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Abstract

Subcritical Water Extraction of *Actinidia arguta* Leaves: Radical Scavenging Capacity and Cell Effects †

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Abstract: Kiwiberry is a nutritive fruit produced by *Actinidia arguta* vine [1]. During its production and harvesting, different by-products, such as leaves, are generated [2]. These by-products are enriched in bioactive compounds, enabling its recovery and reuse [1]. The objective of this study was to evaluate the antioxidant, radical scavenging, and cell viability effects of *A. arguta* leaf extracts at different temperatures (110–160 °C), applying subcritical water extraction (SWE), a sustainable extractive methodology. The total phenolic content (TPC), total flavonoid content (TFC), and antiradical activity (DPPH and ABTS assays) were evaluated, as well as the scavenging activity against superoxide ($O_2^{\bullet -}$), hypochlorous acid (HOCl), and peroxyl radical ($ROO^{\bullet}$). Additionally, cell viability assays on HT29-MTX and Caco-2 cell lines were performed. The extract obtained at 123 °C achieved the best results in all assays (TPC = 109.72 mg GAE/g dw; TFC = 53.11 mg CE/g dw; DPPH = 497.13 µg/mL; O_2^- = 335.23 µg/mL; HOCl = 17.06 µg/mL; S_{sample}/S_{Trolox} = 0.15), except in ABTS assay. TPC, TFC, and HOCl values were better than those obtained by different authors employing other extractive methods [2–4]. The cell viability assays allowed us to observe that the viability was not affected by the extracts at the highest tested concentration (1000 µg/mL) for HT29-MTX cells. Relative to Caco-2 cells, the extract at 160 °C displayed viabilities of 80.93% at concentrations of 10 µg/mL. Therefore, temperature probably influences the content of the extracted bioactive compounds, leading to the obtained results. These results highlight the potentialities of *A. arguta* leaves for pharmaceutical, food, or cosmetic applications.

Keywords: kiwiberry; by-products; bioactive compounds; subcritical water extraction; valorization

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