

Evaluation of DNA damage of hydro-alcoholic and aqueous extract of *Echium amoenum* and *Nardostachys jatamansi*

M. Etebari^{1,*}, B. Zolfaghari², A. Jafarian dehkordi¹, R. Rakian¹

¹Department of Pharmacology, Isfahan Pharmaceutical Sciences Research Center, School of Pharmacy and Pharmaceutical Sciences, Isfahan University of Medical Sciences, Isfahan, I.R. Iran.

²Department of Pharmacognosy, Isfahan Pharmaceutical Sciences Research Center, School of Pharmacy and Pharmaceutical Sciences, Isfahan University of Medical Sciences, Isfahan, I.R. Iran.

Background and Amis: Today most of herbal medicines are marketing without any standard safety and toxicological trials. Although common assumption is that these products are nontoxic but the true is that, this assumption is incorrect and dangerous, so toxicological studies should be done for herbal drugs. According to the frequent use of *Echium amoenum* and *Nardostachys jatamansi* and evidences of their active toxic compounds, we make an effort to assess probable effect of aqueous and hydro-alcoholic extract of *E. amoenum* and *N. jatamansi* on DNA of hepG2 cells using comet assay.

Methods: Different concentration of Hydro alcoholic extract of the plants are incubated with hepG2 cells for 24 hours, after preparation of suspension of cells and agarose gel, they were put on slides and slides embedded in lysing solution and were put in electrophoresis buffer (pH=13). Then the electrophoresis procedure took place in alkaline solution and after neutralization stage, colorization was done by ethidium bromide and comets were observed by fluorescence microscope. At least 100 cells of each sample were evaluated and three parameters of comet length, percent of DNA in tail and tail moment were assessed.

Results: Aqueous and hydro-alcoholic extract of *E. amoenum* and *N. jatamansi* were genotoxic in the concentrations of 25, 25, 5 and 10 mg/ml respectively.

Conclusions: Despite high application and effectiveness of *E. amoenum* and *N. jatamansi*, these herbs are genotoxic in determined concentrations and they should be used cautiously.

Keywords: *Nardostachys jatamansi*; *Echium amoenum*; DNA damage; Comet assay