

## Degradation of Poly - $\beta$ - Hydroxybutyrate by *Trichoderma asperellum*

**Authors :** Nuha Mansour Alhazmi

**Abstract :** Replacement of petro-based plastics by a biodegradable plastic are vastly growing process. Poly- $\beta$ -hydroxybutyrate (PHB) is a biodegradable biopolymer, synthesized by some bacterial genera. The objective of the current study is to explore the ability of some fungi to biodegrade PHB. The degradation of (PHB) was detected in Petri dish by the formation of a clear zone around the fungal colonies due to the production of depolymerase enzyme which has an interesting role in the PHB degradation process. Among 10 tested fungi, the most active PHB biodegraded fungi were identified as *Trichoderma asperellum* using morphological and molecular characters. The highest PHB degradation was at 25°C, pH 7.5 after 7 days of incubation for the tested fungi. Finally, the depolymerase enzyme was isolated, purified using column chromatography and characterized. In conclusion, PHB can be biodegraded in solid and liquid medium using depolymerase enzyme from *T. asperellum*.

**Keywords :** degradation, depolymerase enzyme, PHB, *Trichoderma asperellum*

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