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Poster Abstract - D.03

EXPRESSION PROFILE OF OZONE INDUCED TRANSCRIPTS AFTER AN ACUTE TREATMENT IN TWO *POPULUS* SPP.

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Ozone (O_3) is now considered to be the most phytotoxic of all the common air pollutants. O_3 is toxic to plant and animal because it is a powerful oxidating agent, which is able to react directly with lipids and proteins. Such reaction and the decomposition of O_3 in the plant apoplast can lead to the production of other reactive oxygen species (ROS) that can act as signal transduction molecules when generated in a controlled, localized and transient manner. Such an oxidative burst has been implicated as an early step in plant responses to ozone stress and lead to a change in the expression of several genes.

In order to identified differentially expressed genes after an acute ozone treatment in two hybrid poplar clones (*Populus deltoides* x *maximowiczii*, Eridano clone, and *Populus* x *euoramericana*, I-214 clone, sensitive and tolerant to O_3, respectively) a gene identification study was previously performed using suppression subtractive hybridisation (SSH), obtaining four subtractive cDNA libraries. Sequenced transcripts were subdivided in six functional categories such as stress/defence signalling, stress/defence response, stress/related proteins, other/protein, putative protein and unknown protein.

The results presented here refer to the characterisation of the temporal gene expression changes of transcripts belonging to stress/defence signalling category (wall associated kinase, Ft32C clone, Calmodulin-like protein, Ft33B clone, WRKY transcription factor, Ft312B clone and Leucine-rich repeat protein, Fs23A clone) after an acute O_3 treatment both in sensitive and tolerant poplar hybrids. Time course expression analysis shows that in tolerant poplar clone transcript level of all four genes increases soon after the end of treatment, decreases until 24 h, and increases again at 48 h since the end of treatment. Except for Fs312B clone that presents a biphasic behaviour like in tolerant poplar, other clones show a quite different but monophasic response to acute O_3 exposure in sensitive poplar clone, with a variable peak between 0 h and 24 h. These results are very intriguing, particularly for the comprehension of how different patterns of gene expression modulation are linked to the different O_3-responses in tolerant and sensitive poplar clone.

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