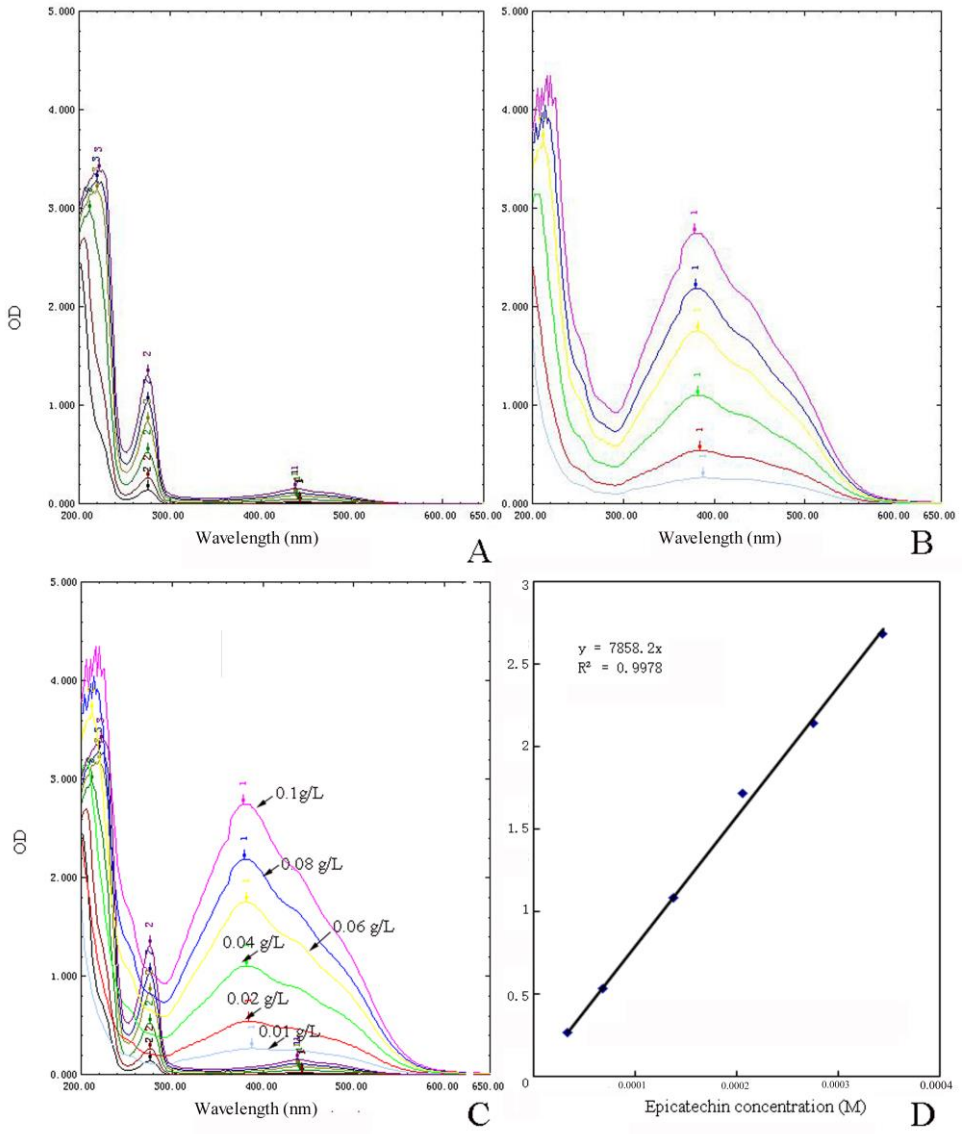

Figure S1. Determination of the extinction coefficient of epicatechin oxidation product by ADE/LAC. (A) The spectra of epicatechin of 0.01, 0.02, 0.04, 0.06, 0.08, 0.1 g/L respectively in 20 mM phosphate buffer. Peak 2 is the extinction maximum at 280 nm. (B) The spectra of the oxidation products formed by ADE/LAC with epicatechin of the concentrations in A. Peak 1 is an absorbance peak at 380 nm showing obvious increase after the reaction. (C) The overlapping of the spectra from A and B, showing that epicatechin and its product had overlapping absorbance spectra at the extinction maximum at 280 nm. (D) The extinction coefficient of epicatechin oxidation product was achieved by plotting the absorbance at 380 nm after the reaction was assumed to be complete, against the epicatechin concenteration.

