

Biodegradation of Gaseous Chlorobenzene by White-rot Fungus *Phanerochaete chrysosporium*¹

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Objective To evaluate the effect of white rot fungus *Phanerochaete chrysosporium* on removal of gaseous chlorobenzene. **Methods** Fungal mycelium mixed with a liquid medium was placed into airtight bottles. A certain amount of chlorobenzene was injected into the headspace of the bottles under different conditions. At a certain interval, the concentrations in the headspace were analyzed to evaluate the degradation of chlorobenzene by *P. chrysosporium*. **Results** The degradation effects of *P. chrysosporium* on chlorobenzene under different conditions were investigated. The difference in the optimum temperature for the growth of the fungi and chlorobenzene degradation was observed. The data indicated that a lower temperature (28°C) would promote the degradation of chlorobenzene than the optimum temperature for the growth of the fungi (37°C). A low nitrogen source concentration (30 mg N/L) had a better effect on degrading chlorobenzene than a high nitrogen source concentration (higher than 100 mg N/L). A high initial concentration (over 1100 mg/m³) of chlorobenzene showed an inhibiting effect on degradation by *P. chrysosporium*. A maximum removal efficiency of 95% was achieved at the initial concentration of 550 mg/m³. **Conclusion** *P. chrysosporium* has a rather good ability to remove gaseous chlorobenzene. A low nitrogen source concentration and a low temperature promote the removal of chlorobenzene by *P. chrysosporium*. However, a high initial chlorobenzene concentration can inhibit chlorobenzene degradation.

Key words: Chlorobenzene; White-rot fungus; *Phanerochaete chrysosporium*; Biodegradation

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