

عنوان مقاله:

Accurate and Precise Protocol to Estimate the Activity of Peroxiredoxin Enzyme

محل انتشار:

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خلاصه مقاله:

Background: Accurate estimation of Peroxiredoxin Enzyme (Prx) activity poses many complications and interferences. The present protocol is free of interference and provides an effective alternative for the assessment of peroxide with high sensitivity. The assay can be used in clinical pathology laboratories since it is simple, rapid, and inexpensive. The systematic reagent consisted of AFS/ASA which acted as a sensitive probe for peroxide. Methods: Prx activity was estimated by incubating samples in suitable concentrations of ۱,۴-dithio-DL-threitol (DTT) and hydrogen peroxide (H_2O_2) or t-Butyl hydroperoxide (t-BOOH), as the substrates. The enzymatic reaction was inhibited after incubation with a working reagent containing ammonium ferrous sulfate (AFS) and aminosalicylic acid (ASA). Results: Residual peroxide reacted with the working solution to form a brown-colored ferriaminosalicylate (FAS) complex with a maximum absorbance (λ_{max}) of ۴۲۵ nm. This protocol used sodium azide (NaN_3) to eliminate catalase interference and avoided using high concentrations of a strong acid to inhibit the Prx reaction. Conclusions: We concluded that the new protocol produced the same efficacy as the reference method since a strong correlation coefficient of comparison ($r > 0.99$) was found between both the FAS and ferrithiocyanate method

کلمات کلیدی:

.Amino Salicylic Acid, Ammonium Ferrous Sulfate, Dithiothreitol, Peroxiredoxin, T-Butyl Hydroperoxide

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