

**PC436****Antioxidant Enzyme Expression and Its Relationship to Coffee Beans Quality.**

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Currently, sensory analysis is the main tool for analyzing coffee grain quality. However, various studies have sought to associate sensory quality with other characteristics of the grains so as to better understand coffee quality and detect changes in the grains even before they affect the beverage. In this context, expression of enzyme systems can contribute to understanding of the protective mechanism for grains in the face of deterioration events that may result in a decline in the quality of the beverage from these grains. Thus, the aim of this study was to investigate if expression of the catalase enzyme may be an indicator of grain quality in dry cherry/dry fruit coffee (natural coffee) and in parchment coffee (fully washed coffee) stored in two environments for 12 months. Cherry coffee and parchment coffee were dried to 11% moisture content. After drying, a portion of the grains was hulled and the other portion was maintained as dry fruit or as parchment coffee. The grains were then stored under cooled controlled conditions (10°C and 50% relative humidity) or in an environment with temperature controlled at 25°C, for 12 months. Expression of the catalase enzyme was evaluated in the coffee grains before and after three, six, and twelve months of storage through expression in gel electrophoresis. These results were compared to physiological quality evaluated through the germination test (BRASIL, 2009) and to sensory quality (LINGLE, 2011). Greater expression of the catalase enzyme was observed in natural coffee compared to fully washed coffee. Over the storage period, a reduction was observed in expression of the catalase enzyme, especially in natural coffee stored under conditions of 25°C. Low physiological and sensorial performance in these coffees was also observed, compared to the grains that were wet processed. In relation to effects of hulling, mechanically hulled coffee had lower catalase expression compared to unhulled grains over the storage period. Associating this result with the physiological and sensory profile of the grains, a direct relationship between lower enzyme expression and decline in quality was observed. It can be concluded that expression of the catalase enzyme may be an indicator of grain quality when associated with the physiological profile.

**Key words:** *Coffea arábica L. Post-harvest. Catalase.*

**References**

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