Cytogenetic effects induced by lead nitrate on mitotic division in Lycopersicum esculentum mill.

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This scientific paper shows the influence of lead nitrate on cellular division in Lycopersicum esculentum Mill. Lead nitrate treatments were carried out at three concentrations: 5%, 1% and 0.1%, for 2 and 4 hours, thus, resulting six experimental variants. Treatments were applied on tomato root meristems, resulting in chromosome mutations, expressed by metaphases and ana-telophases. After lead nitrate treatments, chromosomes from metaphases suffered high condensations, becoming pycnotic. In anatelophases, chromosome bridges, chromosome fragments and multipolar ana-telophases appeared. In interphases, micronuclei appeared. The frequency of these chromosome aberration types differed according to concentration and action time of the chemical agent. Next to the abovementioned chromosome aberrations, picnotic nuclei, which are inert from genetic viewpoint, appeared at supraunitary rates. Picnotic chromosomes and picnotic nuclei can be considered as a specific feature of lead nitrate influence on mytogene cells. This assessment is argued by the fact that chromosome and nuclei picnotisation was found frequently in the meristems of other genotypes (Allium cepa and Triticum aestivum), at the same concentrations and action time of lead nitrate. Furthermore, lead nitrate has a high inhibiting effect on mitotic division from tomato root meristems, diminishing significantly the value of mitotic index, proportionally correlated to lead nitrate concentration and action time. Cells reacted differently to the chemical agent action, at every mitotic stage. We found an extremely low frequency of cells in anaphase. This experiment has shown that lead nitrate, known as an very aggressive polluting agent, has a certain mutagen and inhibiting potential on mytogene cells.