PECAN NUT [Carya illinoinensis (Wangenh.) K. Koch] SHELL EXTRACTS PREVENT THE GROWTH OF EHRLICH ASCITES TUMOR AND DNA DAMAGE

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Research on the potential of phytochemicals to prevent tumors has increased in recent years. Considering that pecan nut (Carya illinoinensis) shell extracts are rich in phenolic compounds with antioxidant capacity, the aim of this work was to evaluate the ability of such extracts to prevent tumor growth in BALB/c mice. The mice were administered with 20mg/kg of aqueous and hydroalcoholic extracts of pecan nut shell orally for 21 days. After that a suspension (5x10⁶) of Ehrlich ascites tumor cells was inoculated into the animals. The potential for tumor growth inhibition was evaluated nine days after inoculation by assessing the difference in the animals’ waist circumference between the first and the tenth day after inoculation. The ability of the extracts to cause DNA damage to Ehrlich tumor cells was evaluated by comet assay as well as by plasmid DNA assay. The results showed that the aqueous and hydroalcoholic extracts inhibited tumor growth – 31% and 15%, respectively – in animals inoculated with Ehrlich tumor cells. In the comet assay, the DNA damage to animals supplemented with either aqueous and hydroalcoholic extracts was 4.5 and 2.5 times higher in comparison to the damage observed in the negative control group. Similar results were observed in the plasmid DNA assay, as both extracts caused direct DNA damage, that is, they both showed a genotoxic effect. It was concluded that pecan nut shell extracts can prevent tumor growth and cause DNA damage in Ehrlich tumor cells and plasmid DNA.

Keywords: tumor growth inhibition, Carya illinoinensis, DNA damage.