

EFFECTS OF *MELIA AZEDARACH* LEAVES EXTRACTS ON RADISH GROWTH AND OXIDATIVE STATUS

MAROUA AKACHA¹, NÉZIHA GHANEM BOUGHANMI² & RABIAA HAOUALA³

^{1,2}Faculty of Sciences of Bizerte, University of Carthage, Zarzouna, Tunisia

³Higher Institute of Agronomy, University of Sousse, Chott Meriem, Tunisia

ABSTRACT

The aim of this study was to analyze the effect of allelochemical stress on *Raphanus sativus* as a food crop known for its various medicinal actions. Our results showed that allelochemical stress caused by *Melia azedarach* aqueous and ethanolic leaf extracts inhibited radish germination while its actions on growth were different dependent on target organ, extract type and concentration.

The bioassays indicated that the inhibitory effect was proportional to the concentrations of the extracts so that higher concentration has a stronger inhibitory effect. The study also revealed that inhibitory effect was much pronounced in root development rather than seeds' germination. The hypocotyl had shown the particularity to be stimulated when treated by 5% *Melia* aqueous extract. *Melia* allelochemicals produced an imbalance in the oxidative status of cells. We observed changes in activity of catalase (CAT), ascorbate peroxidase (APX), guaiacol peroxidase (GPX) as well as in the levels of H₂O₂ and assimilatory pigments. There were changes in membrane lipid peroxidation and electrolytes leakage in radish seedlings. This paper contributes to the understanding of plant–plant interactions through the phytotoxic allelochemicals released in an aqueous and ethanolic extracts of *M.azedarach* which cause several effects on receiver plant. Evidently, further studies are needed to clarify the oxidative response in target plants during the allelochemical stress.

KEYWORDS: Allelochemical Stress, *M.azedarach*, *Melia* Allelochemicals