INFLUENCE OF TEMPERATURE AND CULTURE MEDIA ON THE GROWTH OF THE FUNGUS *PAECILOMYCES LILACINUS*

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The fungus *Paecilomyces lilacinus* (Thom.) Samson is an effective parasite of root-knot nematode eggs and so provides a possible potential alternative to chemical control of this nematode (Jatala, 1985). Production in great quantities of the fungus requires the best knowledge of two important factors : the most suitable growth medium and the optimal temperature. These two factors have been studied for *P. lilacinus.*

Materials and methods

In laboratory test, the effect of temperature on the radial growth of *P. lilacinus* was studied by inoculating 9 cm plates of potato dextrose agar with 1 cm diameter mycelium piece of *P. lilacinus* and incubated at 5, 10, 15, 20, 25, 30, 32, 34 and 35°, and colony diameters (cm) and number of spores/cm³ were determined. Four plates were placed in each temperature.

To study the effect of different media on *P. lilacinus* growth 50 g of each of rice grains (peeled and unpeeled), wheat, barley and corn were sooked in water for 12h. Seeds were then dried and placed in Erlenmeyer flasks containing 3 g of $CaCO_3$ and 60 ml distilled water. Flasks were then sterilized in an autoclave at 110° for 40 minutes, and inoculated with discs of 1 gram containing mycelium of *P. lilacinus.* Each treatment was replicated four times and the culture media were maintained at 20° for seven days after which fungus growth was determined and number of spores from spore suspension (1 gram fungus diluted in 30 ml distilled water)/cm³ counted.

Results

Results show that the optimum temperature for radial growth and spore production of *P. lilacinus in vitro* was in the range 20-25° (Tab. 1). At 34° poor mycelial growth occurred (after twelve days) with no spore production, however, mycelial growth was reduced when temperature was less than 20° or higher than 25°. The optimal temperature for mycelial growth (20-25°) corresponded well with the temperature at which greatest nematode reduction occurred (Mankau, 1964; Stirling 1979).

Peeled rice grains proved to be the best growth medium for the fungus *P. lilacinus* (Tab. 2). Unpeeled rice, wheat and barley were also good media for this fungus but corn was not.

Table 1

Colony diameter (cm) and number of spores/cm³ of *Paecilomyces lilacinus* grown on potato dextrose agar at various temperatures for one week

Temperature	*Radial fungal growth (cm)**	*Spores number per 1 cm³**
5°	1	0
10°	2-3	427
15°	3-5	470
20°	9	623
25°	8	579
30°	5	257
32°	2.2	0
34°	1.2**	0
35°	1**	0
L.S.D. 1 %	0.6	97

* Means of four replicates.
** Growth after 12 days.

Table 2

Mycelial growth and number of spores/cm³ of the fungus *P. lilacinus* maintained at 20° for 7 days on different media

Media	*Mycelial growth*	*Spores number per 1 cm³*
Peeled rice grain	++*	609
Unpeeled rice grain	+++	714
Wheat	++	618
Barley	++	597
Corn	——**	0

* Positive.
** Negative mycelial growth.

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