

A PRELIMINARY NOTE ON VITAMIN DEFICIENCY IN *POLYSTICTUS SANGUINEUS* (L.) MEY.

By ASOKE KUMAR SINHA

Department of Botany, Presidency College, Calcutta

It is now a well established fact that most of the fungi require for their growth one or more vitamins (Lilly and Barnett, 1951). Some fungi have the ability to synthesize certain vitamins but others must depend upon a supply from the substrate on which they grow. The response of *Polystictus sanguineus* (L.) Mey., growing in pure culture, to an exogenous supply of four vitamins is reported in this paper.

This investigation was made with a culture obtained from a freshly collected specimen by tissue-culture method. A glucose-asparagine medium as described by Sinha (1956) and previously found to be a good growth-supporting medium for this fungus was used throughout. In its preparation the basal medium, minus micro essential elements, was boiled with activated charcoal (5g. per litre) to remove any vitamin present. Micro essential elements and vitamins were added after this treatment. Vitamins used in this investigation were added to the medium in the following concentrations: thiamine, 100 μ g./litre; biotin, 5 μ g./litre; pyridoxine, 100 μ g./litre and nicotinamide, 100 μ g./litre. The fungus was tested in a series of six different treatments. Four media were prepared and in each of them one vitamin was absent. In addition, 2 control media were employed, one consisting of basal medium with all 4 vitamins and the other without any vitamin. The pH of the medium was adjusted to 6.0 in each case. 20 ml. portions of media were distributed into Erlenmeyer flasks of 150 ml. capacity. Sterilization of the medium was done by autoclaving for 15 minutes at 15 lb. pressure. Replicates of 6 flasks were employed for each treatment.

Thin and uniform discs (5 mm. in diameter) cut out from the advancing region of actively growing colonies of the test fungus on potato-dextrose-agar medium were used as inocula. The cultures were incubated at $25 \pm 0.5^\circ\text{C}$. in total darkness for a period of 14 days and kept without shaking. After harvesting the mycelium was dried to a constant weight at 90°C . The results reported as milligrams of dry mycelia, being the averages of 6 cultures, are recorded in the following table.

Table 1. *Growth of Polystictus sanguineus in 20 ml. of liquid glucose-asparagine medium supplemented with various vitamins. Incubation period—14 days.*

Vitamins added	Dry weight in milligrams
All vitamins	47.4
All minus thiamine	10.83
All minus biotin	54.2
All minus pyridoxine	58.8
All minus nicotinamide	54.6
None	3.9

It becomes evident from the data that *Polystictus sanguineus* has a requirement for thiamine only. In the absence of thiamine complete inhibition of growth does not take place but the organism grows very slowly. *Polystictus sanguineus*, therefore, appears to have partial deficiency for thiamine. In this case partial deficiency is nearly total and a very slow rate of thiamine synthesis is indicated. Little difference in growth on different media containing thiamine indicates that partial deficiencies for biotin, pyridoxine and nicotinamide do not exist for this fungus. In the control series with vitaminless medium a slight growth was recorded. This naturally leads to a suggestion that thiamine synthesis by *Polystictus sanguineus* may be dependent upon the presence in the medium of one or more of the 3 other vitamins used in this investigation.

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