

STUDIES ON THE PHYSIOLOGY OF HIGHER FUNGI. XI. EFFECT OF DIFFERENT MEDIA ON THE SPORE GERMINATION OF *POLYPORUS CERVINO-GILVUS* JUNGH.

The phenomenon of spore germination is very much important in the study of the biology of the pathogenic fungi as the penetration and disease establishment in the host is achieved through the germ-tubes in most cases. The researches on the spore germination of fungi have been critically reviewed by Gottlieb (1950, 1964), Cochrane (1958), Sussman (1965 1966), Fries (1966), and Burnett (1968). Now it is an established fact that nutritional factors along with the environmental factors regulates the processes which control spore germination. In the present investigation, the role of nutritional factors on the spore germination of *Polyporus cervino-gilvus* Jungh has been taken up in order to throw some more light on this line of research.

Fresh basidiocarps of *Polyporus cervino-gilvus* have been collected from the logyard of Shalimar, Howrah, which have been found to be growing luxuriently on the logs of *Shorea robusta* Gaerten f. . From these basidiocarps, enormous number of spore are obtained in sterile Petri dishes aseptically. These spores are then properly maintained as stock for this study.

The germination is done in a hanging-drop culture vessels, viz., van Tieghem cell. (van tieghem, 1875). The inoculation has been done by preparing an inoculum suspension in each case and the concentration of the inoculum (ca 3×10^5 / ml) has been maintained uniform throughout the experiment by the help of a Beckman Densitometer. The effect of the following media, viz., distilled water, host-wood decoction (50 gm of dry wood chips is immersed in 1000 ml of distilled water and autoclaved at 15 lb pressure for 20 minutes filtered, made upto 1000 ml with distilled water and filtered aseptically through a Sintered Glass crucible, IG-5), 1 percent malt extract, 1 percent glucose, 1 percent dextrose, and potato-dextrose solution (400 gm peeled potatoes extract mixed with 20 gm of dextros in 100ml), on the spore germination of *P. cervino-gilvus* have been evaluated. All the experimental sets are incubated for 30 days at 30°C under diffused laboratory light and pH of the media are adjusted to 6.0 with N/15 phosphate buffer. Sufficient sets have been inoculated to provide five replicates for each experiment. Every six hours intervals, five replicates of each treatment have been observed and the percentage of the spore germination has been counted by a Net Occular Micrometer under microscope. Latent period of germination has been observed in each case at every hour interval.

The result thus obtained are presented in Table 1.

Table 1. Data (mean) showing the effect of different media on the spore germination of *Polyporus cervino-gilvus* at different incubation periods.

Media	L.T.G. (Hrs)	Percentage of germination Incubation period (Hrs)			
		12	18	24	30
Dist water	24			6	9
Host-wood decoction	6	18	37	65	78
1% Maltextract	12	6	27	46	62
1% Glucose	9	10	30	54	69
1% Dextrose	11	8	30	46	62
Potato-dextrose solution	9	10	18	25	46

From the Table 1, it is evident that optimum source of media for spore germination is *host-wood decoction* medium followed by *1 percent glucose*, *potato-dextrose solution*, and *1 percent malt extract*. *Distilled water* has negligible effect on the spore germination of this fungus. The latent time germination is minimum in *host-wood decoction* in comparison to other media.

The observations reveal that the spore of the test-fungus can germinate readily and as such not handicapped by ecological factors. It further reveals that spores have food reserved in them for germination. The stimulatory effects of *host-wood decoction*, *glucose* and *potato-dextrose* on germination indicate that the germination is an energy requiring process depending on the presence of suitable substrate and of different required enzymes in sufficient concentrations within the spore cells, to produce the necessary critical amount of energy for the transformation of spore wall into germ-tube. In case of *host-wood decoction* the L.T.G. is minimum which suggests that some stimulatory substance must be present in this medium which triggers the process of spore germination. Further research works are in progress to reveal this phenomenon.

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