LANDCARE

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LANDCARE FOR THE FUTURE

Book of Abstracts

Santiago de Compostela

July 16-18, 2018

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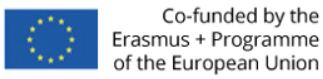
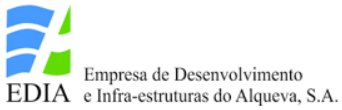
Organizers





Collaborators

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LANDCARE FOR THE FUTURE is the final multiplier event of the LAND DEGRADATION AND REHABILITATION IN MEDITERRANEAN ENVIRONMENTS PROJECT (LANDCARE)- Erasmus +- Strategic Partnership K2032015-1-ES01-KA203-016214 (http://www.landcare.es).

The LANDCARE partnership is a cooperation network to provide better quality education, training and youth employment in relation to Ecological Restoration. This is necessary to preserve our environment and also to fulfil the demands of an emerging labour market and create novel job opportunities.

The meeting aims to bring together specialists on environment, education and employment from around the world to share their different approaches and insights.

LANDCARE FOR THE FUTURE will consider examples of Educational and Training paths related to global environmental threats (wildfire, contamination of soils and water, degradation of wetland ecosystems, coastal degradation, and overexploitation of agricultural and forest landscapes). It will also consider the application of innovative technologies and tools in education and good practices to improve employability and entrepreneurship skills.

12:30-13:30 DEGRADATION AND RESTORATION OF ENVIRONMENTS: THE VISION OF THE STUDENTS **Chair person:** : Pablo Ríos, Landcare Student, University of Santiago de Compostela	
12:30-12:45	The young georgofili blog: sharing ideas for the agriculture of the future - PIETRO BERTOLOTTO, University of Pisa, Italy
12:45-13:00	Landcare project, Pisa 2018 - IGNATIOS BAFAS, National and Kapodistrian University of Athens, Greece
13:00-13:15	Biochar as amendment for trace elements contaminated soils: The Guadiamar case study - PALOMA CAMPOS, Instituto de Recursos Naturales y Agrobiología de Sevilla, Spain
13:15-13:30	Toxicological bioassays to evaluate the effectiveness of a decontamination technique for arsenic contaminated waters - ANTONIO AGUILAR, University of Granada, Spain
13:30-13:45	DISCUSSION
13:30-15:00 LUNCH BREAK(not included in the conference fee)	
15:00-16:00 ENVIRONMENTAL EDUCATION AND AWARENESS **Chair person:** Ignatios Bafas, Landcare Student, University of Athens	
15:00-15:15	Involvement of small farmers in developing new agronomic technologies to prevent soil degradation and to increase food production and income - JORGE ETCHEVERS, Colegio de Postgraduados, Mexico
15:15-15:30	Coming to terms with ecological grief and walking to reconnect - ANNA PIGOTT, Swansea University, , United Kingdom
15:30-15:45	LandCare conversations for Tour Guides - SARA BARRENTO, Swansea University, United Kingdom
15:45-16:00	Learning about coastal areas rehabilitation in the Landcare project - ANNA KARKANI, University of Athens
	DISCUSSION
	Organization of the Campfire session: Pablo Ríos
16:00-17:30 CAMPFIRE SESSION: LANDCARE FOR THE FUTURE **Chair person:** Colleen Fugate, Pietro Bertolotto, Pablo Ríos, Madalena Dias, Patricia Domenech, Ignatios Bafas, Noemí Santiago; Joana Marinheiro Jorge	
16:00-17:00	The attendants will work in groups to discuss the following questions: • Land degradation and their causes and consequences are properly perceived by the society? • There is enough restoration effort of degraded lands carried out in your country? • Is the teaching of land restoration properly addressed (university/country/. . .)?

Toxicological Bioassays to Evaluate the Effectiveness of a Decontamination Technique for Arsenic Contaminated Waters

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Keywords: Toxicity bioassays, arsenic, decontamination, water, peatland.

Abstract

The mine wastewaters constitute a source of soil and water contamination since they contain high concentrations of contaminants such as arsenic. In Spain, the mining industry in the Iberian Pyrite Belt represents a potential focus of contamination by mine wastewaters. It is necessary to have effective decontamination techniques in order to avoid possible future contamination events such as the one known as ''Aznalcóllar Disaster". In this regard, some studies shows the adsorption capacity of metals and metaoids by peatland soils.

In this work, a decontamination technique of polluted water by arsenic at different concentrations (0, 50, 100, 200 μg As L-1) is conducted. It consists on keeping the water in contact with the horizons of the soil from the peatbog of Padul, which is a terric Histosol and it is characterized by the alternation of both histic and carbonated horizons. Afterwards, the degree of toxicity in water is determined by the root germination and elongation of *Lactuca sativa* bioassay (OECD, 2003); and in soil by the soil respiration bioassay (ISO 17155, 2002) to assess the effectiveness of the aforementioned technique.

It is confirmed that both horizons have the ability to adsorb arsenic due to the reductions in As concentration are higher than 90% in most cases. It is also verified that these bioassays should consider all physico-chemical properties when determining the effectiveness of this decontamination technique, as the reduction of the concentraction is not reflected on the bioassays. On the one hand, the root germination and elongation of lettuce in water in contact with the histic horizon is inhibited, whereas the root germinates and elongates in water in contact with the carbonated horizon. In this case, the inhibition is directly related to the acidity of water in contact with the histic horizon, instead of the arsenic concentration. In fact, water in contact with the carbonated horizon, which is not acidic, there are not statistically significant differences in the elongation among the different concentrations of arsenic. On the other hand, in the soil respiration bioassay there are not statistically significant differences between the histic horizon and the carbonated horizon contaminated with As, which confirms that has a low sensitivity to arsenic contamination.