

## ABSTRACT

Varietal Impact on the Quality of Jamaican Coffee (*Coffea arabica* L.)

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Impact of the inclusion of different *Coffea arabica* varieties on the overall quality of Jamaican coffee (traditionally pure *typica* variety) was evaluated by physicochemical parameters and cup quality. *C. arabica* var. *typica* and six pest-resistant *C. arabica* varieties as well as market samples (random mixtures of several varieties) were compared. The coffee was further discriminated by the altitude at which the plants were cultivated. Green and roasted beans of *C. arabica* varieties were analysed for fat, moisture, mineral, caffeine and acid content, as well as pH, colour and fatty acid profile. Coffee brews obtained from the roasted beans of individual samples were assessed by a trained panel for cup taste based on the standard parameters of nose, aroma, body, acidity and roast quality.

In a given geographical area, while fat content was similar, significant differences were noted at the 95% confidence interval in the mineral composition, caffeine content, pH, colour, and cup quality of the different *C. arabica* varieties. Main fatty acids identified in green coffee included palmitic, stearic, oleic, linoleic and arachidic acids while only stearic and palmitic acids were identified in roasted beans.

Coffee brew quality diminished with a decrease in roast quality. Perceptible differences were detected in the cup taste of the individual varieties, the market samples and the pure *C. arabica* var. *typica* brews, nevertheless the overall cup quality of the market samples met the required industry standard. Composition of the *C. arabica* var. *typica* beans was dependent on the altitude of cultivation while cup quality generally improved with increased altitude, the Blue Mountain (1250 m) *typica* coffee being the superior product. Inclusion of *C. arabica* pest-resistant varieties in market samples did not appear to significantly affect the overall quality of the world renowned Jamaican Blue Mountain Coffee but periodic assessment is needed to ensure this continues.

Keywords: Antoinette Marie Gayle, *Coffea arabica*; *typica*; Jamaican Blue Mountain coffee; physicochemical analysis; cup quality.