



Research article

## Investigation of some properties of immobilized urease from *Cicer arietinum* and its using in determination of urea level in some animal feed

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### Abstract

In this study, urease was isolated from *Cicer arietinum* and immobilized in calcium alginate beads. Various parameters, such as effect of thermal stability, temperature, optimum pH and pH stability, substrate concentration, reuse and storage stability were investigated and the results of the investigation were compared with the soluble enzyme. The activity yield of immobilization was calculated as 88.5 %. Optimum temperature and pH were found to be similar for both soluble and immobilized enzymes. It was observed that immobilization did not change pH and temperature prompt of the enzyme. pH and optimum temperature were found to be 7.0 and 50°C respectively. Improved thermal and pH stability of urease were achieved by immobilization. The  $K_m$  value for immobilized urease was found to be higher than that of the free enzyme. Immobilization of beads at optimum conditions enabled up to 5 repeated use of enzyme and maintained 58% of their initial activity. It was found that storage stability of immobilized enzyme was better than that of the free enzyme. Immobilized urease enzyme was tested for the determination of urea amounts in various animal feeds.