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BLUEBERRY (*VACCINIUM MYRTILLUS* L.) JUICE AND BAGASSE FOR ANTIOXIDANT PRODUCTS DEVELOPMENT

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Blueberry, *Vaccinium corymbosum* L., is a fruit consumed worldwide and considered one of the most antioxidant fruits [1]. Its pulp, seeds, and peel contain different chemical compounds responsible for its beneficial properties for human health [2]. This knowledge has led to the development of different industrialized products, such as juices and derivatives, in search of more practical forms of consumption. However, in the manufacture of these products, a large amount of waste is generated and has no further application, generating an environmental problem and a high cost for the industry [3]. In this context, this study aimed to evaluate the blueberry juice in terms of bioactive properties (antioxidant and antimicrobial), nutritional value (AOAC methods), free sugars (HPLC-RI), organic acids (UFLC-PDA), and phenolic (HPLC-DAD/ESI-MS) composition. Moreover, the hydroethanolic extract of blueberry bagasse, resulting from juice production, was also analyzed regarding its phenolic composition and bioactivity, to assess its applicability as source of added-value molecules to be used in food industry.

The blueberry juice presented a balanced nutritional value, with carbohydrates as the main macronutrients. The free sugars found in higher concentrations were fructose and glucose. Four organic acids were also identified, with quinic acid as the most abundant. As for the phenolic composition of the juice, four phenolic acids and six anthocyanins were detected. With respect to bagasse, eight anthocyanin compounds were identified in significant amounts, with cyanidin-3-*O*-glucoside and malvidin-3-*O*-glucoside being the most abundant compounds, and four non-anthocyanin compounds, with a prevalence of *cis* 5-*O*-caffeoylquinic acid and *trans* 5-*O*-caffeoylquinic. Concerning the bioactive properties, as expected considering their chemical composition, both the juice and the bagasse extract revealed a strong antioxidant capacity, being able to inhibit lipid peroxidation and oxidative hemolysis. None of the two showed cytotoxic properties, being considered safe for food consumption. Thus, this study validated the nutritional and bioactive quality of blueberry juice and justified the application of bagasse in the development of novel foods.

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