Isolation and Characterization of a Peroxidase from *Spondias tuberosa* and its Potential Role as Biotechnological Tool.

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Introduction Peroxidases are enzymes that oxidize several phenol compounds. Due to its property, this class of enzymes is widely employed as molecular tool in several biochemical and chemical process. The role of peroxidase as molecular tool was already cited for horseradish POX (HRP)as well as its wide biotechnological applications. **Objective:** This work had as aim the purification and characterization of a peroxidase from Umbu plant (*S. tuberosa. Arruda*) and the comparison of its properties with other peroxidases already used as molecular tool. **Material and Methods**: The purification of a peroxidase (POX) from Umbu xilopodium exsudate was done by acetone precipitation and direct extraction from SDS-PAGE electrophoresis gel. The fraction of purified peroxidase was characterized in respect to thermal stability, optimum pH activity, effects of metal ions and kinetic parameters. **Results and Discussion**: Umbu POX showed optimal activity in pH between 6.0 and 7.0. However, in pH range from 4.5 to 8.0, the enzyme preserved more than 80 percent of activity. A great thermal resistance was viewed, keeping 100 percent of activity at 70 °C for 6 minutes. POX activity present in crude extracts was more heat-resistant than in its purified form. When assayed with metal ions, Umbu POX activity was shown to be inhibited by Mn^{2+} and stimulated by Ca^{2+} and Mg^{2+}; it was also inhibited by sodium azide in concentrations higher than 1 mM and was not inhibited by either EDTA or tropolone. POX Km values for guaiacol and methylcatechol substrates were 6.83 and 22.25, respectively, suggesting that enzyme is a guaiacol peroxidase. **Conclusions**: The Umbu peroxidase has a good potential as molecular tool due its activity be highly similar to HRP activity. However, the more remarkable characteristic of Umbu POX is its highly active in pH below 5.0, feature not seen for HRP.

Key words: Horseradish POX , guaiacol peroxidase, oxidative metabolism.

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