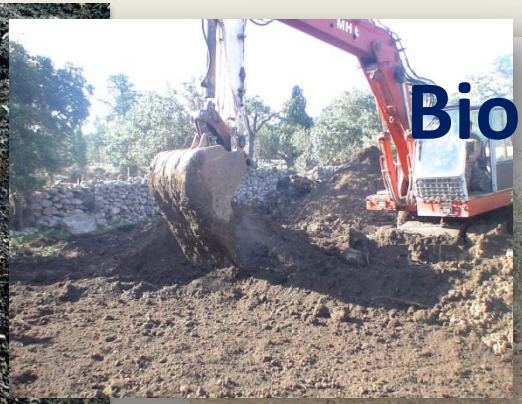
Soil Quality Indicators for Olive Oil Mills' Waste disposal areas

- ➢ Electrical Conductivity
- ➢ Organic Matter
- ➢ Total Nitrogen
- ➢ Total Polyphenols
- ➢ Available Phosphorous
- ➢ Exchangeable Potassium
- ➢ Available Iron
- ➢ Soil pH (mainly for acidic soil types)



Interpolation surfaces indicating the distribution of chemical parameters in the vicinity of the disposal areas using the inverse distance weighted (IDW) technique

November 2010: Application of soil remedial and protective techniques



Bioremediation

Natural Zeolite Application

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