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## Avocado peels and seeds from Hass varieties: from industrial by-products to circular reuse

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From a sustainable progress perspective, the circular economy model is widely used today. One of the main purposes of last years is to valorize wastes of agri-food industries, as new sources of bioactive components, from the approach of a circular and biorefinery economy both for environmental and economic reasons. Avocado (*Persea americana* cv Hass) seeds and peels are an example of promising bio-sustainability raw materials with a high nutritional value that can be obtained from industrial by-products. The objective of this work was to study also chemical qualities of avocado peels and seeds.

Avocado peel and seeds samples from fruit collected in Sicily were dried in a convective hot-air dryer at a temperature of 60°C for 4 hours, then processed into flour. Analysis of enzymatic browning and color quality, assessed using the CIELab colorimetric system, showed that the flours derived from both peels and seeds had very low levels of browning, with high brightness values (L\*=51; a\*=2; b=29 for peels; L\*=60; a\*=40; b\*=45 for peels and seeds respectively).

Furthermore, analyses show, mostly in peels, a very interesting value of total phenolic compound (386.80 mg GAE/100g) and antiradical activity (127.86 mmol TEAC/100g).

The fatty acid profile of the powder of dried peels and seeds flour was also evaluated after oil extraction via Soxhlet. Particularly interesting was the amount of total fatty acid in peels, with a value of 23.77 g of total fatty acid/100 g, with a percentage of 9.5% SFA, 78.3% MUFA, and 12.2% PUFA. Free and bound phenols, were determined by UHPLC-Orbitrap-MS using a method previously optimized [1]. The main bioactive compounds present in avocado by-products include hydroxycinnamic acids, hydroxybenzoic acids, flavonoids, catechins, quercetins, proanthocyanins and tannins [2].

This approach is essential in order to give a second life to by-products, due to their potential health and industrial value.

Avocado by-products supplementation in fact could be a potential option for the production of high-quality, nutritionally rich, low-cost functional products with good organoleptic properties, and higher nutritional value. [3]

### References

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