Title : Detection of Hydrogen Peroxide Using Fluorescent Technique.

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ABSTRACT

Hydrogen peroxide is an inorganic chemical compound with strong oxidizing properties. It is known for its bleaching ability and effectiveness in inhibiting the growth of bacteria. It is commonly used as an ingredient in hair dyes, oral care products, and teeth-whitening products. While hydrogen peroxide is not harmful when used in appropriate amounts and applied correctly, it is toxic in high concentrations. If touched or inhaled, it can damage cells and tissues. It is also a biomarker of oxidative stress in the body, which is associated with serious diseases such as cancer, diabetes, and cardiovascular diseases.

This study focuses on the measurement of hydrogen peroxide using a fluorescent technique. In this experiment, 4-hydroxyphenylacetic acid was used as the substrate, and horseradish peroxidase enzyme was used as the catalyst. The reaction time was set to 10 minutes in a phosphate buffer medium with a pH of 7.4 and a concentration of 10 millimolar. The fluorescent intensity emitted was measured in the wavelength range of 295 to 550 nanometers, with the peak emission detected at 414 nanometers. A standard curve was then constructed by plotting the fluorescent intensity against the concentration from 0 to 100 micromolar. It was found that the linear range was between 10 and 60 micromolar, with an R^2 value of 0.9918. Following this, hydrogen peroxide levels in real samples will be measured.

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