

Title Partial Purification and Property Characterization of Anthocyanase from Harvested Litchi Fruit

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Citation Program and Abstracts, 3rd International Symposium on Longan, Lychee and Other Fruit Trees in Sapindaceae Family, August 25-29, 2008, Fuzhou, China. 132 pages.

Keywords litchi; anthocyanase; browning

Abstract

Pericarp browning has long been considered the main postharvest problem of litchi fruit, resulting in reduced shelf life and commercial value of the fruit. Our previous study indicated that pericarp browning index was reversely correlated to anthocyanin content of litchi fruit. A high activity of anthocyanase in litchi pericarp was detected. In present study, anthocyanase was partially purified from litchi pericarp by ammonium sulfate fractionation, DEAE-Sepharose and Sephadex G-75 columns chromatography. A 19.0-fold purification with a 2.2% yield of the enzyme was achieved. The enzymatic property of the partially purified enzyme was characterized. The optimum reaction temperature of anthocyanase was 45°C and the enzyme was stable between 30-45°C. The enzyme activity was optimal at pH 5.0 and was stable between pH 7.0-8.0. The enzyme activity was completely inhibited in the presence of 100 mg/L Na₂SO₃, which indicated that the litchi anthocyanase was very sensitive to sulfite. The enzyme activity was inhibited to some extent by 0.1 mol/L and 1 mol/L of glucose, Sucrose, citrate acid, EDTA and CaCl₂. CuSO₄ had a remarkable activation effect on litchi anthocyanase activity and enhanced the enzyme activity up to 2 folds when its concentration was 1 mol/L.