

Regional apple and pear cultivars from Alcobaça region (Portugal): Comparison of the antioxidant properties of the edible part and by-products

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Food waste is commonly defined as “a decrease, at all stages of the food system from production to consumption, in mass and/or quality, of food that was originally intended for human consumption, regardless of the cause” [1]. To avoid food waste, we aimed to characterize the antioxidant capacity of regional cultivars of apples and pears, for which there are still scarce data. Moreover, different parts of the fruits (peels, seeds and mesocarp) were analysed individually in order to evaluate the potential of by-products to be used a valuable source of natural antioxidants [2], which are believed to be responsible for human health benefits such as anticancer and cardioprotective effects [3].

The objective of this work was to determine the antioxidant properties [4] and fructose content of both by-products (peels and seeds) and edible part of five different Portuguese apple cultivars (Pardo Lindo, Pêro de Borbela, Noiva, Pêro Coimbra and Repinau) and five pear cultivars (Bela-Feia, Torres Novas, Carapinheira Roxa, Lambe-os-Dedos and Amorim), produced in Alcobaça region (Alcobaça), in two consecutive years. The antioxidant properties were evaluated through antioxidant capacity tests (DPPH radical scavenging and β -carotene bleaching) and total phenolic content and total flavonoids assays. By-products showed better antioxidant capacity, than the edible part in all cultivars, but the fructose content was very similar in the three parts of the fruits. The results indicate that regional apples' by-products presented greater potential than regional pears' by-products. In this line they have potential to be used as a valuable source of antioxidant compounds, which can be further used, by food, cosmetics, food packaging or food supplements industries.

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