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ATR-FTIR CHARACTERIZATION AND CLASSIFICATION OF AVOCADO OILS FROM FIVE CAMEROON CULTIVARS EXTRACTED WITH A FRIENDLY ENVIRONMENTAL PROCESS

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Abstract

Avocado *post*-harvest losses and cultivar-oriented trade are relevant issues in Cameroon that affect producers and retailers incomes. Identifying specific chemical characteristics of avocado oils would give an added value to underutilized species. Five avocado varieties, *Booth 7, Booth 8, Collinson, Hickson* and *Lula*, were subjected to aqueous extraction and the Attenuated Total Reflectance-Fourier Transformed Infrared spectrometry coupled with chemometrics (ATR-FTIR) profile of their extracted oils was analyzed to express their variability in terms of structural composition. The results showed that the oils have characteristic peaks within the region 900 to 1300 cm^{-1} that could be exploited in food control: 1167 cm^{-1} for *Booth 7*, 1164 cm^{-1} for *Booth 8*, 1157 cm^{-1} for *Collinson*, 1162 cm^{-1} for *Hickson*, 1164 cm^{-1} for *Lula* and 1165 cm^{-1} for the commercial oil which was used to compare. Principal Component Analysis used to classify the avocado oils based on their degree of unsaturation and their carboxyl ester group show similarity between *Booth 7* and *Collinson* oil, *Booth 8* and *Hickson* oil while *Lula* oil is totally different. This means that oils in the same cluster could be used for the same purpose in industries on chemical bases and identify during adulteration control on spectroscopic bases. Thus, ATR-FTIR spectrometry coupled with chemometrics have shown that neglected and appreciated avocados varieties share some similar properties that could be exploited by industries.

Key words: ATR-FTIR spectrometry, avocado oil, cultivars, principal component analysis

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