

# Isolation and Screening of Xylanolytic Fungi from Textile Sizing Site

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**Abstract:** Filamentous fungi play a significant role due to their capacity for high enzyme production. Numerous enzymes generated by fungi are linked to biotechnological uses across various industries. This research investigates the isolation and characterization of fungi that produce xylanase from environmental samples collected from a textile sizing facility, emphasizing their biotechnological capabilities. The objective of this study was to isolate and assess the xylanolytic fungi found in textile sizing areas in Bhiwandi, India. Soil samples were gathered, and fungal colonies were separated using serial dilution methods. From a total of 120 fungal isolates, 90 were tested for their xylanase production ability on minimal agar medium with 0.5% BeechwoodXylan as the carbon source. The screening process identified that 46 isolates displayed xylanolytic activity, demonstrated by the formation of halo zones surrounding the colonies, suggesting their potential for xylanase production. Microscopic examination revealed that the majority of the isolates were from the genera *Aspergillus*, *Trichoderma*, *Penicillium*, *Fusarium*, and *Rhizopus*. The research underscores the significance of xylanase enzymes and their extensive applications across various industries, such as food, feed, baking, pulp, and paper industries. It emphasizes the need for efficient and economical xylanase synthesis as well as the ability of microorganisms particularly fungito fulfil this requirement. The textile sizing sites are favourable habitats for xylanolytic microorganisms. This study advances the knowledge of microbial diversity in waste environments and highlights the possibility of using these organisms to produce sustainable enzymes, which will help advance environmental cleanup and bioprocessing initiatives

**Keywords:** Xylanolytic, Textile Sizing Site, *Aspergillus* sp., *Trichoderma* sp., Hydrolytic enzymes, Bioremediation.

