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ANTHOCYANIN COMPOSITION AND BIOACTIVITIES OF THE HYDROETHANOLIC EXTRACT OF *GARCINIA MANGOSTANA* L. PERICARP

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Garcinia mangostana L., commonly known as mangosteen or queen of fruit, is a tropical fruit belonging to the Clusiaceae family. This shrub is native from South Asia, but can also be found in other tropical territories, such as South America [1,2,3]. The fruit comprises an inedible dark purple or red pericarp (> 60%) that encases the edible succulent pulp [2]. Nowadays, mangosteen pulp and pericarp have been used in beverages as a food supplement by virtue of the traditional knowledge about its benefits. However, a poor correlation between the medicinal use of mangosteen and its chemical composition has been described [2,3]. Aiming to contribute to the elucidation of the phytochemical composition of this fruit pericarp, the present study was carried out to characterize anthocyanins by HPLC-DAD-ESI/MS. In addition, the bioactivities of the hydroethanolic extract obtained by solid-liquid extraction were evaluated. The extract cytotoxicity to four human tumour cell lines (NCI-H460 - lung carcinoma, MCF-7 - breast carcinoma, HepG2 - hepatocellular carcinoma, and HeLa - cervical carcinoma) was tested by the sulforhodamine B assay. The anti-inflammatory activity was evaluated by the ability to inhibit the lipopolysaccharide-induced nitric oxide (NO) production by murine macrophage RAW 264.7 cells. Lastly, the antioxidant activity was measured by the extract capacity to inhibit the oxidative haemolysis (OxHLIA) and the formation of thiobarbituric acid reactive species (TBARS), using sheep erythrocytes and porcine brain cells as oxidizable substrates.

The chromatographic analysis allowed the identification of two anthocyanins in the mangosteen pericarp, namely cyanidin-*O*-dihexoside, which was the most abundant, and delphinidin-*O*-pentoside. Regarding the *in vitro* evaluated bioactive properties, the extract showed cytotoxic activity against the four human tumour cell lines, with GI₅₀ values lower than 75 µg/mL. It also exhibited antioxidant and anti-inflammatory activities at low concentrations, with IC₅₀ values of 8.7 and 17.3 µg/mL for the TBARS and OxHLIA assays, and an EC₅₀ value of 85 µg/mL for the NO production inhibition assay, respectively. The results obtained in this study allow to conclude that *G. mangostana* pericarp contains an interesting amount of anthocyanins and also exhibits strong bioactivities, which makes it an interesting source of bioactive ingredients.

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