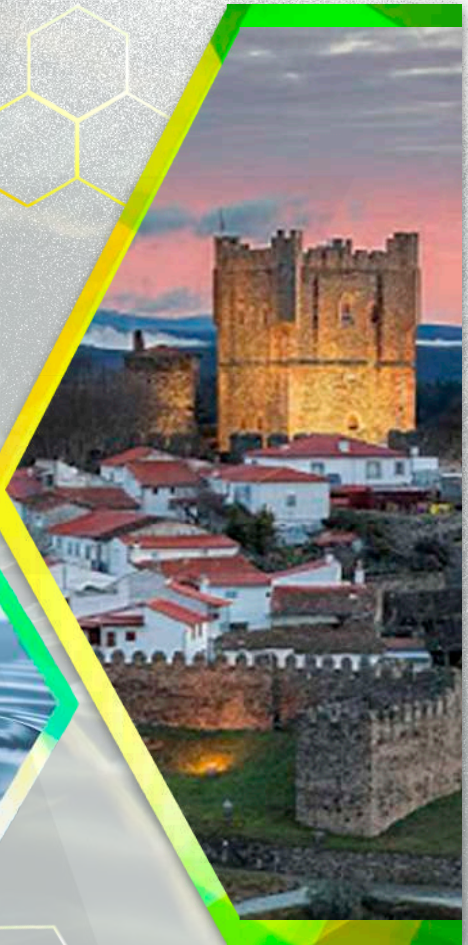




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Provided by nature, adapted scientifically for industry



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PCF-14

***ANANAS COMOSUS* L. BIO-WASTE AS A SOURCE OF BIOACTIVE COMPOUNDS WITH HEALTH BENEFITS**

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Pineapple (*Ananas comosus* L.) is a fruit appreciated and consumed worldwide not only because it is recognized for nutritional properties, but also for the beneficial characteristics that help in the development of the organism [1]. Although only the pulp is consumed, several studies have been exploring different parts of the fruit, as they have high amounts of bioactive compounds of interest. Thus, and since the food industry annually produces tons of waste that are not properly used [2], this work aimed at the characterization of the pineapple peel and crown in order to enhance this bio-waste and a circular bioeconomy.

Heat-assisted hydroethanolic extraction was used to recover compounds subsequently identified and quantified by High-Performance Liquid Chromatography coupled with a diode array detector and electrospray ionization mass spectrometry (HPLC-DAD-ESI/MS). Twenty phenolic compounds were identified in both peel and crown extracts, among them, phenolic acids and flavonoids. The main detected compounds were caffeic acid derivatives, namely caffeine putrescine and flavones such as apigenin 6,8-*C*-diglucoside. The antioxidant activity of the extracts was tested and proved through two *in vitro* tests: the lipid peroxidation inhibition test (TBARS) and the oxidative hemolysis inhibition test (OxHLIA). The antiproliferative activity of both extracts was evaluated in tumor and non-tumor cell lines using the sulforhodamine B method, and the anti-inflammatory activity in lipopolysaccharide-activated RAW 264.7 macrophages by the ability to inhibit NO production.

The results showed that both extracts had an excellent performance in the cell-based tests of antioxidant activity, highlighting the lower EC₅₀ values and consequently greater activity for the bark extract. The same trend was seen in the tests of anti-tumor activity, with none of the extracts showing toxicity up to the maximum concentration tested (GI₅₀ > 400 µg/mL).

This study confirms the potential application of pineapple bio-residues, especially the peel, in the food industry as a source of compounds with bioactive properties, contributing to the valorization of this bio-waste.

References

- [1] Contreras-Calderón, J. Calderón-Jaimes, L. Guerra-Hernández, E. García-Villanova, B. Food Res Int, 44, 2047–2053.
[2] Silva, D.I. Nogueira, G.D. Duzzioni, A.G. Barrozo, M.A. Ind Crop Prod, 50, (2013), 557 – 562.

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