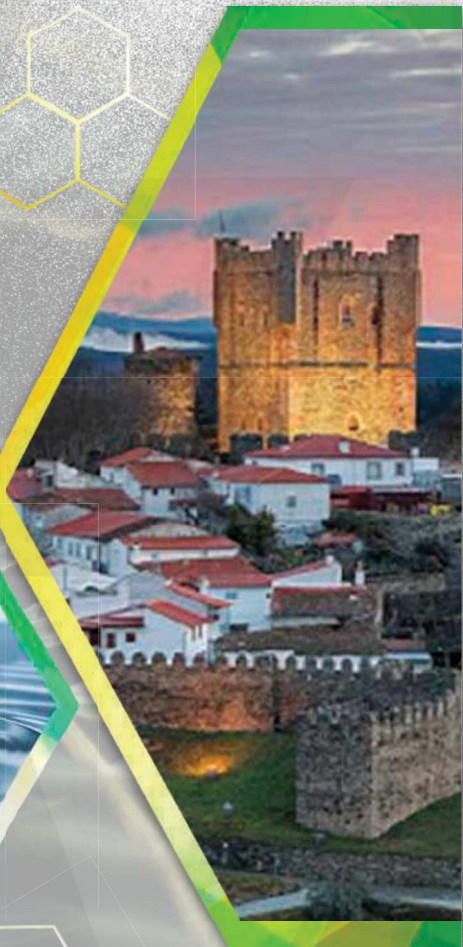




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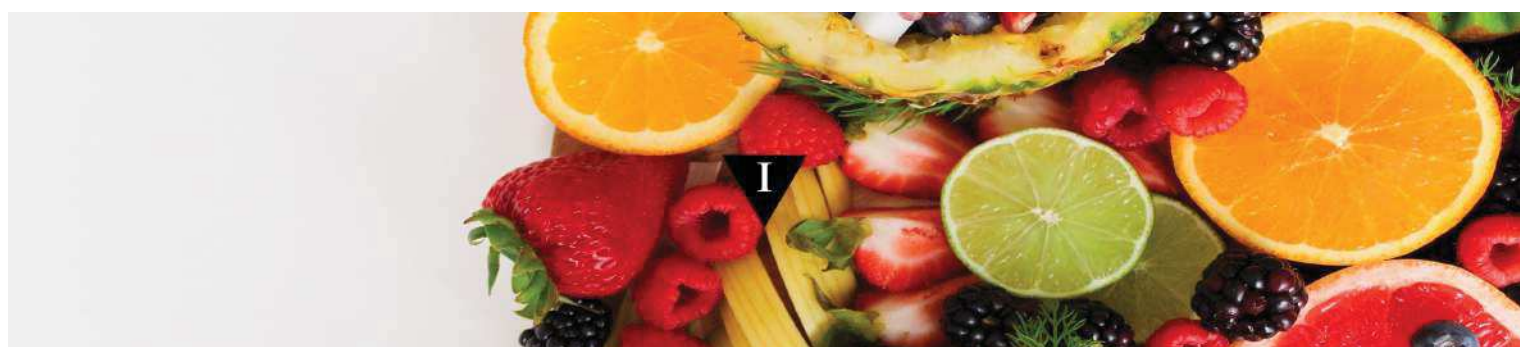
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The anti-tumour effect of spearmint (*Mentha spicata*) in a HPV-16-transgenic mouse model

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Infection by Human Papillomavirus (HPV) is the main cause of cervical cancer, highlighting the importance of studying compounds that may reduce viral activity and its lesions/symptoms. The aromatic herb spearmint (*Mentha spicata*) (MS) has proven anti-tumour properties¹. Thus, this study aimed to evaluate the effects of an hydroethanolic extract obtained from spearmint in HPV16-transgenic (HPV+/-) mice. The extract was obtained through maceration with ethanol/water (80:20, v/v), and the phenolic composition was determined through HPLC-DAD-ESI/MS. Thirty-three female mice (16 HPV-/- and 17 HPV+/-) were randomly divided into six groups: Group (G) I – HPV-/- w/o Mentha (n=5); G II – HPV-/- w/ Mentha (0.5 mg/ml; n=6); G III – HPV-/- w/ Mentha (0.55 mg/ml; n=5); G IV – HPV+/- w/o Mentha (n=6); G V – HPV+/- w/ Mentha (0.5 mg/ml; n=6); G VI – HPV+/- w/ Mentha (0.55 mg/ml; n=5). The spearmint extract was administered in the animal's drinking water for 28 days. During the study, water and food intake as well the animals' weights were recorded weekly. Afterwards, the animals were sacrificed, and their organs were collected for oxidative stress and genetic damage analysis. A total of thirteen compounds were identified in the hydroethanolic extract, being salvianolic acid B, rosmarinic acid and luteolin-7-*O*-glucuronide, the main compounds found. Moreover, the compounds revealed to be stable in the drinking water during the 5 tested days. Results show that HPV+/- (GIV, V and VI) have lower weight but higher water and food intake, as expected. Analysis of HPV+/- mice GIV showed a significant increase of superoxide dismutase activity when compared with GV (p=0.0029) and VI (p=0.0011). This suggests that group IV was subjected to a higher oxidative stress, as expected¹. These results could also mean that MS is responsible for a decrease in the oxidative stress known to be induced by HPV, which in turn decreases SOD, further the role of MS as an antioxidant. Regarding genetic damage, no statistically significant changes between groups were found in the comet and micronucleus assays, implying that spearmint has no influence on genotoxicity at the concentrations employed. There were no significant differences concerning basal DNA damage between WT and transgenic individuals as seen in other studies². Further studies are required to clarify the antioxidant and antigenotoxic effects of spearmint.

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