

**PRODUCTION OF A FUNGICIDE BY USING
CHITOSAN EXTRACTED FROM CUTTLFISH
GLADIUS**

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ABSTRACT

The shellfish industry generates huge amount of shell waste. During the processing of cuttlefish mostly meat is taken for usage and gladius is removed as waste which usually causes environmental pollution. Gladius waste contains chitin, protein and minerals. Therefore waste can be utilized as valuable source of chitin and its derivative chitosan. Chitin can be obtained from gladius by demineralizing and deproteinizing the cuttlefish gladius. Chitosan can be produced by deacetalizing of chitin.

The main objective of this study is identification of antifungal property of chitosan against growth of *Fusarium* species. *Fusarium* species cause dry rot of potato and post harvest potato loses.

Fusarium was isolated from infected potato and cultured on PDA and allowed to grow at 25 °C.

Extracted chitosan was dissolved in 0.25 N HCl and prepared 1 mgml⁻¹, 2 mgml⁻¹, 3 mgml⁻¹, 4 mgml⁻¹, 5 mgml⁻¹ and 6 mgml⁻¹ concentration solutions. Prepared different concentrations of chitosan solutions were poured into separate PDA plates and placed *Fusarium* mycelia on those plates. Diameters of the radial growth of *Fusarium* were measured at each concentrations with three replicates after 3, 6, 9 days intervals from inoculation and analyzed using ANOVA with General linear model, pair wise comparison to test the significant effect on *Fusarium*. Minimum diameter of the radial growth of the fungus was showed at the 6 mgml⁻¹ and chitosan concentration had significant effect ($p \leq 0.05$) on diameter of the radial growth of *Fusarium*.

Chitosan has an antifungal effect and therefore has a potential to use as a fungicide.

Key words: Chitin, Chitosan, Environment, *Fusarium*, Gladius.