

Comparison of Polyphenolic Profile of a Berry from Two Different Sources, Using an Optimized Extraction Method

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Abstract : The superior polyphenol content of *Sambucus nigra* berries has high health potentials for the production of nutraceutical products. Numerous factors influence the polyphenol content of the final products including the berries' source and the subsequent processing production steps. The aim of this study is to compare the polyphenol content of berries from two different sources and also to optimise the polyphenol extraction process from elderberries. Berries from source B obtained more acceptable physical properties than source A; a single berry from source B was double in size and weight (both wet and dry weight) compared with a source A berry. Despite the appropriate physical characteristics of source B berries, their polyphenolic profile was inferior; as source A berries had 2.3 fold higher total anthocyanin content, and nearly two times greater total phenolic content and total flavonoid content compared to source B. Moreover, the result of this study showed that almost 50 percent of the phenolic content of berries are entrapped within their skin and pulp that potentially cannot be extracted by press juicing. To address this challenge and to increase the total polyphenol yield of the extract, we used cold-shock blade grinding method to break the cell walls. The result of this study showed that using cultivars with higher phenolic content as well as using the whole fruit including juice, skin and pulp can increase polyphenol yield significantly; and thus, may boost the potential of using elderberries as therapeutic products.

Keywords : different sources, elderberry, grinding, juicing, polyphenols

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