

Revalorization of Mango Byproducts to Obtain Bioactive Ingredients for Developing High Added-value Cosmetic Products

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Abstract

Food-related loss generation has been a worldwide problem for years. For this reason, one of the objectives pursued in this field is to design and implement new methodologies that revalue these wastes to return them to the market, thus significantly reducing this loss by stimulating the circular bioeconomy. In this sense, much of the health benefit they generate are due to bioactive compounds whose concentration in skins and seeds exceeds that presented in the pulp. This is a powerful starting point that would encourage waste reduction and even the revaluation of parts that are not normally exploited. More specifically we talk about phytochemical such as phenolic compounds, whose beneficial and therapeutic effects are mainly due to their biological properties, which are widely demonstrated (Chiocchio et al., 2021). It has been well documented that mango fruits (*Mangifera indica* L.) are an important source of micronutrients, vitamins and polyphenols, present both in its pulp and in its byproducts (Jahurul, et al., 2015). For all these reasons, the aim of this work was to obtain bioactive ingredients from mango byproducts by the extraction with GRAS solvents, the comprehensive characterization of the phenolic profile using high-performance liquid chromatography coupled to mass spectrometry and the bioactive evaluation of the potential in skin targets. From the extraction, a considerable number of phenolic compounds were obtained. On one hand, from mango peel, ethyl gallate and penta-O-galloyl-glucoside were predominant, showing a remarkable antioxidant and metal-chelating activity. On the other hand, mango seed and kernel harbor important phenolics as mangiferin, related to effects against Alzheimer's disease for its strong antioxidant activity, or ellagic acid, whose scavenging radical activity grants it cardioprotective effects (Torres-Leon, et al., 2016). Likewise, mango fruit byproducts can be appointed as suitable sources of natural food ingredients for its use in food, cosmetic, nutraceutical and pharmaceutical applications. Its utilization has become an important aspect in waste management to contribute to sustainable and less polluting production in food and pharmaceutical industries.

Keywords: Bioactive compounds, revalorization, circular bioeconomy, fruit byproducts, cosmetics

References

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