



Application of jasmonic acid enhances the emissions of monoterpenes and methyl salicylate and decreases the uptake of formaldehyde by *Quercus ilex*

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Jasmonic acid is a signalling compound with a key role in both stress and development in plants and reported to elicit volatile organic compounds emissions. We studied the effect of biologically meaningful exogenous jasmonic acid (JA) applications on the dynamics and the amounts of volatile emissions (or uptake) in the Mediterranean tree species *Quercus ilex*. Jasmonic acid treatment decreased the foliar photosynthetic rates and stomatal conductances and increased the emissions of some VOCs such as those of monoterpenes. This enhancement was higher 24 h than 1 h after treatment. The composition and the relative proportion of the emitted monoterpene blend were not altered by JA treatment. Jasmonic acid also increased methyl salicylate emission 1 hour after treatment, although after 24 hours this effect had disappeared. Formaldehyde uptake decreased 24 hours after leaves were treated with JA. All these changes in foliar emissions might have a protective role both in front of biotic and abiotic stresses. Both biotic and abiotic stresses can affect plant VOCs emissions through their strong impact on jasmonic acid levels.

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