

# Inactivation of oxidative enzymes from avocado Geada pulp by high hydrostatic pressure

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Avocado is a climacteric fruit and highly perishable under normal environmental conditions. The commercialization of avocado and processing without additives is difficult due to the pulp darkening and sensory changes during storage. These changes are mainly due to the activity of oxidative enzymes such as peroxidase (POD) and polyphenol oxidases (PPO) that are often responsible for undesirable changes in the original characteristics of vegetable products. The enzyme's inactivation by high hydrostatic pressure (HHP) has proved to prevent enzymatic browning and to maintain the sensory properties in some fruits including in some avocado varieties. In the present study the effect of different HHP process variables (pressure, time and pH) on enzymatic activity of PPO and POD present in the Geada avocado pulp, a typical variety from Brazil, was determined. The pulp was subjected to pressures of 300, 400 and 500 MPa for 5, 15 and 25 minutes at pH 3.8 and 4.2. The results showed that at pH 4.2 the highest PPO activity decrease was verified at 400 MPa for 5 min, while for POD the highest decrease happened at 500 MPa for 15 minutes. Such conditions resulted in an enzymatic inactivation of 43.2% and 88.0%, respectively. However, at lower pH (3.8) the highest reduction of the enzyme activity was 88.4% for the PPO treated at 300 MPa for 5 min, and 75.7% for the POD treated at 500 MPa for 25 minutes. Therefore, HHP was effective in partial inactivating the PPO and POD in Geada avocado pulp, and the inactivation was highly dependent on pH, pressure and time for both enzymes.

**Keywords:** avocado, high pressure, peroxidase, polyphenol oxidase

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