

Immobilized Cefradine Acylase

A1436587

Storage temperature: 2-8°C.

Introduction

It produces cefradine from 7-ADCA (7-amino-3-deacetoxy-cephalosporanic acid) and DHME (D-dihydrophenylglycine methyl ester).

Standard

1. Activity: >50 U/g wet weight.
2. Size of immobilization support: 250~500µm (>95%).
3. Water content <65%.
4. Enzyme assay: One unit (U) represents the amount of enzyme required for producing 1µmol cefradine per min in 0.1M K-phosphatebuffer containing 20mM 7-ADCA and (7-ami-no-3-deacetoxy-cephalosporanic acid) and 20mM DHME(D-dihydrophenylglycine methyl ester), pH 7.5 at 28°C.

Application

Cefradine production from 7-ACDA and DHME.

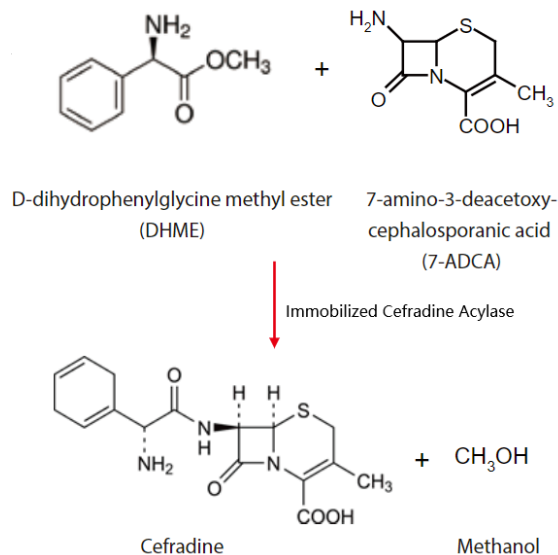
Characteristics

- High synthesis activity of cefradiner.
- Low degradation activity of ccefradine and DHME.
- Fast enzyme reaction(reaction completed in 90 mins).
- High yield synthesis of cefradine (>95%).

Reaction condition

- pH 8.0 ~ 8.3
- Temperature 10°C
- Solvent Water
- 7-APRA: HPGM 1:1.05-1.10
- Enzyme amount 7U/ml

Scheme for enzyme reaction



Optional reaction conditions (Temperature, pH)

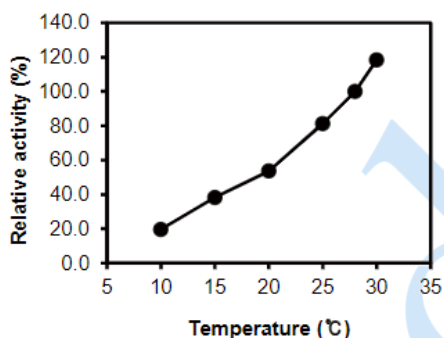


Fig 1. Optimal temperature for enzyme

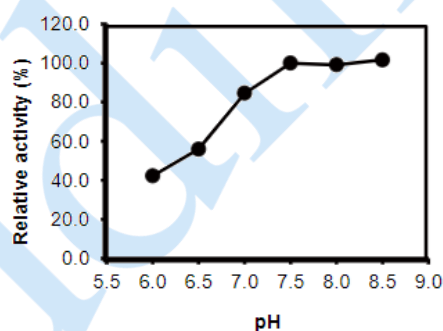


Fig 2. Optimal pH for enzyme

Production instruction

Category	Contents
Materials	- Synthesizing enzyme: Immobilized Cefradine Acylase (80U/g wet, 65% water content) 7-ADCA, DHME·HCl - Water - Ammonium hydroxide (28%)
Condition	- pH: 8.0-8.2 - Temperature: 10°C 7-ADCA: DHME: 350mM:385mM(1:1.10) - Enzyme: 7U/ml - Reaction solution: Water

Category	Contents
Step	1. Remove the water after washing immobilized enzyme with water more than five times.
	2. Dissolve 7-ADCA(350mM) with ammonium hydroxide and water , and then add DHME·HCl (385mM). Adjust pH to 8.0 and volume to 70ml.
	3. Pour 6.13g wet enzyme in conversion reactor.
	4. Proceed synthetic reaction at 10°C and 550rpm after pouring substrates.
	5. Extract every 60 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.

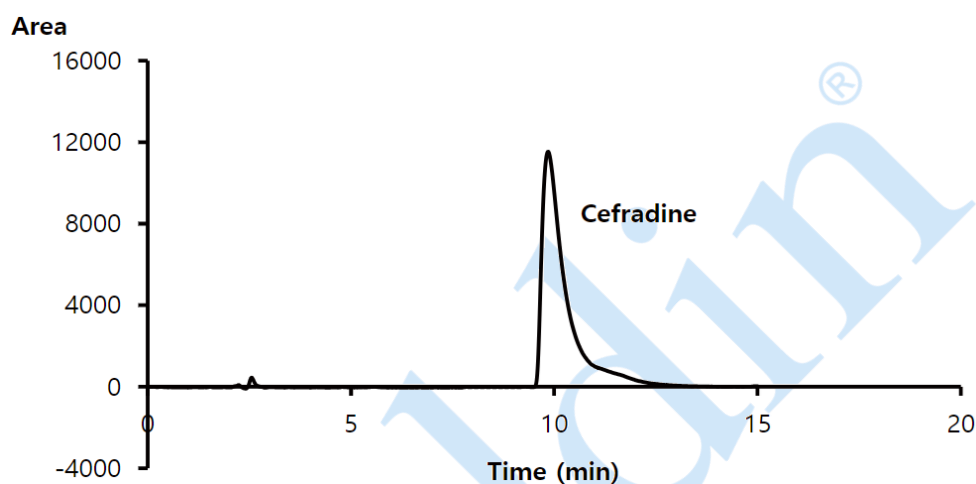


Fig 3. Cefradine production from Immobilized Cefradine Acylase