

Cytotoxicity Studies of Sachets Beverages Using Allium Cepa Test

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Abstract : The consumption of powdered or industrialized juices has increased globally due to the fast pace of city life. These foods, with their attractive color, odor, and taste, are easily diluted in water and can lead to obesity, diabetes, hypertension, and cardiovascular problems. In a study, 80 purple varieties of onion bulbs were used to evaluate the cytotoxicity of the Tiara and Bevi mix beverage powder. The viability of the bulbs was tested using the *A. cepa* toxicity test. The bulbs were divided into five groups, and the root growth was recorded. The mixture was then squashed in a 45% acetic acid solution and examined for chromosomal abnormalities. The chromosomal abnormalities were classified as bridges, c-mitoses, vagrants, fragments, stickiness, bi-nuclei, and multi-polar. The study found that the highest number of dividing cells was in the negative control group, followed by the group treated with BM beverage. The highest number of aberrant cells was in the group treated with TR beverage, followed by BM 5%. Stickiness of cells was observed in both BM and TR 5% beverage concentrations. No lagging chromosome was present in the negative control group. The highest mitotic index was in the negative control group, and bridge fragrance was observed in the groups treated with different beverages. This study highlights the importance of *Allium cepa* L. in genotoxic substance testing, revealing chromosomal and mitotic abnormalities in root tip cells. The study also reveals that at 5% concentrations, root growth decreases, indicating potential genetic abnormalities in *Allium cepa*'s genetic material.

Keywords : cytotoxicity, *Allium cepa*, Beverages, Chromosome

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