



Preservation of Soil fungi in different substrates

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ABSTRACT

To study different preservation method for soil fungi. It was observed that out of six different substrates viz., Til oil, Mustard oil, Groundnut Oil and Rattan Jot Oil. Paraffin oil and sterilized distilled water. Mustard oil was inhibitory to all soil fungi, may be due to presence of some chemical abstracts (sulfur)

Sterilized distilled water and paraffin oil were found best substrates for fugal preservation. It maintains fungal viability and sporulating capability. This method is convenient and economic for fungal preservation. During the course of the study regeneration potential was observed in five soil fungi i.e. *Aspergillus flavus*, *Aspergillus niger*, *Curvularia ovoidea*, *Fusarium solani* and *Penicillium chrysogenum* in six different substrates viz. Groundnut oil, Mustard oil, Til oil, Rattan jot oil, Paraffin oil, and sterilized distilled water.

Key Words: Fungi, sterile water, *Aspergillus*, Paraffin oil

.Castellani (1939, 1967), Ellis (1979) have observed that sterilized distilled water is best substrate for maintain viability and sporulating capability of fungal culture, present study also confirms this finding. In present study Paraffin oil was also used as substrate for fungal culture preservation, similar work have done by number of workers, Mendas da silva et al (1994) observed viability and morphological alterations of *Paracoccidioides brasiliensis* strains preserved under mineral oil for long periods. Schonborn (1989), Barnes (1984), Fernandes (1982), Perrin (1979) working with different fungi preservation under mineral oil. Singh (1958), Crespo (2000) and Nakasone (2004) worked on different preservation method like freezing, lypholization, mineral oil, sterilized distilled water and different substrates.

Material and Methods

Preservation of Culture: -

In present investigation different methods were used for preservation of fungal culture: -

Regular transfer on media: - periodic transfer on fresh sterile media maintained fungal cultures and stored at 28-30⁰c to keep the cultures viable.

Storage at low temperature: -Fungal cultures were stored in low temperature (freeze storage).

Over laying with mineral oil: - Fungal cultures were preserved by sterilized mineral oil at room temperature, mineral oil must be above the tip of the slant surface.

Storage in different oil: - Different sterilized oils (Ground nut, Mustard, Til and Rattan jot) preserved fungal culture at room temperature, slant surface was over laying with sterilized oil.

Storage in sterilized distilled water: - Sterilized distilled water was used for preservation of fungal culture at room temperature.

Water, mineral oil and other oils level also checked time to time.

Result and Discussions

Table 1 showing regeneration potential of five different soil fungi in different substrates:

After three month- All the five soil fungi did not show regeneration potential in- Mustard oil, whereas *Aspergillus flavus*, *A. niger* and *Fusarium solani* showed regeneration potential in rest of all substrates. *Curvularia ovoidea* showed growth after seven days in Rattan jot oil but normal growth in Groundnut oil, Til oil, sterilized distilled water and Paraffin oil. *Penicillium chrysogenum* gave its regeneration in Groundnut oil as well as sterilized distilled water and Paraffin oil, but growth was absent in Mustard oil, Til oil and Rattan jot oil.

After six month- Similar observation was observed after six month that was no growth was observed in Mustard oil, whereas *Aspergillus flavus*, *A. niger* gave its regeneration potential in rest of all these substrates. *Curvularia ovoidea* lost its regeneration potential in Rattan jot oil and gave slow growth in Til oil, whereas it gave normal growth in Groundnut oil as well as sterilized distilled water and Paraffin oil. *Fusarium solani* showed regeneration in Groundnut oil as well as sterilized distilled water and Paraffin oil within three days, whereas in Rattan jot oil growth was observed after seven days. *Penicillium chrysogenum* gave normal

growth in Groundnut oil, sterilized distilled water and Paraffin oil. Growth was checked in Til and Rattan jot oil.

After nine month- Similar trend was observed after nine month for *Aspergillus flavus*, *A. niger*, whereas growth was not observed of all the fungi in Mustard oil. *Curvularia ovoidea* loses its potential in Til and Rattan jot oil, whereas slow growth was observed in Groundnut oil. Its regeneration potential was observed in sterilized distilled water as well as Paraffin oil.

Fusarium solani gave normal growth in Groundnut oil, Til oil, sterilized distilled water and Paraffin oil, whereas slow growth was observed in Rattanjot oil. *Penicillium chrysogenum* showed similar trends as in six and nine month.

After one year- All the fungi did not show any regeneration in Mustard oil, whereas *Aspergillus flavus* and *A. niger* showed similar trend after one year. All the fungi regenerated in sterilized distilled water as well as Paraffin oil, whereas *Curvularia ovoidea* showed similar trend as observed after nine month. *Fusarium solani* and *Penicillium chrysogenum* regenerated after seven days in Groundnut oil and loses its potential in Rattan jot oil, whereas regenerated in sterilized distilled water and Paraffin oil. *Fusarium solani* showed regeneration in Til oil but *Penicillium chrysogenum* lost its regeneration potential in Til oil.

