

Purification and characterization of membrane-bound peroxidases from Metroxylon sagu.

ABSTRACT

Two membrane-bound peroxidases, mPOD-I and mPOD-II, have been isolated and purified from Metroxylon sagu, using a combination of temperature-induced phase partitioning, DEAE-Toyopearl 650M, CM-Toyopearl 650 M and gel filtration. The mPOD-I and mPOD-II had molecular mass of 51.2 and 43.8 kDa, respectively, as determined by SDS-PAGE. Both enzymes showed high efficiency of interaction with the substrates. The isoenzymes were highly inhibited by ascorbic acid, metabisulfite, l-cysteine and p-coumaric acid. The inhibition mode of action and inhibition rate constant (K_i) values for these inhibitors were determined. Their activities were highly enhanced by Al^{3+} , Ca^{2+} and Fe^{3+} but they were moderately inhibited by Zn^{2+} .

Keyword: Metroxylon sagu; Pith; Membrane-bound peroxidases; Purification; Characterization.