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EFFECT OF SOME VITAMINS ON GROWTH OF *FOMES LIVIDUS* KALCHBR. IN CULTURE

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It is an established fact that fungi require minute amount of vitamins or growth factors for their normal growth, reproduction and other vital processes. They may be dependent on or independent of exogenous supply of these vitamins. According to Robbins and Kavanagh (1942) the exogenous requirement or deficiency of a fungous for a specific vitamin may be "absolute or conditioned" and it may be single or in multiples, complete or partial.

Considerable amount of work in this line of research has already been done on higher Basidiomycetes. Kogl and Fries (1937), Fries (1938, 1950), Robbins and Kavanagh (1942) and others demonostrated that thiamine deficiency was common in basidiomycetes. Some of these fungi were capable of synthesizing the thiazole half of the molecule and thus required only the pyrimidin half (Norkrans, 1950 and Riggenback, 1957) while others were able to synthesize pyrimidin and required thiazole only (Nocker and Reed, 1943). Lilly and Barnett (1948, 1949) experimented with several species of basidiomycetes and found that some of them were partially deficient for thiamine while several others were deficient for one or more vitamins. Fries (1938) and Robbins (1950) studied the vitamins requirements of some species of Polyporaceae and concluded that they were completely deficient in aneurin and partially deficient in biotin and inositol. Banerjee and Nandi (1965) reported that *Lentinus praerigidus* was deficient in thiamin and pyridoxine. *Polyporus taxanus* was found to be deficient in pantothanic acid (Yusef, 1953) while *Poria vallantii* was the only fungous which required riboflavin as external supply (Jennisson et al., 1955).

In order to study the effect of different vitamins on *Fomes lividus*, the present experiment was carried out. The investigation was continued with a tissue culture of freshly collected specimen from Shyambazar log-yard, Calcutta, in the month of July, 1963. The culture was examined and compared with the stock culture of the same fungous of this department for its purity. The glucose—casein hydrolysate medium (Leonian and Lilly, 1945) was used as basal liquid medium in this investigation throughout. The basal medium was treated with activated chorcoal powder (5 gr./ilitre) to remove any trace of vitamins from the basal medium. Vitamins used in this case were added to the medium in the following concentration : thiamin, 100μ g/litre; pyridoxine, 100μ g/litre; biotin, 5μ g/litre; and inositol, 5μ g/litre. Five sets of basal media were prepared and each vitamin was added separately to each set and one set was kept as control. The *p*H of the medium was controlled to 6.0 in each case by using phosphate buffer. 25 ml. of the medium was distributed to each

Erlenmeyer flask of 250 ml. capacity. The medium was sterilized for 15 minutes at 15 lb. pressure.

Thin and uniform discs (5 mm. in diameter), cut out from the advancing zone of actively growing mycelium of the fungous on *malt-agar* medium were used as inocula. The cultures were incubated (stationary) at 30±0.5°C. in total darkness for a period of 20 days. At every fourth day, harvesting was done. After harvesting the mycelium was washed in distilled water to remove any trace of the medium and dried at 60°C. for 24 hours. The results were reported as milligram of dry mycelia, being the average of five cultures, are recorded in Table 1.

Table 1. *Data (mean) showing the dry weight of mycelium of* