

Title Antioxidant properties of anthocyanins extracted from litchi (*Litchi chinensis* Sonn.) fruit pericarp tissues in relation to their role in the pericarp browning

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Abstract

Anthocyanins were extracted and purified from litchi fruit pericarp and their antioxidant properties were investigated. Effects of exogenous anthocyanin treatments on pericarp browning and membrane permeability of harvested litchi fruit were also evaluated. Anthocyanins from litchi fruit pericarp strongly inhibited linoleic acid oxidation and exhibited a dose-dependent free-radical-scavenging activity against DPPH radical, superoxide anions and hydroxyl radical. The degradation of deoxyribose by hydroxyl radicals was shown to be inhibited by anthocyanins acting mainly as chelators of iron ions rather than directly scavenging hydroxyl radicals. Anthocyanins were also found to have excellent reducing power. The reducing power of anthocyanins, ascorbic acid and butylated hydroxytoluene all at 100 $\mu\text{g/ml}$ were 3.70, 0.427 and 0.148, respectively, indicating that anthocyanins from litchi pericarp had a strong electron-donating capacity. Furthermore, application of anthocyanins to harvested litchi fruit significantly prevented pericarp browning and delayed the increase in membrane permeability. It was therefore suggested that anthocyanins could be beneficial in scavenging free radicals and reducing lipid peroxidation of litchi fruit pericarp.