
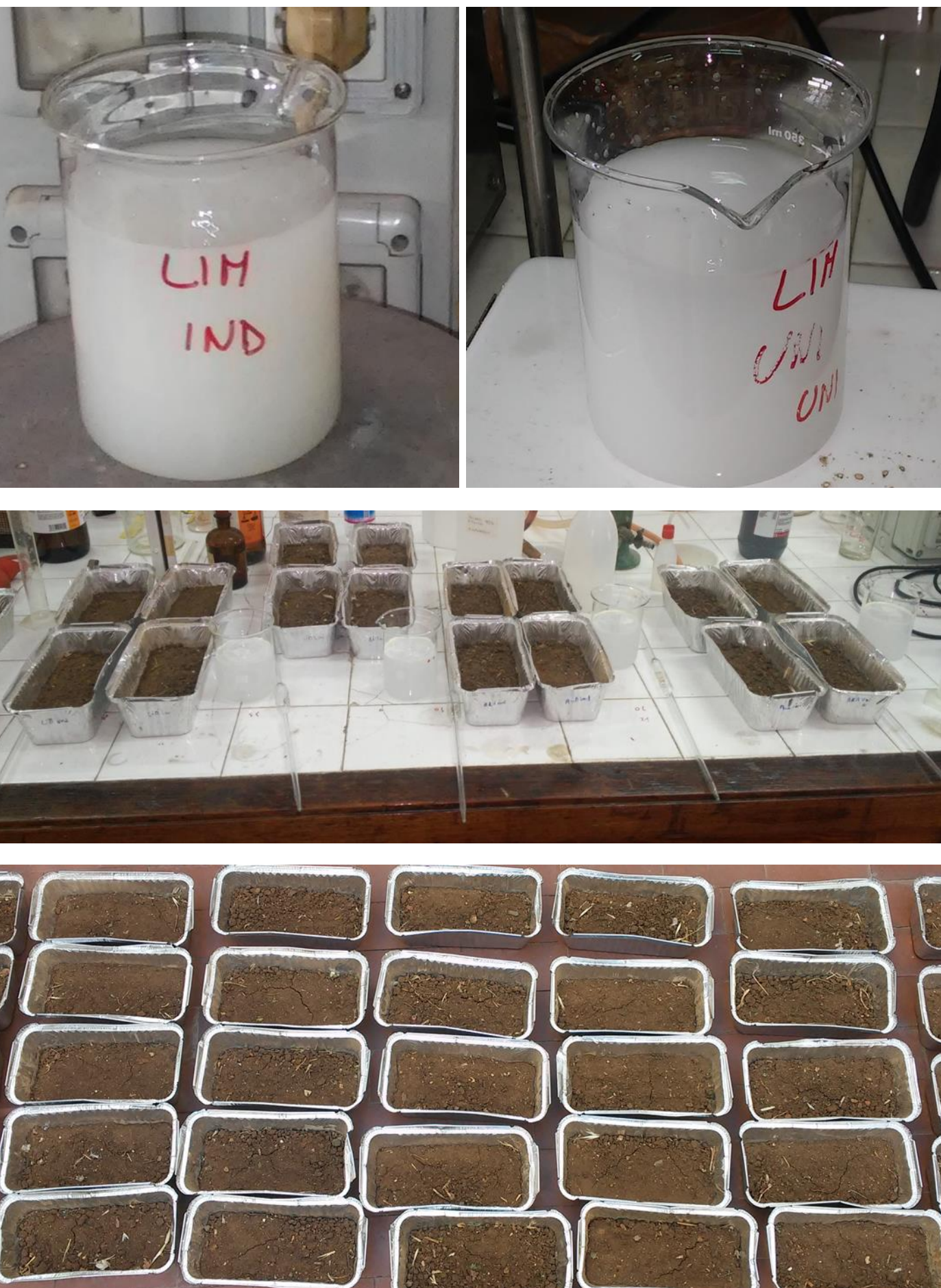




Effects of Citrus essential oils on weed emergence and on soil microorganisms

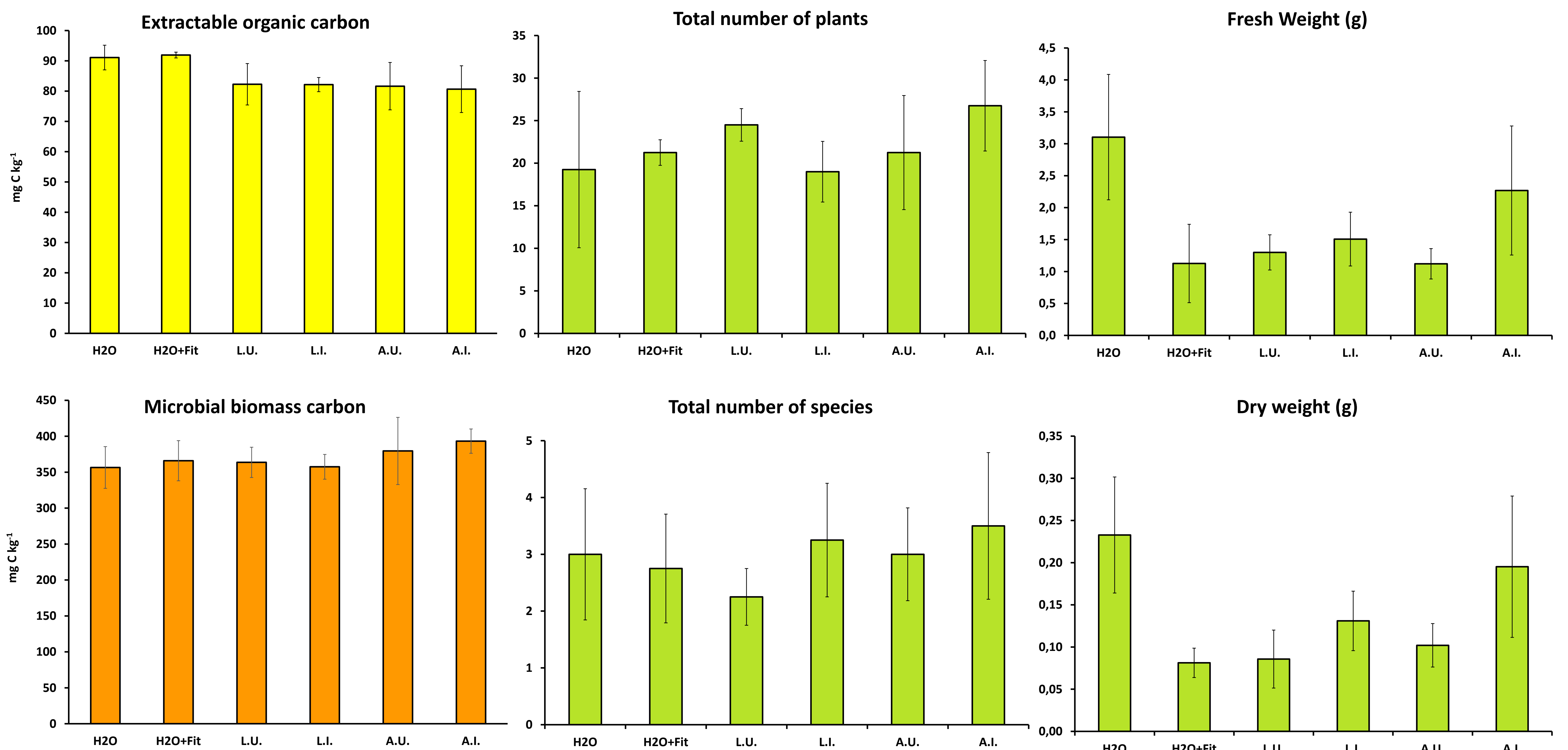
Ioppolo, Antonino, Jouini, Amira, Laudicina, Vito A., Palazzolo, Eristanna
Department of Agricultural, Food and Forestry Sciences, University of Palermo, Italy

Objective: To evaluate the in vivo potential effects of Citrus EOs extracted by hydro distillation and cold pressing on weed emergence and on soil biochemical properties.

Materials and methods

EOs Extraction	Experimental design	Plant analysis	Soil analysis
			
EOs from <i>Citrus sinensis</i> and <i>Citrus limon</i> were extracted by two methods: Clevenger-apparatus method (hydro distillation) and Cold pressing	500 g of soil in pots, were brought up to 100% of their water holding capacity (WHC) by adding water until 2/3 of WHC and 1/3 of WHC: water containing 8 mL L ⁻¹ of each EOs and 1 mL L ⁻¹ of fitoil. Incubated at field conditions, the experiment was carried out in quadruplicate and maintained at 50% of their WHC for one month.	<ol style="list-style-type: none"> 1-Total number of plants 2-Total number of identified plant species 3-Dry weight 4-Fresh weight 	<ol style="list-style-type: none"> 1-Extractable organic carbon 2- Microbial biomass carbon

Results and discussion



All the treatments do not have any significant effect on the amount of Microbial biomass carbon. On the other hand, they all decrease significantly the amount of extractable carbon. All the treatments do not have any significant effect on the total number of plants likewise the total number of species. On the contrary, both dry and fresh weight of sprouted plants, were highly decreased by all the treatments as well as the control of fitoil, except of orange EO extracted by cold pressing.

Conclusion: The current findings of the "in vivo" study reveal that the Citrus EOs, extracted by hydrodistillation and cold pressing methods decrease the extractable organic carbon and do not have any effect on the weed germination as it was found in the "in vitro" studies of the literature. Thus, further "in vivo" investigations are needed to be done to underline the potential effect of citrus EOs on weed suppression.