Heterologous expression of *AtNPR1* gene in olive for increasing fungal tolerance

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The NPR1 gene encodes a key component of SAR signaling mediated by salicylic acid (SA). After a pathogen infection, the accumulation of SA releases NPR1 monomers in the cytosol that are translocated to the nucleus, activating the expression of pathogenesis-related (PR) genes. Overexpression of NPR1 has conferred resistance to fungal, viral and bacterial pathogens in several plant species. The aim of this research was to generate transgenic olive plants expressing the gene *AtNPR1* from *Arabidopsis thaliana* to obtain material resistant to fungal pathogens. Three transgenic lines expressing *AtNPR1* gene under the control of the constitutive promoter CaMV35S were obtained following the protocol of Torreblanca et al. (2010), using an embryogenic line derived from a seed of cv. Picual. Level of *AtNPR1* expression in transgenic calli varied greatly among the different lines, being higher in the line NPR1-780. The elicitation of embryogenic calli in liquid medium with AS did not increase endochitinase activity, a PR protein. However, jasmonic acid induced a transient increase in chitinase activity after 24 h of treatment in all the lines, being the increment higher in transgenic NPR1 than in control. After maturation and germination of transgenic somatic embryos, plants were micropropagated and acclimated to ex vitro conditions. The expression of AtNPR1 did not alter the growth of transgenic plants neither in vitro nor in the greenhouse. Experiments are in progress to determine the resistance of transgenic *AtNPR1* plants to *V. dalihae* and *R. necatrix.*

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