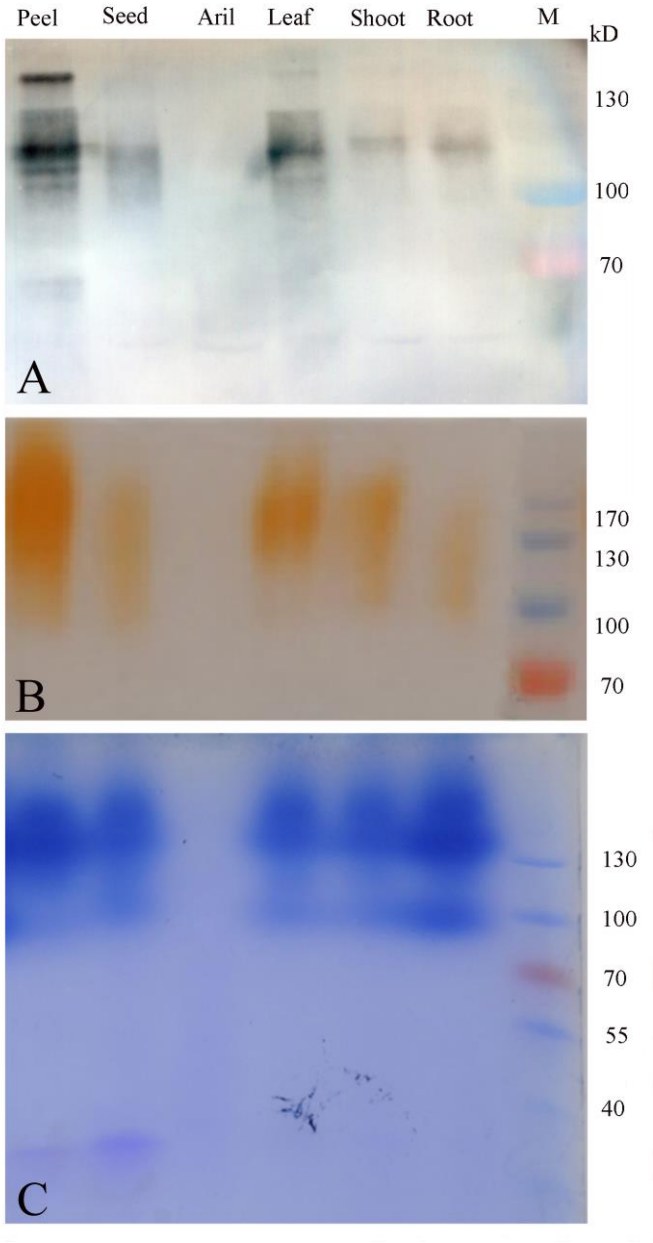

Figure S2. The original gel images of ADE/LAC protein and activity assays in different Litchi tissues. The original gel images for Fig. 4B were shown with molecular markers. (A) The original image for the protein immunoldetection in different tissue by anti-ADE/LAC. (B) The original gel image for AED activity assay in-gel for the samples from different tissues. (C) The original gel image for laccase activity assay by using universal phenol oxidase substrate, 1, 8-diaminonaphthalene (DAN).

