

## Cytological alterations induce by cadmium on meristemic cells of onion roots (*Allium cepa* L)

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### Abstract

From the middle of the present century, the production and use of cadmium in the industrial field has been extended rapidly; as a consequence of its toxic effects, it is considered as an environmental pollutant of high incidence in the occupational health problems. Due to the existing reports about its toxicity, in the present work it was performed a descriptive analysis of the morphological and ultrastructural changes produced by this metal in the radical meristems onion cells (*Allium cepa* L.), in order to elucidate the possible mechanism by which it performs its toxic effect. In order to reach these objectives, the bulbs were cultured in filtered water at 25 °C which, was renewed each 24 h during four days; the developed roots were treated with cadmium chloride solutions at concentrations of 3,4 - 7,4 and 9,9 x 10<sup>-5</sup> M during 4, 8, 12 and 24 hours; for each period of time and concentration a control was carried out where the metal was substituted by water. The Electronic Microscopy Scanner (EMS) analysis, revealed some cellular morphology variations respect to the control, which were more severe as the cadmium concentrations and the exposition time increased. Through an Electronic Microscopy Transmissions (EMT) analysis some changes were also observed in the cellular ultrastructure: vacuoles of different sizes, nuclei with very condensed chromatin, collapsed nucleolus and mitochondria, Golgy and endoplasmatic reticule variations. The obtained results allow us to suggest that cadmium produces a citotoxic effects in the cell population, possibility inducing changes in the permeability of the plasmatic membrane.

**Key words:** Meristematic cells, cadmium, citotoxicity, alterations, ultrastructure.

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Recibido el 6-6-2000 ● Aceptado el 20-2-2001

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