

**Morphological, chlorophyll and nutrient compositions of lettuces (*Lactuca sativa* L.)
grown in cadmium polluted nutrient film technique culture**

ABSTRACT

Hydroponic system using Nutrient Film Technique was employed to grow two varieties of lettuce (Bonbilasta-BBL and Italian 167) for eight (8) weeks. The plants were treated with cadmium concentrations of 0, 3, 6, 9 and 12 mg/L given in a form of cadmium chloride after two (2) weeks of transplanting to study its toxicity effect on morphology and physiology of the lettuce. Plant height, number of leaves, fresh and dry leaf weights and dry root weight in the varieties were significantly affected by cadmium. Regardless of the level of cadmium used, variety BBL was taller and recorded higher fresh and dry root weights than Italian 167. Higher fresh and dry leaf weights were recorded by Italian variety 167. Highest cadmium concentration significantly reduced all morphological characteristics measured with interaction in plant height. Different concentration levels of cadmium have significant effect on root length, root surface area and root volume of the two lettuce varieties ($P < 0.001$).

Keyword: Cadmium toxicity; Lettuce; Morphological; Chlorophyll; Nutrient content