Coffee Brewed With Previously Ground Beans Expresses Higher Total Antioxidant Capacity Than Coffee Brewed With Freshly Ground Beans

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ABSTRACT

Coffee is one of the most widely consumed beverages in the world, and is known to be a notable source of antioxidants. In this study, differences in antioxidant levels in coffee brewed with pre-ground coffee and coffee brewed with freshly ground coffee were investigated. Total antioxidant capacity (TAC) of each type of coffee was calculated through the Trolox Equivalent Antioxidant Capacity (TEAC) assay and the total polyphenolics measurement (Folin-Ciocalteau reagent assay). Pre-ground coffee was hypothesized to express lower antioxidant levels due to a greater surface area of the coffee bean being exposed to the atmosphere for a longer time. However, results from the TEAC assay indicate 1.59% higher TAC in pre-ground coffee, which is consistent with higher TAC in pre-ground coffee from the Folin-Ciocalteau assay. A possible explanation is that prolonged exposure to oxygen oxidizes the antioxidants further, which increases their reducing capacity. Because these data suggest that pre-ground coffee expresses higher TAC, consumers should be recommended to consume coffee brewed from pre-ground coffee for its increased antioxidant benefits.