A COMPARITIVE STUDY ON IMMOBILISED MYCELIUM AND SPORES OF 
*P. CHRYSPORIUM* IN PVA-ALGINATE-SULFATE BEADS FOR TEXTILE 
DYES EFFLUENT TREATMENT.

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Specially dedicated to To my beloved family:

Espindada and Ami
Shah Khalid
Shah Hassan
Naveed-u-llah khan
Bilal ahmad khan
Azan

And fiancée

Noor ul ain
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Effluents discharging from the textile and dye industries to the neighbouring water are causing serious health concern to the environment and are getting attention of water regulatory agencies. Among the recent proposed treatment methods for treatment of textile effluents biological treatment has gain more attention because of its cheap and effective approach. Biotreatment with white rot fungi seems to be a viable option in the existing biological treatment process. This study, investigates the treatment of textile effluents with immobilized spores and mycelium of Phanerochaete chrysosporium separately in PVA-alginate-sulfate beads. Screening for the dye discoloration was done by using Design Expert 9.0.3.1. Screening process was conducted by using a two level factorial programmed with three factors namely temperature, number of beads loaded and initial dye concentration. The responses namely colour and COD reduction, enzymatic activities, reusability, storage stability and toxicity were thoroughly investigated to determine the system efficiency. Results revealed that optimum colour reduction and enzyme activity was achieved in immobilized spores compared to immobilize mycelium at 37 °C, 10gm beads and 300 mg/L dye concentration also the enzyme activity was comparatively high in immobilized spores as compared to immobilized mycelium. The reusability test also revealed that the immobilized fungus could be reused for up to 5 times to treat dye effluents. Toxicity test also proved the ability of immobilized cells in reduction of toxicity level. In conclusion, spores and mycelium were successfully immobilized in PVA-alginate-sulfate beads and they both serve as a potential mean and methods for treating textile dye effluents.
ABSTRAK