

Differentiation of Arabica and Robusta Coffee Cup by Physico-chemical and Sensory Parameters and Multivariate Analysis

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SUMMARY

The quality of the cup of coffee depends on the parameters related to the ground roast coffee used for its preparation, and the technological conditions of extraction. With regards to the ground roast coffee used for the preparation, comparison of brew coffee from Arabica and Robusta varieties have been studied from a physico-chemical point of view (Illy, et al., 1995; Nunes et al., 1997) but no sensory comparative studies had been found.

The aim of this work was to differentiate and classify Arabica and Robusta brew coffee by the sensory and physico-chemical characteristics using Principal Component Analysis (PCA) and Discriminant Analysis (DA).

The results of the PCA showed that the PC1 separated Robusta and Arabica samples perfectly. This component (which explained 53.7% of the variance), was mainly related to the foam aspects (foam index, lipids and persistence), and with the physico-chemical and sensory parameters related to the taste of the cup (pH, acidity, caffeine, 5-CQA, bitterness, astringent, total solids, concentration, extraction, residual taste). The PC2 (that explained 16.8% of the variance) included some variables related to the body of the cup (body and solids on filtrate). Some interesting correlation among the variables were found.

The DA proposed a very simple function that explained 100% of the variance and which allowed for classification of the coffee samples into their respective group with a success rate of 100%.