CHAPTER V

CONCLUSION

1. Peroxidase was purified from cassava parenchyma by ammonium sulfate precipitation, followed by chromatographies on Concanavalin A-Sepharose 4B affinity column and Sephadex G-200. It was purified 16 folds with 7.2% yield.

2. The native molecular weight of purified peroxidase was estimated by Sephadex G-200 gel filtration to be 105 kD. The subunit molecular weight of the peroxidase was estimated by SDS-PAGE to be 54 kD. The enzyme was a dimer of two 54 kD subunit.

3. The isoelectric point (pI) of the purified peroxidase was estimated by polyacrylamide isoelectric focusing. There were at least 5 isozymes with pI values of 5.1, 5.2, 5.4, 5.8 and 6.0.

4. The purified peroxidase showed a Soret band with an absorption maximum at 398 nm indicating the possession of heme prosthetic group. It was found to contain carbohydrate of ~300% w/w.

5. The purified peroxidase was stable in the pH range of 5-11, with the optimum pH of the purified peroxidase was 5. It was stable at temperature up to 40°C and optimal temperature was 65°C.

6. The purified peroxidase had high affinity for substrates such as H_2O_2 (K_m = 0.28 mM), DAB (K_m = 0.03 mM), o-dianisidine (0.07 mM), syringaldazine (K_m = 0.05 mM) but lower affinity for substrates such as pyrogallol (K_m = 2.63 mM and guaiacol (K_m = 19.12 mM)

7. Partial deglycosylated cassava tuber peroxidase showed decrease in temperature stability but optimal temperature remained unchanged. pH stability profile shifted to more acedic pH, optimal pH remained unchanged. Isoelectrofocusing pattern also changed, with decrease intensity of the pI 5.1, 5.2, 5.8, 6.0 bands and appearance of new band at pI 5.3. The K_m's for H_2O_2, DAB, guaiacol, o-dianisidine and pyrogallol decreased in comparison to native form.