Olive-mill and grape-mill waste adding's may affect the growth of grapevines young cuttings

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Abstract
Olive tree and grapevine cultivations are the main crops in the Mediterranean area. Intensive crop production is resulting to high yields for both crops but processes that follow harvesting (olive oil and wine production) derive a great amount of wastes that are causing concerns about their effects on environmental and human health, after their disposal. The present study was conducted in order to evaluate the potential use of olive-mill wastes (OMW) and grape-mill wastes (GMW) at 15% v/v in soil for the production of international (Syrah) and indigenous (Xynisteri) grapevines cultivars. The adding of OMW and GMW in soil increased EC and N content but decreased pH of the mixtures. In case of Xynisteri, chlorophylls were remained unaffected, but total phenols, antioxidant capacity (DPPH, FRAP, ABTS) and flavonoids were decreased by adding OMW and GMW in soil. MDA content as a stress indicator for lipid peroxidation was high at soil and 15% OMW but decreased at 15% GMW, while similar reduced values were found for hydrogen peroxide at the same treatment. Nitrogen was accumulated more at GMW-treated plants in both Xynisteri leaves and roots. Syrah plants grown in OMW- or GMW-media had decreased Chlorophylls content, but increased total phenols and antioxidant content (ABTS). OMW stimulated flavonoids in leaves comparing to GMW and control in Syrah. MDA was increased at GMW-treated plants. It can be concluded, that both GMW and OMW have the potential to be mixed with soil, providing minerals and organic matter to the mixtures but further research is required to obtain the appropriate fertigation scheme when using plant residues, avoiding any possible plant stress.

Keywords: *Olea europaea*, *Vitis vinifera*, olive stone, grape waste, growth, plant

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