Abstract

Understanding Fungal Communities of Olive Tree Leaves for Application to Climate Change Adaptation †

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† Presented at the 1st International Electronic Conference on Plant Science, 1–15 December 2020; Available online: https://iecps2020.sciforum.net/.

Abstract: The olive tree (*Olea europaea* subsp. *europaea* L.) is a typical plant of the Mediterranean vegetation, well adapted to drought and poor soils being also tolerant to high solar irradiance. The phyllosphere microbiota associated with these plants is likely to play a role in their tolerance to such harsh environmental conditions. Here, we have characterized the endophytic and epiphytic fungal community present in leaves of olive trees, for potential application of these insights to climate change adaptation. Leaf samples were collected from a rainfed olive orchard near Mirandela (NE Portugal). Fungi were isolated and counted from the surface and inner tissues of leaves. The isolates obtained were identified by ITS rRNA gene sequencing and their phylogenetic diversity was then analyzed. A *Celerioriella-like* species and two unassigned species belonging to *Phaeomoniellaceae* and *Pleosporineae* were the most abundant taxa within 23 species (out of 161) found in both epiphytic and endophytic subsamples. These strains are good candidates to be studied for their resilience to climate changes in order to be applied as "tolerance inducers" in olive crops from this Mediterranean area.

Keywords: *Olea europaea*; microbiota; fungal diversity; endophytes; epiphytes; internal transcribed spacer; phylogeny

Supplementary Materials: The poster presentation is available online at https://www.mdpi.com/article/10.3390/IECPS2020-08876/s1.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.