

Activity and stability of urease enzyme immobilized on Amberlite resin

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Abstract. Immobilization of enzymes is a good field of study to extend the life of enzyme and reduce the cost of the chemical processes, such as separation processes. Urease is an important enzyme with medical and industrial applications. The aim of the present study is to prepare an immobilized urease on a strong cation exchange resin (Amberlite IR120 Na) and study its activity and stability. We monitored the release of Na ions in the collected fractions and searching for enzyme in the fractions as indicators of immobilization by ion exchange phenomenon. Sodium is determined by using atomic absorption spectroscopy technique, while the enzyme concentration was tested by Bradford's method. Immobilized urease activity was evaluated by salicylate-hypochlorite method. The results indicated a complete immobilization of urease enzyme on the resin surface with reserving 92% of the activity of free enzyme. The immobilized urease enzyme on resin showed good stability and it has a 62% of its activity after 154 days of storage at room temperature. It is concluded that a new immobilized urease enzyme system is prepared with good enzyme activity and stability.

Keywords: Amberlite IR120 Na resin, urease, enzyme immobilization.

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