It was found that mineral oil and sterilized distilled water are best substrates for fungal culture preservation. This method is convenient and inexpensive, so in present investigation these two substrates were taken for preservation of all fungal culture.

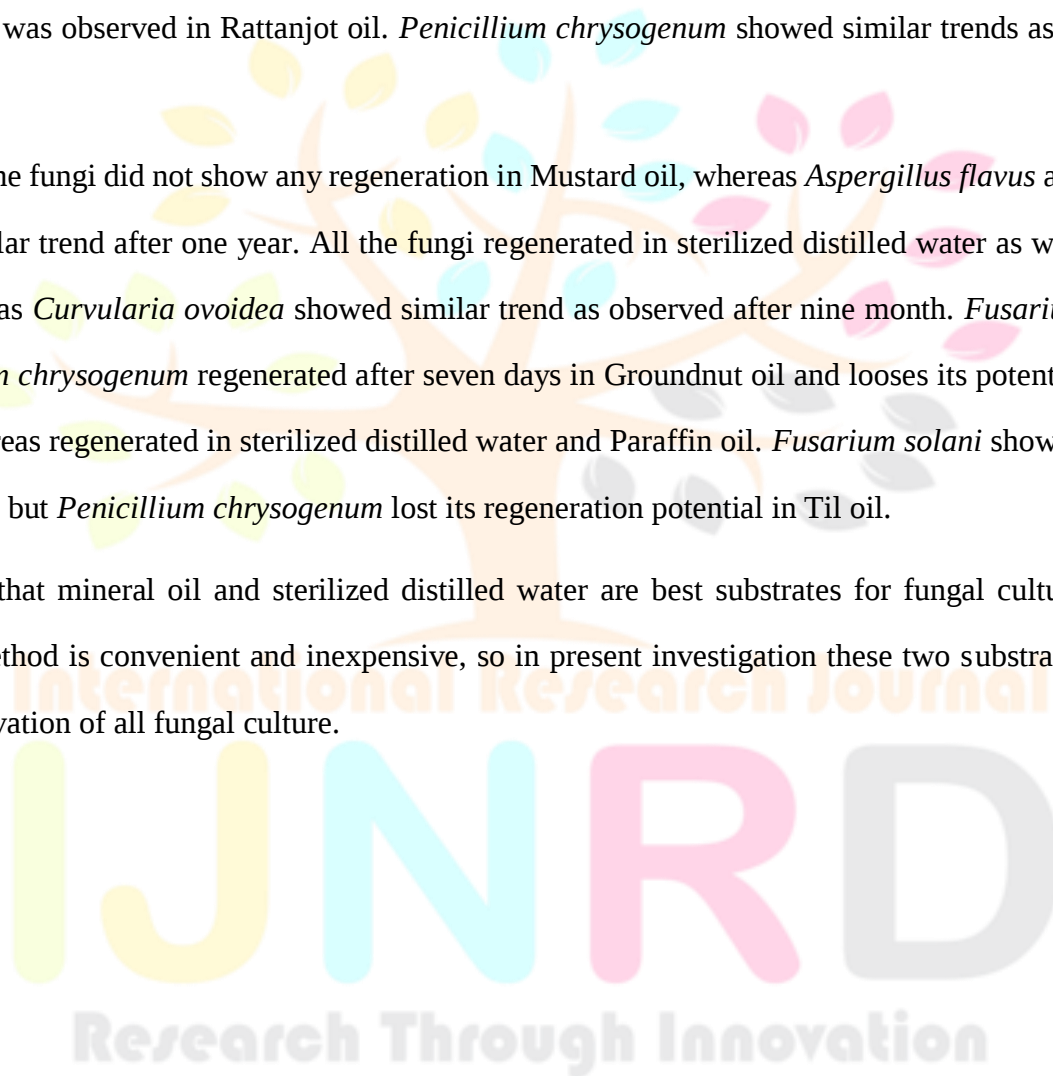


Table 1. Studies on regeneration potential of preserved fungi in different substrates

Fungi	After three month						After six month						After nine month						After one year					
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
<i>Aspergillus flavus</i>	+	-	+	+	+	+	+	-	+	+	+	+	+	-	+	+	+	+	+	-	+	+	+	+
<i>Aspergillus niger</i>	+	-	+	+	+	+	+	-	+	+	+	+	+	-	+	+	+	+	+	-	+	+	+	+
<i>Curvularia ovoides</i>	+	-	+	+	+	+	+	-	+	-	+	+	+	-	-	-	+	+	+	-	-	-	+	+
<i>Fusarium solani</i>	+	-	+	+	+	+	+	-	+	+	+	+	+	-	+	+	+	+	+	-	+	-	+	+
<i>Penicillium chrysogenum</i>	+	-	-	-	+	+	+	-	-	-	+	+	+	-	-	-	+	+	+	-	-	-	+	+

- A Groundnut oil
 B Mustard oil
 C Til oil
 D Rattan jot oil
 E Sterilized Distilled Water
 F Paraffin oil

- Growth absent
 + Growth after three days
 +* Growth after seven days

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