Short Communication

Preliminary analysis of expressed sequences of genes in *Genipa americana* L. plant roots exposed to cadmium in nutrient solution


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Received September 1, 2008
Accepted September 22, 2008
Published November 18, 2008

**ABSTRACT.** Many cell functions are redundantly executed in cells, and the experimental approaches that analyze the group of proteins, whose expression is modified in a specific functional condition, enable the identification of the group of proteins that are expressed under stress conditions. The objective of the present study was the evaluation of the genetic expression induced by cadmium (Cd) in *Genipa americana* L. (Rubiaceae) plants cultivated in nutritive solution, in order to help further studies concerning its use as a plant phytoremediator of such a metallic element. Plants were exposed to increasing concentrations of Cd (0.5, 1, 2, 4, 8, and 16 mg/L), together with the control, in nutritive solution. After the application of the treatments, root tips were harvested for the construction of a cDNA library. Of the 165 expressed sequence tags (ESTs) generated with the construction of the cDNA library, 81 showed homology to genes deposited in the NCBI database, 67 did not show similarity to any available gene, and 17 ESTs
demonstrated homology with unknown genes. Of the most abundant cDNAs, 16 ESTs were similar to sequences of metallothionein genes. The analysis of ESTs, obtained from the root of *G. americana* through the construction of a cDNA library, allowed the identification of genes probably associated with proteins and enzymes related to the defense mechanisms of plants when they undergo biotic and abiotic stresses.

**Key words:** cDNA; Heavy metal; Expressed sequence tags; Woody plant