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ASSESSMENT OF DNA DAMAGE AND CELLULAR DAMAGE CAUSED BY METHYL- AND PROPYLPARABEN

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Abstract

Parabens are commonly used as preservatives in personal care products and are known to cause toxicity in various organisms. This study aimed to assess the DNA and cellular damage caused by methylparaben and propylparaben using *Allium cepa* and Comet assays, two well-established methods for evaluating cytotoxic and genotoxic effects. Exposure to the tested chemicals inhibited the root growth of *Allium cepa*, indicating a toxic response. The *Allium cepa* assay results showed that the mitotic index (MI) values decreased with increasing concentrations of parabens, suggesting that cell division was adversely affected. Specifically, chromosomal aberrations increased following exposure to propylparaben at 37.5 µg/mL and methylparaben at 75 µg/mL in onion roots. The Comet assay provided further evidence of genotoxicity, revealing that both methylparaben and propylparaben cause DNA damage by increasing tail intensity compared to controls. These findings suggest that propylparaben is more toxic than methylparaben.

Keywords: *Allium cepa*, Comet Assay, Miototic Index, Toxicity