

OPTIMIZATION OF REACTION PARAMETERS OF CYCLODEXTRIN GLYCOSYLTRANSFERASE FROM *Bacillus licheniformis* ON CYCLODEXTRIN PRODUCTION

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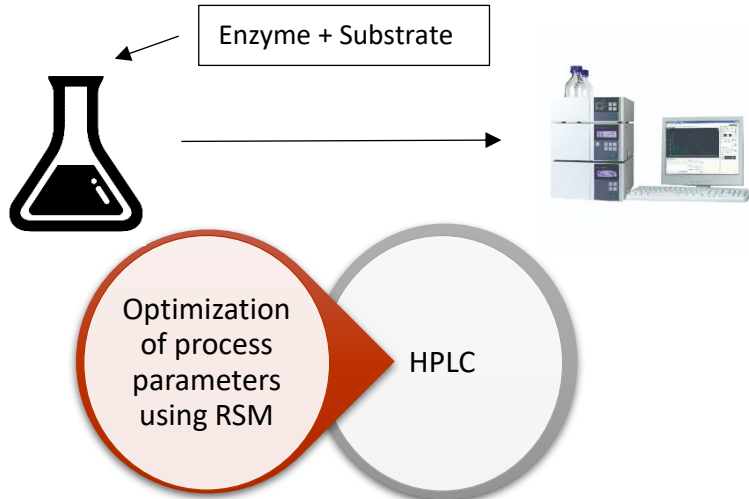
INTRODUCTION

- Cyclodextrin is produced from enzymatic degradation of starch.
- Improves guest molecule's chemical and physical properties.
- Optimization of the reaction parameter to maximize the production of CD.

OBJECTIVE

To optimize the reaction parameters of CGTase from *Bacillus licheniformis* on the CD production by response surface methodology (RSM).

METHODOLOGY

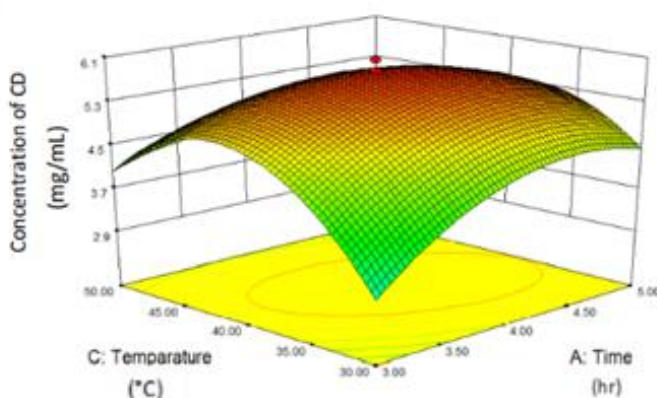


- Reaction time (3-5 hr)
- Temperature (30°C-50°C)
- pH (5-7)

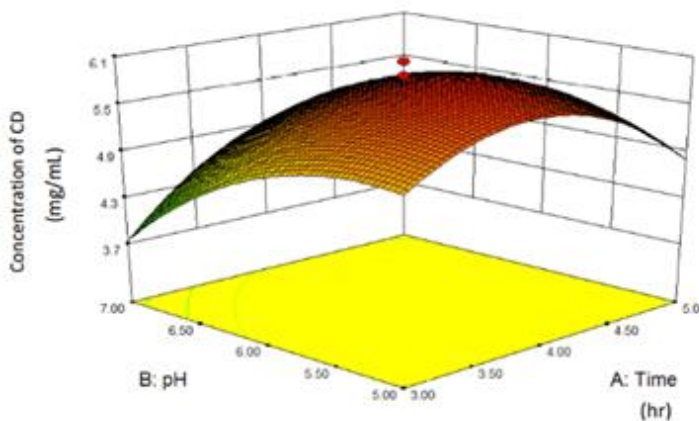
MOTIVATION

- CD is significant in food technology and human nutrition
- CD also plays its role in improvement of bioavailability and reduction of side effects in drug production.
- The optimization of process parameters such as pH, temperature and reaction time on the production of CD using CGTase was investigated in the present study using RSM to attain the desired response

RESULT & DISCUSSION



Response and contour curve of reaction time vs temperature with constant level of pH 6 and agitation rate 100 rpm

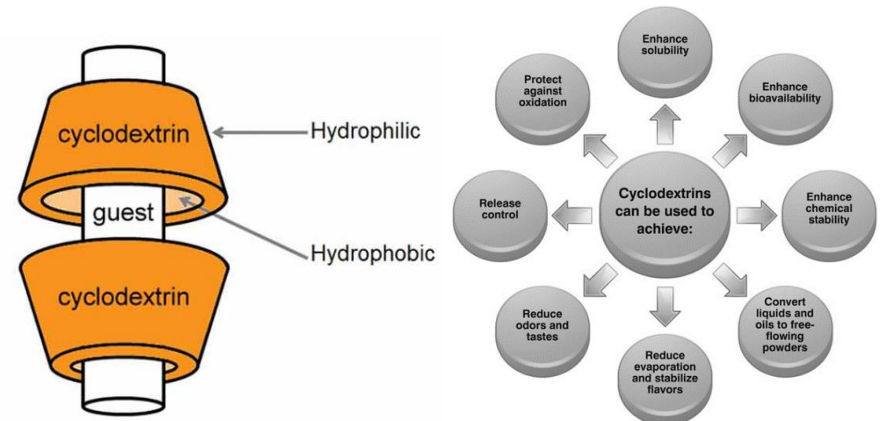


Response and contour curve of reaction time vs pH with constant temperature of 40 °C and constant agitation rate 100 rpm

	Optimization
Reaction parameters :	
Reaction time (hr)	4.05
pH	5.60
Temperature (°C)	39
Response :	
CD concentration (mg/mL)	
Actual value	6.20
Predicted value	5.92

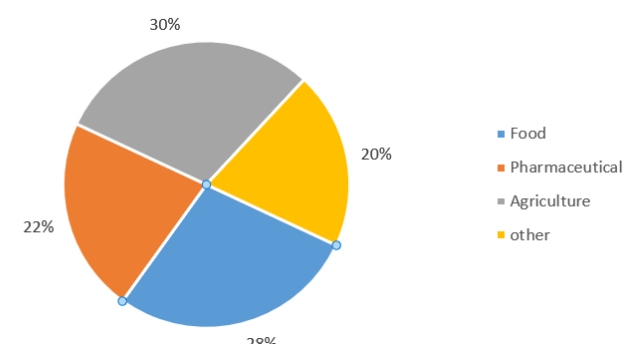
The CD production after optimization (6.20 mg/mL) showed 2.3-fold higher than the value before optimization process (2.52 mg/mL).

BENEFITS



MARKETABILITY & COMMERCIALISATION

Application of CD in Various Field



Global market growth of Cyclodextrin(2020-2027)

