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Detoxification of mycotoxin patulin by the yeast *Rhodotorula mucilaginosa*

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Abstract

Patulin is a kind of mycotoxin, which occurs in food industry frequently and constitutes serious threats to human health. In this work, a strain of yeast with patulin degradation was screened, and identified as *Rhodotorula mucilaginosa* (*R. mucilaginosa* JM19) by 26S rDNA D1/D2 region gene sequencing. Subsequently, the patulin detoxification process was analyzed by HPLC-UV. The results showed that patulin was degraded into desoxypatulinic acid by *R. mucilaginosa* JM19. In addition, patulin degrading capacity of *R. mucilaginosa* JM19 was strongly dependent on temperature, cell density and initial patulin concentration. Up to 90% of patulin was significantly reduced after 21 h in MES buffer at 35 °C when cell density of yeast was above 1×10^8 cells/L. The *R. mucilaginosa* JM19 is capable of detoxifying over 50% of initial patulin concentration at 100 μg/mL. The detoxification activity of *R. mucilaginosa* JM19 toward patulin would be a potential approach for the control of patulin contamination in food and raw materials.

Keywords: *Rhodotorula mucilaginosa* JM19*;* Patulin; Mycotoxin; Detoxification; Degradation compounds

1. Introduction

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