

Oxidative capacity of the enzyme polyphenoloxidase during borojó (*Borojo apatinoi* Cuatrec.)

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Abstract

The borojó is a member of the *Rubiaceae* family. The fruit, in its early stages, is light green; when it is ripe, it becomes reddish brown, mainly due to polyphenol oxidases (PPO) acting during fruit ripening. This study made a preliminary characterization of the borojó PPO enzyme in two stages of ripening (IM = °Brix/% acidity). Fruits were analyzed micro-structurally, obtaining conformational differences in the cellular structures. The aqueous extract of green borojó had the highest total phenol (Folin-Ciocalteu) and protein (bicinchoninic acid) contents, 284.02±32.19 mg gallic acid/100 g fresh fruit and 3.34±0.14% w/w respectively. The kinetics of browning were visualized and the PPO activity was evaluated at different temperatures and pHs using 100 mM catechol, resulting in greater activity at temperatures between 40 and 60°C and pHs between 5 and 6 for the different extracts. This study revealed the presence of PPO in the green state borojó and low activity in advanced stages of ripening, demonstrating the importance of researching the optimal conditions during harvest and storage to reduce PPO activity and retain polyphenols, metabolites of great interest due to their functions.