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SELECTION OF SUITABLE SOIL FUNGUS FOR BIODEGRADATION OF POLYETHANE

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ABSTRACT

An experimental study was carried out to select a suitable fungus for biodegradation of polyethane. For this purpose, different fungal strains namely *Aspergillus niger* X₃, *Rhizopus arrhizus* X₁₀, *Agaricus campestris* X₆ and *Agaricus bisporus* X₁₂ were employed to investigate their potency to degrade polyethane at different time intervals. Among them, *Aspergillus niger*X₃ showed maximum potential in this case which degrade polyethane maximally after 14 days of incubation.

INTRODUCTION

Polyethane is non-metallic moldable compound, creates environmental hazards due to its non-degradable nature¹. It is used extremely in the production of plastics which are used in packaging of different products². The polyethane wastes emerge from domestic and industrial refuse³. Because of its long term persistence as plastics for even several decades, civil society is now more sensitive to the impacts of discarded plastics on the environment⁴. Very few attempts have been made for biodegradation of plastics⁵⁻¹⁰.

Considering the facts our present study was intended to investigate the potency of different fungal strains namely *Aspergillus niger* X₃, *Rhizopus arrhizus* X₁₀, *Agaricus campestris* X₆ and *Agaricus bisporus* X₁₂ for biodegradation of polyethane.

MATERIALS AND METHODS

Microorganism employed: 5ml of inocula of different fungal strains (8×10^9 cells/ml) namely *Aspergillus niger* X₃, *Rhizopus arrhizus* X₁₀, *Agaricus campestris* X₆ and *Agaricus bisporus* X₁₂ were used individually as inocula.

Medium composition: 50 ml of complex medium containing 15% potato scale hydrolysate was used as fungal growth medium. pH was adjusted to 5.0.

RESULTS AND DISCUSSION

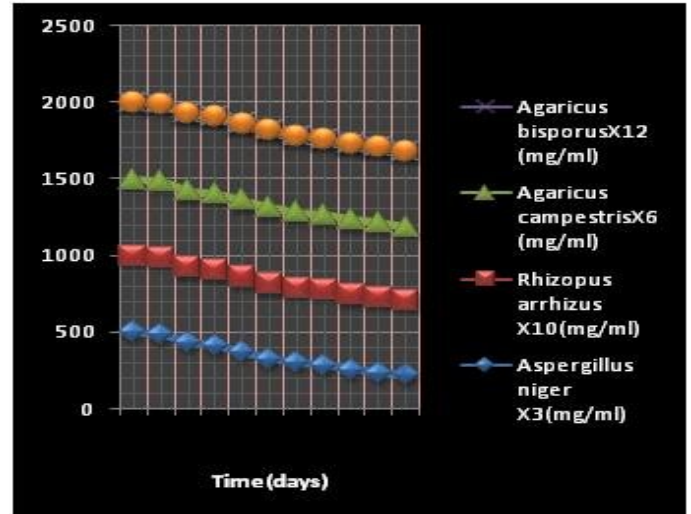


Fig 1: Biodegradation of plastic by different fungus

From fig.1 it can be easily interpreted that, among different fungal strains studied, *Aspergillus niger* X₃, was proved to be the most potent strain which can able to utilize polyethane as a source of its nutrient. However, further study is needed to optimize the process and also to determine the biochemical changes in the broth during this degradation.

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