A PRACTICE AND STABLE MATERIAL FOR PEROXIDASE ASSAY BASED IN COVALENT IMMOBILIZATION OF HRP ONTO POLY(VINYL ALCOHOL)-GLUTARALDEHYDE-POLY(ANILINE)-GLUTARALDEHYDE

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Peroxidases (EC 1.11.1.7) are widely used in many industrial processes. However, manipulate enzymes in their native form (soluble) can result in high cost product. In this work, we present a new system based in peroxidase immobilization onto Poly(vinyl alcohol)-Glutaraldehyde-Poly(aniline)-Glutaraldehyde (PVAG-PANIG) and their characterization in comparison to the native enzyme. About the immobilization parameters, it was observed that a maximum of peroxidase retention was completed after 60 min of enzyme-support contact, at 4º C, in pH 5.5. The kinetic parameters revealed some differences of behavior between native and immobilized peroxidase, such as optimum temperature (40º C for native and 35º C for immobilized), pH (6.5-7.0 for native and 4.5 for immobilized), probably influenced by the chemical nature of the support. However, both native and immobilized peroxidases need the same time to complete the catalysis reaction. Additionally, it was found that the support gave to the peroxidase thermal (50ºC and 70ºC and storage (80 days) stability superior to the native enzyme. Finally, PVAG-PANIG-peroxidase was used during six times repeatedly and continuously. These results appoint to a promising material for the use of peroxidase assay with high precision and reduction of costs. [CNPq]

Key words: immobilization, peroxidase, PVAG-PANIG.