Activity staining of glutathione peroxidase after electrophoresis on native and sodium dodecyl sulfate polyacrylamide gels

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Abstract

Glutathione peroxidase (GSH-Px), from commercial bovine erythrocytes or ammonium sulfate fractionations (30-45%, 45-60%, 60-75% and 75-90% saturations) of ginger rhizome, was detected on polyacrylamide gels after native polyacrylamide gel electrophoresis (PAGE) or sodium dodecyl sulfate (SDS)-PAGE. The gel was submerged in a 50 mM Tris-HCl buffer (pH 7.9) containing 13 mM glutathione and 0.004% hydrogen peroxide with gentle shaking for 10-20 min. The GSH-Px activity was stained with a solution containing 1.2 mM 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) and 1.6 mM phenazine methosulfate (PMS) for 10 min. The clear zone of GSH-Px activity on a purple background was found in both native and SDS-PAGE gels. This fast and sensitive method can be used in the process of enzyme purification and characterization of mammalian or plant cells.