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Investigating the Protective Effects of Lagenaria siceraria Standl. on Doxorubicin-induced Genotoxicity on Human Blood Lymphocytes through Micro-nucleus Method

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Abstract

Introduction: Medicinal plants such as lagenaria siceraria play an important role in individuals' health and human communities. Regarding to the phetochemical properties of lagenaria siceraria, we decided to study the protective effects of lagenaria siceraria against the micro-nucleuses resulting from doxorubicin, as a damage indicator of DNA, on human blood lymphocytes. **Methods:** First the hydraualcoholic extract of the plant fruit was provided through the percolation method. Then, blood samples were collected from ٦ healthy volunteers and were incubated with different concentrations of the lagenaria siceraria for ١ hour. Then the samples were incubated with ٥ mg/ml doxorubicin for ٢٤ hours. After that, to evaluate the Micro-nucleus production in inhibited ٢-nucleus lymphocytes in cytokinesis, the blood samples were cultured with mytosis stimulant. After determining the mean using the Prism Ver.٣ software and ANOVA (post test: Tukey) different values of the means were compared that P<٠/٠٥ was considered as the level of significance.**Results:** Incubating the blood samples with doxorubicin causes to induce genotoxicity in lymphocytes and juxtaposing the cells with lagenaria siceraria beforehand decreases the number of micro-nucleuses considerably (P<٠/٠٥). The results of the current study indicate the effctive role of lagenaria siceraria as a protective factor against genotoxicity doxorubicin. **Conclution:** It was revealed in the present investigation that lagenaria siceraria is a strong antigenotoxic against doxorubicin-induced DNA damages. As lagenaria siceraria alone does not have any cell toxicity effects, it can be used as a protective factor against the toxic effects of the doxorubicin.

KeyWords: Doxorubicin, Lagenaria siceraria standl., Genotoxicity, Human Lymphocyte, Micro-nucleus Test