



High-quality Robusta clones from Amazon show wide variation in the bioactive contents

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Abstract: Rondonia State in Brazil stands out for the research in genetical enhancement of *Coffea canephora* species, obtaining highly productive and resistant plants, that can also lead to specialty coffees. High-quality coffees of Robusta variety are produced in the Amazon regions of the State. Several bioactive coffee compounds even original from the beans (trigonelline, caffeine, total chlorogenic acids) or produced during roasting process (melanoidins) has been highlighted by their positive biological effects for human health and the importance in cup quality. However, bioactive compounds data for *C. canephora* are still scarce, and many researches do not specify the coffee variety. This research aimed to study bioactive compounds in Robusta clones from the Amazon region. Thirty samples classified as high-quality coffees according to the Fine Robusta Tasting Protocol, from 75 to 85 points, were studied. The coffees were harvested in Ouro Preto do Oeste/RO and provided by Embrapa Rondonia. The beans were light medium roasted (L^* of 37). After the extraction in hot water, the contents of trigonelline, caffeine, total chlorogenic acids (ACG) were determined in reverse phase UPLC using UV detection and gradient elution (acetic acid:water and acetonitrile); a spectrophotometric evaluation was applied for melanoidins. Despite the standardized roasting process, melanoidins content varied in a wide range from 10.71 to 18.30 g 100 g⁻¹. The contents of trigonelline and caffeine, the main coffee alkaloids, varied from 0.74 to 1.15 g 100 g⁻¹ and 1.60 to 2.80 g 100 g⁻¹, respectively. For ACG, the main representative of coffee phenolic components, a range from 3.76 to 6.13 g 100 g⁻¹ was observed. Trigonelline and ACG were presented in higher contents than the usually described for *C. canephora*. In conclusion, it is possible to obtain high-quality Robusta coffees with a wide variation in the composition profile and high contents of hydrosoluble bioactive compounds.

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Palavras-chave: Coffea canephora; Caffeine; Total chlorogenic acids