BOOK OF ABSTRACTS

SCIENTIFIC PROGRAM

Conveners of 4th MEDFORUM

CIHEAM - MAI CHANIA

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Moreover, identifying the driving factors of SE into grasslands is an active research topic of huge importance to rangeland managers. In detail, an understanding of how weather, grazing, and land use practices affect SE is lacking. Therefore, in my research I am trying to find an optimal approach to map, monitor, and model SE into grasslands with remote sensing techniques. I am also looking at the relationship between topo-edaphic, hydrologic and anthropogenic factors and shrub expansion. Case study areas are commercial grasslands and provincial parks of Saskatchewan (SK) Canada that belong to different climate and soil regions. My current research efforts have facilitated ecosystem management in Canadian provincial parks and could be used in other study areas to monitor and develop appropriate management plans related to woody plant expansion. In my presentation I will cover current findings, ongoing work, and next steps. 1. NOAA. What is remote sensing? [Internet]. National Ocean Service. 2020 [cited 2020 Aug 29]. Available from: http://oceanservice.noaa.gov/facts/remotesensing.html

S4-07

EO APPLICATIONS IN EU-MEDITERRANEAN FOREST FIRE MANAGEMENT

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Climate change and forest degradation have created fire-prone conditions worldwide resulting in uncontrolled and highly intense forest fires on a yearly basis. The EU-Mediterranean ecosystems are particularly vulnerable to such catastrophic fire events due to the presence of the Mediterranean climate, Wildland Urban Intermix (WUI) areas and constant land-use changes. Remote Sensing (RS) and Geographic Information Systems (GIS) constitute valuable tools for integrated forest fire management since they can be used in all phases of a fire management program (i.e., pre-fire, during fire and post-fire). Therefore, European fire-related projects and advanced RS Technologies are providing products and services for numerous fire applications aiding stakeholders to apply sustainable fire management practices.

S4-08

IN VITRO INHIBITION OF FUNGI CAUSING POSTHARVEST GREEN AND BLUE MOLD OF CITRUS FRUITS BY AGRICULTURAL BY-PRODUCTS EXTRACTS

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Citrus are among the most important crops in the Mediterranean basin. Citrus fruit consumption has health benefits due to the content of vitamins and minerals. During postharvest storage, citrus fruits are susceptible to green and blue molds, caused by *Penicillium digitatum* (PD) and

Penicillium italicum (PI), respectively. To control these diseases, chemical fungicides are commonly used. However, many of them are reportedly harmful to humans and the environment. Agricultural by-products (ABP) are rich in a variety of bioactive compounds, such as (poly)phenols, essential oils, terpenoids, and alkaloids, which might have antifungal properties. Thus, the bioactive compounds of ABP could be a sustainable source of novel antifungal agents for citrus molds control. Moreover, the use of ABP contributes to the circular economy by valorizing value-added compounds. The aim of this work was to evaluate in vitro the inhibitory effect of extracts from ABP from Spain. Extracts from olive pomace (ALP), almond skin (AMS), and avocado seed (AVS) were tested against PD and PI. Extracts were obtained from lyophilized samples of each by-product by an ultrasound-assisted extraction procedure using a hydroalcoholic solution. The extracts were characterized by their total phenolic content (TPC) and total antioxidant capacity (TAC). The in vitro inhibitory activity of extracts was investigated using a microtiter assay employing a 96-well plate. In each well, 20 µL of extract, 150 µL of Potato Dextrose Broth (PDB) culture medium, and 30 µL of fungal inoculum containing 1.5x105 spores/mL were pipetted. Sterile water was used in controls instead of inoculum or extract to achieve a final volume of 300 µL. Finally, the plates were incubated in the dark at 25°C, and the optical density of each well was measured using a spectrophotometer at 600 nm every 24h for 4 days. The inhibitory activity of the extracts was calculated with respect to the control treatment (PDB without extract) on day 4. TPC was higher in the AVS extract (427.40 mg GAE/g DW), whereas AMS and ALP yielded lower values (32.79 mg GAE/g of DW and 12.21 mg GAE/g DW, respectively). Moreover, TAC was higher in the AMS extract (4.89 g AAE/L), followed by ALP (4.62 g AAE/L) and AVS (3.07 g AAE/L). In the in vitro assays, AMS and AVS extracts inhibited 100% of PD fungal growth, whereas ALP inhibited 81%. Regarding PI, AVS inhibited 100%, AMS 97%, and ALP only 55% of fungal growth. The results suggest that extracts with higher TPC and TAC had a more significant inhibitory effect against PD and PI. Therefore, in this work, the presence of (poly)phenols and antioxidants correlated with the antifungal activity of the ABP extracts. Moreover, AVS and AMS extracts have the potential to be used as a source of novel antifungal agents to control postharvest green and blue molds of citrus. Further studies should investigate the in vivo antifungal activity of the AVS and AMS extracts and their characterization by HPLC.

S4-09

COLLECTIVE AND CONTEXTUALIZED STRATEGIES TO PROMOTE RESILIENT AND SUSTAINABLE AGRICULTURAL PRODUCTION IN LEBANON

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In Lebanon, as in several southern Mediterranean countries, one of the major challenges in rural areas is to promote resilient and sustainable agriculture in the face of climate and market uncertainties. The challenges are multiple, but they all revolve around two important and interconnected objectives: increasing and stabilizing production to guarantee an adequate income for agricultural households, and preserving natural resources, particularly water resources, which are highly threatened by the intensification of agriculture. These ambitious objectives are often identified by local policies as priorities for current and future agricultural strategies. To achieve these objectives, SupMed is a project proposed by the IAMM and funded