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activity of this extract involves one of these mechanisms, or both. Hydrogen peroxide-induced cell cycle arrest in G2 was abolished when cells were incubated with GBE after oxidative shock, suggesting that the improved repair kinetics allows progression of the cell cycle and/or GBE can have a direct effect on its regulation. As expected, GBE treatment improved survival of yeast cells when challenged with oxidative shock with H_2O_2 and intracellular oxidation was considerably decreased upon pre-treatment with GBE as revealed by flow cytometry.

O13 Climate Change: Using Modeling to Predict Potential Effects on Crops

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The main aim of this presentation is to provide some fundamental concepts related to climate and to its inherent variability, which might be considered an essential tool for a better judgment of the large amounts of information currently available regarding this topic. This is particularly pertinent for agricultural research, as agronomic systems tend to be largely regulated by climate and by atmospheric parameters. Some elementary concepts on the nature of the climate system are first presented; its components and coupling processes are succinctly described, giving particular emphasis to the spatial and temporal time scales relevant for agro-systems research. Both internal and forced climate variability are discussed from a physically-based perspective with a special focus on the anthropogenic forcing of the climate system. The discussion of these topics is followed by some essential ideas on atmospheric modeling and on downscaling strategies. The likely impacts of a changing climate on several agronomic sectors are also referred, giving particular emphasis to the impacts on viticultural zoning in Europe. A number of relevant bioclimatic indices are used for this purpose and changes in their spatial patterns under human-driven climate change are discussed. An overview of the threats and challenges imposed by climate change is given and possible mitigation measures are pointed out.

O14 Barcoding of entomopathogenic fungi from olive tree pests: prospects and limitations

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From all the barcoding initiatives in progress, fungal barcode is probably the one where more difficulties have been encountered. While for plants and animals the barcode regions were easy to define, for fungi the choice was not so straightforward. The internal transcribed spacer (ITS) region was one of the proposed DNA regions for barcoding fungi. This is an extensively used region, for molecular systematic and identification of species, being probably the most widely sequenced DNA region of fungi. This is due to the simplicity of the amplification, related to the multicopy nature of the rDNA; the possibility of using universal primers; and the high level of sequence variation that occurs even between closely related species. Furthermore, a significant number of identified sequences for comparison are available in the GenBank database. Although the ITS region of rDNA was chosen for some groups of fungi, the use of this

region presents very limited application for others, especially for Ascomycetes. As some of the most important entomopathogenic fungi are Ascomycetes, belonging to genera *Beauveria, Cordyceps, Isaria, Lecanicillium* and *Paecilomyces,* the use of the ITS region for barcoding purpose are being complemented with other regions. This work, based on the identification of fungal entomopathogens isolated directly from cadavers of one of the major pests in olive groves, the olive moth (*Prays oleae* Bern.), intends to illustrate the application of the ITS region to identify these fungal species. The use of this region proved to be useful for the identification of most of the entomopathogenic fungi found in dead larvae and pupae of *P. oleae.* However, the use of ITS region for barcode purposes did not allow the identification of several isolates, proving the requirement of using a second barcoding region, to enable full fungal identification

O15 The pollen content of a river beach for forensic purposes

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Palynology has applications in many areas of science, including forensics. Pollen grains are microscopic structures transported from the anthers to the stigma of the same species by abiotic and biotic agents.
Pollen adheres to different natural, artificial and human surfaces, being a silent proof due to its invisibility. They are resistant to physical, chemical and biological degradation and can be preserved for several years. Morphologically exhibit diversity in size, shape, symmetry, ornamentation and number of apertures in its wall. This heterogeneity is a good taxonomic parameter to identify species. Therefore they may provide information on the association of a suspect, victim, subject or location at a given crime scene because they are characteristic of each region.
Our work was based on the study of the pollen content in Areinho, a fluvial beach in Vila Nova de Gaia in order to establish the autochthonous and allochthonous pollen knowing the diversity of surrounding vegetation.
The sampling was performed in a profile with eight points, spaced 15 meters, along a transect perpendicular to the river side. At the laboratory, the samples were dried at 40°C and pollen analysis was conducted.

This beach is in a specific geological environment marked by different lithologies, being a very busy spot with water sports and bathing season.
This pollen characterization enhances its use in solving crimes contributing to the clarification of cases and reasoning of judicial decisions.

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