

**Doaa S Elazab**

Assiut University, Egypt

**Pre treatment salicylic acid: Effects on growth and cadmium uptake by *Musa* species under *in vitro* conditions**

Cadmium (Cd) is an omnipresent non-nutrient heavy metal, with particular concern because of its high solubility, mobility, and high phytotoxicity even at low concentrations as well as its toxicity for human upon its entry into the food chain. Reports have been implied that Cd toxicity has the form of oxidative stress which is the result of the stimulus of free oxygen radical production, and by the modification of the activity of different antioxidant enzymes. In this study, salicylic acid (SA) has been investigated as a pre-treatment on Grand Naine cultivar grown *in vitro*. Grand Naine explants were cultivated on MS medium supplemented with different concentrations of SA (0, 0.5 and 1mM), then these explants transferred twice to MS medium supplemented with varying concentrations of Cd (0, 50, 100, 200, 500, 1000 and 1500 $\mu$ M CdCl<sub>2</sub>) to examine the accumulation effect of Cd on banana explants. After two subcultures on Cd medium, we found out that adding SA at 0.5mM had a significant positive effect on vegetative growth such as; mortality, shoot multiplication, plantlet height (cm), fresh and dry weight (g), total chlorophyll, carotenoids, proline content and the change in protein pattern. The application of 0.5mM of SA to the plants treated with 500 $\mu$ M Cd reduced the uptake of Cd by 15%. The results in this paper are expected since SA is known as a hormone-like substance which has been reported as an alleviator for abiotic and biotic stresses either *in vitro* or *in vivo* cultures in many different plant species. Moreover, the analysis of protein pattern revealed that SA pre-treatments caused changes in gene expression which resulted in changes in protein synthesis.

**Biography:** Doaa S Elazab, works as an Associate Professor at the Faculty of Agriculture, Assiut University, Egypt. She has completed her BSc in Horticulture department and has got her MSc and PhD from Assiut University in plant tissue culture and abiotic stress, and postdoctoral studies from McGill University, Plant Science department., Canada. She published many papers about plant tissue culture, plant molecular analysis and biotic and abiotic stress on fruit trees. She works with one of the organizations which concern in smallholders in her city, in Upper Egypt. This organization is funded by the European Union, the name "CARE". She even took a course at Wageningen University about market access for food nutrition towards market development inclusive to expand her information on how to help smallholders to increase their income.

[doaa.elkassas@agr.au.edu.eg](mailto:doaa.elkassas@agr.au.edu.eg)