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Genotoxic evaluation of an antidiabetic herbal powder Madhumegachuranam on *Allium cepa*

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Polyherbal therapy is said to be one among the well known pharmacological principle in producing maximum therapeutic efficacy for the treatment of various health problems. Madhumegachuranam is one such herbal formulation used in the treatment of diabetes. This formulation is a combination of 7 herbal plants. Continued exposure of this herbal formulation in higher concentrations may permit the expression of genotoxic effects. In this study the potential genotoxic effect of an antidiabetic herbal powder Madhumegachuranam was investigated using root tips of *Allium cepa*. Roots of *Allium cepa* were exposed to of 0.25, 0.5, 0.75 and 1 % concentrations of the herbal formulation for 24, 48 and 72 hrs of duration. EMS was used as a positive control and tap water was used as a negative control. The results of this study suggested that the effect of the herbal formulation on root tip cells of *Allium cepa* was concentration – duration dependent suppression of mitotic activity. Increase in concentration of the herbal formulation results in reduction in the mitotic index (MI). Root tip cells when exposed to 72hr duration lead to total inhibition of cell division the tested concentration indicating blockage of cell cycle at the interphase stage. Major chromosomal aberrations like gap, break, fragment, C – metaphase and distortion in chromosomes were observed in 0.25 and 0.5 % of concentrations. This study suggests genotoxic and mitodepressive effect of this herbal formulation at higher concentrations.

KEY WORDS:
Allium cepa, Genotoxic, Mitodepressive, Madhumegachuranam