Title: **Characterization of Costa Rican coffee samples from polyphenolic profiles obtained by liquid chromatography with UV/vis**

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Coffee is one of the most consumed beverages in the world. In recent years, the interest on its chemical composition has increased.

The main interest on chemical composition of coffee arises on polyphenol compounds. Recent studies have investigated the antioxidant properties of polyphenols and their influence on the prevention of some diseases such as cancer or neurogenerative diseases.

In this work a HPLC-UV method has been developed for the determination of polyphenols in Costa Rican coffee samples coming from three different areas (Tarrazú, Valle Occidental and Unknown origin). The separation is based on a C18 column and gradient elution with methanol and 0.1% aqueous formic acid solution as mobile phase components. Then, HPLC-UV chromatographic fingerprints as well as the polyphenolic profile areas were used as chemical descriptors to address the classification of the analysed Costa Rican coffee samples regarding their production area by principal component analysis (PCA).

Regarding the extraction, we have found that boiling the coffee with water was the best way to recover the major part of polyphenols from the coffee, but this extraction method, presents problems on temporally samples degradation.

On the other hand, using PCA some chemical differences between samples have been seen which helped us to separate the samples in the three origin areas.