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Characterization of Peroxidase Enzyme from Water Spinach (*Ipomoea aquatica* Forssk.) Fraction

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Abstract

Peroxide enzymes are widely used as a reagent in many clinical diagnosis of analysis methods such as ELISA, immunoblotting, and immunochemistry. Water spinach (*Ipomea aquatica* Forssk) is a species of plant available abundantly in Indonesia, hence it is a potential source of peroxidase. In this study, the crude extract of water spinach leaves was known to contain peroxidase enzyme which was active toward hydrogen peroxide. A fraction of extract yielded from differential fractionation using ammonium sulfate at concentration 40-65% (F4) was known to be the most active. Characterization of specific activity of peroxidase of F4 for optimum pH and temperature was at pH 5 and 60°C. The Michaelis-Menten constant (Km) was 0,27 mg/mL and enzyme's catalytic rate (Vmax) was 2,16 mg/mL/min.

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*Keywords:*peroxidase; water spinach leaves; enzyme activity

1. Introduction

Enzymes are the functional units of cell metabolism. Working in a fixed sequence, enzyme catalyzes many reactions such as the disintegration of nutrient molecules and reactions that deposit and transform chemical energy. Through its activities, a well-coordinated enzyme system produces a harmonious relationship between different metabolic activities, which is necessary to sustain life[1].

Peroxidase is a member of oxidoreductase enzymes that catalyze wide varieties of oxidation-reduction reactions. The enzyme peroxidase is an enzyme group that is quite important, its use is very broad and includes a variety of

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