

Xylanase Enzyme Production using Locally Isolated Strain with Ultrasonic Assisted Fermentation

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Abstract:

Ultrasonic assisted fermentation has been shown to improve the product yield; however, less attention has been given to the xylanase production via ultrasonic assisted fermentation. The purpose of this study was to investigate the conditions in which ultrasonic has been employed to enhance fermentation reactions of interest to xylanase production. Previously, the xylanase production from locally isolated strain identified as *Bacillus Badius* was successfully carried out at an optimum condition. In this study, xylanase production was further explored by incorporated ultrasonic assisted fermentation. The study was conducted by varying the ultrasonic process parameters including treatment time and duty cycle. Within the studied range, the highest xylanase production was 9.21 U/mL at duty cycle of 10%, amplitude of 2% and treatment time of 25 min. However, the production was 21% lower than that the conventional fermentation. This is due to unoptimized condition of the ultrasonic assisted fermentation as compared to the conventional one. Ultrasonication at the best process parameters is an effective and feasible way to enhance xylanase activity. In the future, we are looking forward to optimize the ultrasonic assisted fermentation to maximized xylanase production.

Keywords: Renewable Biocomposite, Drug Delivery; Ultrasonication; Tensile Strength; Disintegration Test; Antibiotic Stability

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