# Natural products application: Health, Cosmetic and Food

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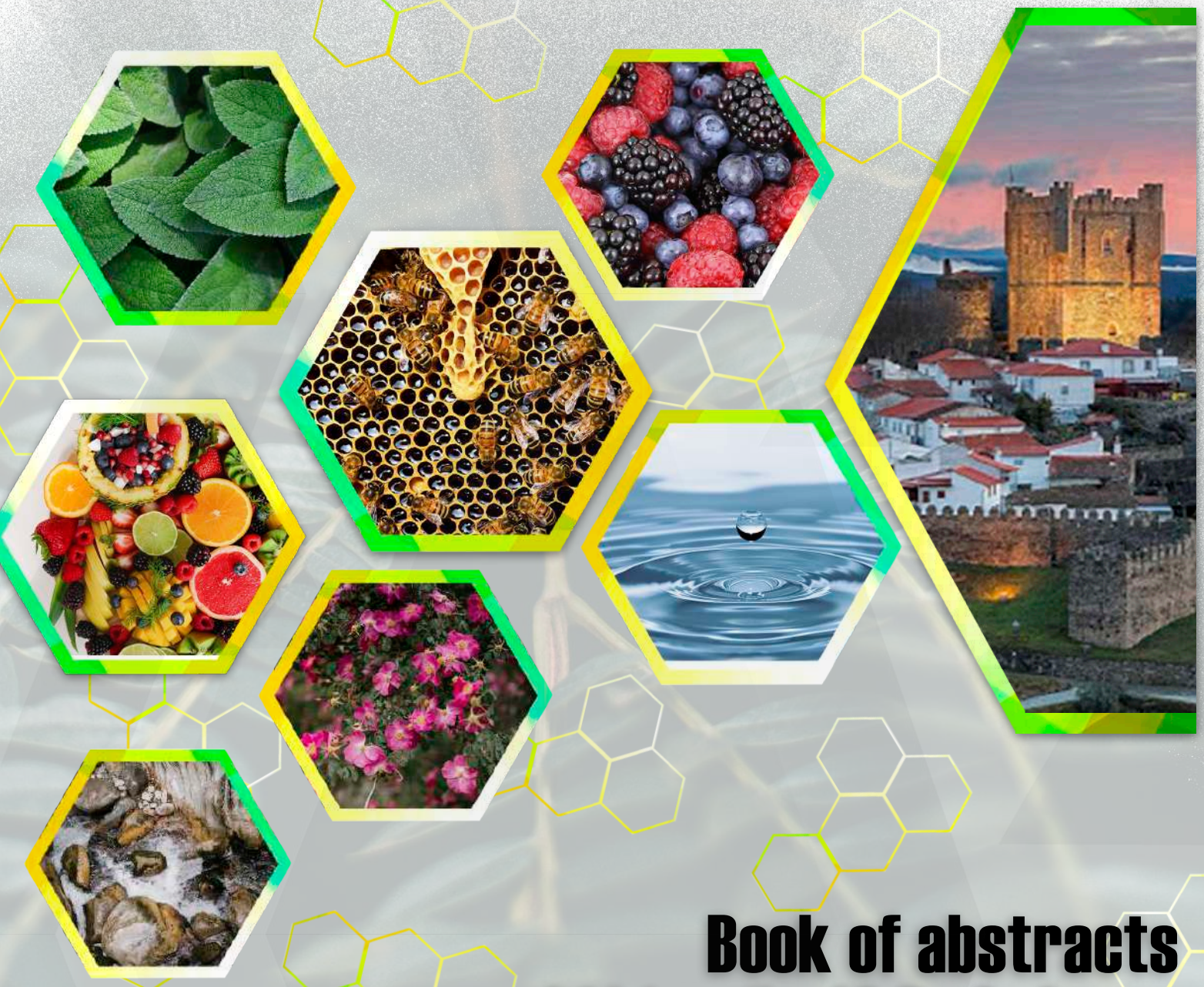

## Book of abstracts

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# BIOACTIVE PROPERTIES OF DIFFERENT EXTRACTS OBTAINED FROM THE AERIAL PARTS OF BLUEBERRY AND RASPBERRY RAW MATERIALS

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The waste biomass derived from Berry crops is a new focus of study since producers are becoming increasingly interested in its valorisation, namely to obtain high added-value products. In this context, the leaves, and other aerial parts of this raw material, are examples of waste biomass that can be exploited for several applications, namely in cosmetic formulations due to their unique chemical composition and associated bioactive properties [1,2]. In this context, this work was focused on upgrading the commercial potential of blueberry and raspberry plant by-products, which are typically discarded, presenting no economic value.

Different extracts of *Vaccinium myrtillus* L. (blueberry) and *Rubus idaeus* L. (raspberry) aerial parts were obtained using green methodologies after being air-dried, grounded at 20 mesh, and protected from light. Different extraction techniques were applied, such as infusion, decoction, maceration, and ultrasound-assisted extraction (UAE), being the latter two extractions performed with EtOH:H2O (80:20 v/v) as the extraction medium.

The obtained extracts were studied regarding their antioxidant and antimicrobial properties through the oxidative haemolysis inhibition assay (OxHLIA) and the microdilution method against pathogenic bacteria, respectively.

According to the obtained antioxidant results, both raspberry and blueberry samples exhibited a similar activity, with decoction extracts revealing the most promising results, namely by displaying the lowest IC50 values after 60 min (21.9 ± 0.3 µg/mL and 20 ± 1 µg/mL, respectively). It should be highlighted that these extracts presented similar activity, but higher than the one of Trolox (control), with an IC50 value of 21.8 ± 0.2 µg/mL. For the antimicrobial activity, all the extracts presented inhibition capacity against most of the tested bacterial strains, being the UAE extracts the most active ones. Raspberry samples showed the highest activity, inhibiting the Gram-negative bacteria *Escherichia coli*, *Klebsiella pneumoniae*, *Morganella morganii*, and *Proteus mirabilis* with a MIC (minimum inhibitory concentration) of 5 mg/mL. In contrast, to inhibit these bacteria a concentration of 10 mg/mL of blueberry extract was needed. Regarding the Gram-positive bacteria, raspberry extract presented a MIC of 2.5 mg/mL against *Enterococcus faecalis* and the methicillin-resistant *Staphylococcus aureus*. For blueberry extract, a MIC of 10 mg/mL was determined.

Overall, these results highlight these two samples' bioactive potential and the importance of exploiting these bioresidues as novel candidates for industrial application, taking advantage of their biological properties.

**References**

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