



## *In Vitro* Evaluation of Genotoxicity of Watercress Extract through Effect Biomarkers Considering Human Intake

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**SUMMARY.** *Rorippa nasturtium-aquaticum* (watercress) is recognized as a nutritious plant, rich in vitamins and minerals and it is used in the treatment of many illnesses. The aim of the present work was to develop a genotoxic analysis of this diet component considering human intake by means of effect biomarkers such as mitotic index, cellular proliferation kinetic, sister chromatid exchanges, micronucleus frequency and single cell gel electrophoresis (comet assay), allowing to establish risk-benefit in the consumption of this vegetable. The cress plant was chopped; the obtained product was centrifuged, filtered (0.22  $\mu\text{m}$ ) and conserved to  $-20\text{ }^{\circ}\text{C}$ . Two concentrations of the aqueous extract (13.2-26.4 mg/ml of culture) were assayed in human peripheral blood culture of healthy volunteers. No statistically significant differences were detected in our experimental conditions for any of the evaluated biomarkers ( $p > 0.05$ ). These findings indicate that the watercress extract would not induce cytotoxicity, chromosomal instability, clastogenicity or DNA double and single strand breaks or alkali-labile sites. Hence, monitoring the toxicogenetic activity of different aqueous extracts would provide a better understanding of their potential ability to improve healthiness or prevent DNA damage.

**KEY WORDS:** Brassicaceae, genetic toxicology, *Rorippa nasturtium-aquaticum*.

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