Immobilized Cephalexin Acylase

A1435573

Storage temperature: 2-8℃.

Introduction

It produces cephalexin from 7-ADCA (7-amino-3-deace-toxy-cephalosporanic acid) and PGM (phenylglycine methyl ester).

Standard

Activity: >200 U/g wet weight.

Size of immobilization support: 250~500μm (>95%).

Water content <65%.

Enzyme assay: One unit (U) represents the amount of enzyme required for producing 1μmol cephalexin per min in 50mM K-phosphate buffer containing 40mM 7-ADCA (7-amino-3-deace-toxy-cephalosporanic acid) and 40mM PGM (phenylglycine methyl ester), pH 7.0 at 28°C.

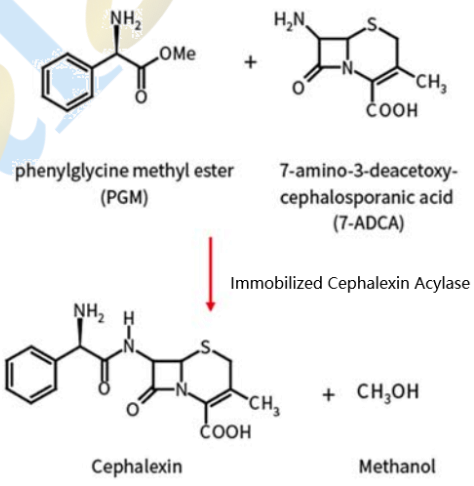
Application

Cephalexin production from 7-ADCA and PGM.

Characteristics

- High production of cephalexin.
- Low degradation activity of cephalexin and PGM.
- Fast enzyme reaction (reaction completed in 90 minutes).
- High stability (reusable more than 500 cycles).
- High production rate of cephalexin (more than 98.5%).

Scheme for enzyme reaction



Optional reaction conditions (Temperature, pH)

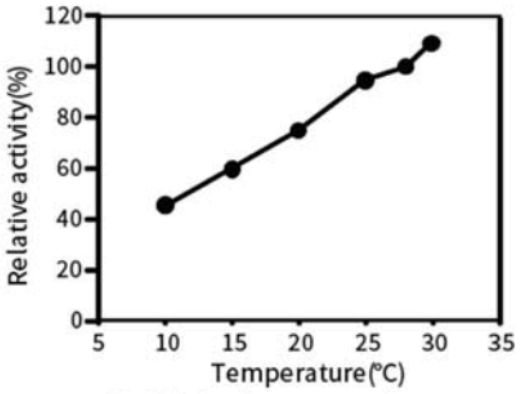


Fig 1. Optimal temperature for enzyme

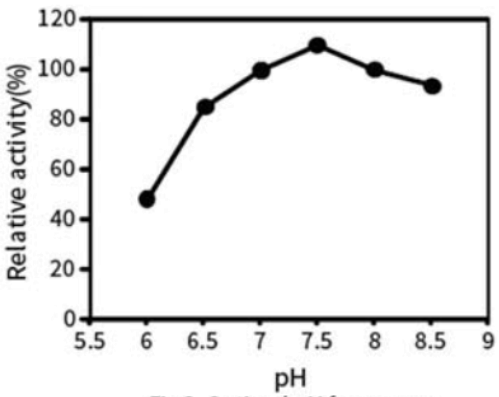


Fig 2. Optimal pH for enzyme

Production instruction

Category	Contents
Materials	● Synthesizing enzyme: Immobilized Cephalexin Acylase (200U/g wet, 61% water content) ● 7-ADCA , PGM·HCl ● Water ● Ammonia hydroxide(28%)
Condition	● pH: 7.5-8.0 ● Temperature: 10°C ● 7-ADCA : PGM: 350mM : 392mM(1:1.10) ● Enzyme: 1.0 fold of 7-ADCA ● Reaction solution: Water
Step	1. Remove the water after washing immobilized enzyme with water more than five times. 2. Dilute 7-ADCA(350mM) and PGM·HCl (392mM) with 90ml water and adjust pH to 7.5 withammonium hydroxide. 3. Pour 6.75g wet enzyme in conversion reactor. 4. Proceed synthetic reaction at 10°C and 550rpm after pouring substrates. 5. Extract every 10 minutes after 1 hour. Stop the reaction if conversion rate of 7-ADCA is more than 98.5%. 6. Take the reaction solution in reactor.

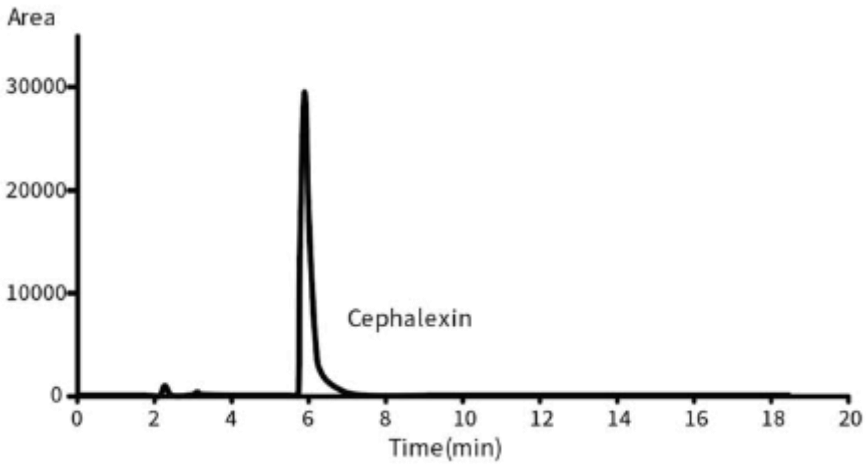


Fig 3. Cefradine production by Immobilized Cephalexin Acylase