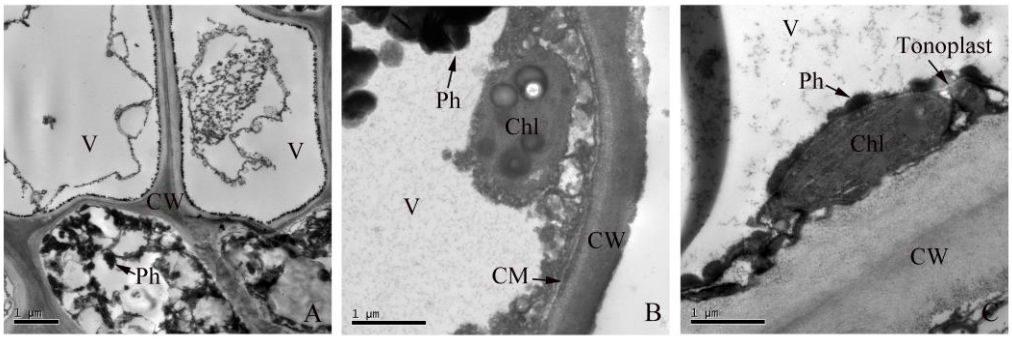

Fig. S3 TEM images of Litchi pericarp at different stages. (A) Ultrastructure of Litchi pericarp cell at immature stage. Showing central large vacuole and some phenolic grains (Phs) was localized in the vacuole. (B) A magnified image of Litchi pericarp cell at mature stage, showing a degrading chloroplast and Phs in the vacuole. (C) Ultrastructure of Litchi pericarp cell at immature stage. Showing the phenolic grains were close to the chloroplast with relative intact thylakoid.

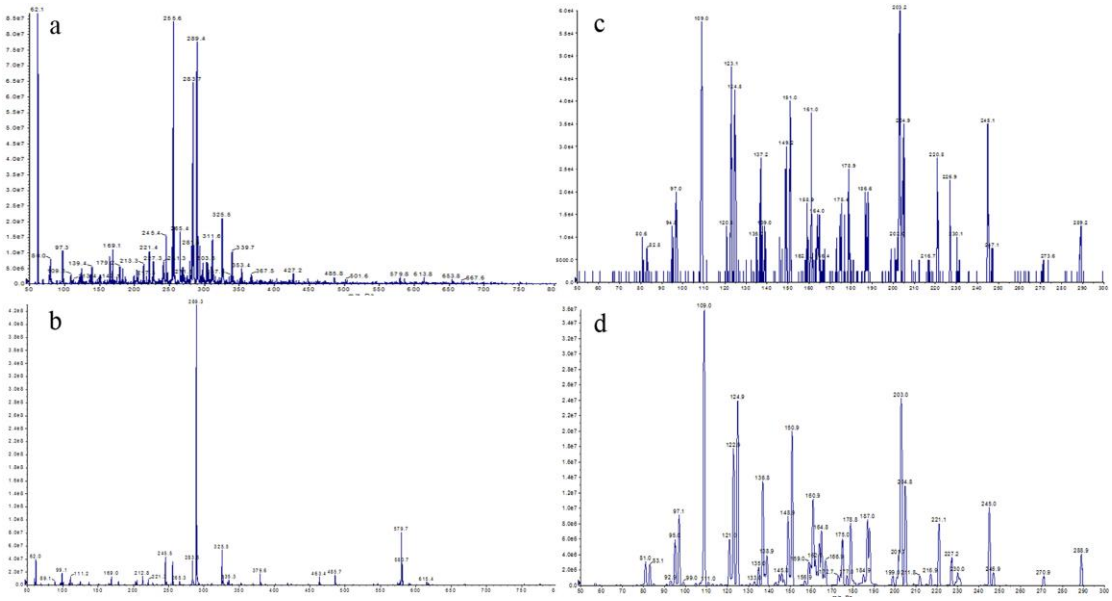

Figure S4. MS and MS/MS profiles of the active compound of the substrate I. (a) The mass spectra (MS) of the total negative ions of the active faction at the peaks of the HPLC profiles of reactions of substrate I by Laccase on the substrate I. (b) The total negative ion MS of the epicatechin standard. (c) The MS/MS of the active compound of (a). (d) The MS/MS of the epicatechin standard.