Allium cepa as a biomonitor of ochratoxin A toxicity and genotoxicity

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Resumen

Ochratoxin A (OTA) is a toxin produced by Aspergillus and Penicillum moulds. Since OTA has not yet been evaluated in plant systems, this paper focused on describing the controversial effect OTA in an Allium root test model, which has known sensitivity to genotoxins and could be useful in toxin screening. Analyses of root growth and the root meristematic zone in response to OTA treatment were undertaken. The results show OTA toxicity to root growth at a concentration of 10 ug·ml-1 associated with inhibition of proliferation activity. Cytological changes observed in the Allium chromosome aberrations assay, at a concentration of 5.0 ug·ml-1, showed that OTA was able to induce genotoxicity at the chromosome level. These results indicate that plants cells (Allium cepa) are very sensitive to the mycotoxin OTA, as observed at the highest concentration. Under these conditions, OTA produced toxicity and cytogenetic injury. Evidence in vitro and in vivo indicates that OTA can induce damage at the DNA level.

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