

Cytogenetic effect of white phosphorus

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Abstract

Although the utmost toxicity of white phosphorus is well known, its genotoxicity had never been detected prior to our works. Our previous studies demonstrated for the first time the presence of genotoxic properties in white phosphorus. This in no doubt makes white phosphorus even more dangerous to handle. However, our initial studies were carried out on prokaryotes (*Salmonella typhimurium*). Since the genetic apparatus of prokaryotes is differently arranged than in eukaryotes (including humans), the results of the studies on *Salmonella* is not completely transferable to humans. In addition to the gene mutations studied by the Ames test and the SOS-lux test, which have a common nature in all living organisms, there are genomic rearrangements that should be studied in eukaryotes. For this purpose, an Allium test is used on onion rootlets (*Allium cepa* L.). In this work, we present the first report on the negative effect of white phosphorus on the cell cycle of eukaryotes by the Allium test method. It turned out that white phosphorus, even at very low concentrations of 0.01%, exponentially increases the number of chromosomal aberrations.

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