

## PA200

### Enzymatic And Cathodic Water Protection During Coffee Seed Drying.

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The seed desiccation process can cause loss of viability or aging due to the occurrence of peroxidation of compounds in the presence of oxygen. This is due to the production of highly reactive oxygen species (ROS), also known as free radicals, capable of reacting with membrane lipids, nucleic acids, proteins, and enzymes, among other components, altering the normal biological functions of the cell and causing deterioration and membrane disintegration, followed by cell death. Thus, antioxidant systems, mainly formed by enzymes, are a defense mechanism, acting in the removal of ROS and in membrane protection. In addition to endogenous mechanisms, some exogenous antioxidants, such as cathodic water, may be used in defense against free radicals. The aim of this study was to analyze changes in antioxidant enzyme expression during the drying process of coffee seeds. Seeds of the *Coffea arabica* L. species were pulped ("fully washed") and dried by different methods (silica gel to 20% wb, silica gel to 17% wb, saturated solution (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> (81% RH) to 17% wb, and saturated solution of NaCl (75% RH) to 17% wb). After drying, part of the seeds was treated with cathodic water. Next, catalase (CAT) and peroxidase (PO) expression were analyzed through gel electrophoresis analysis. Increased expression of these enzymes was observed during the drying process and was more intense when the seeds were dried in saline solutions (slower drying). Furthermore, the activity of the PO enzyme was higher in treatments that were not treated with cathodic water. The enzymes CAT and PO can be used as markers of stress caused by seed dehydration.

**Keywords:** silica gel, saturated salt solution, catalase, peroxidase, antioxidant process.

#### Reference

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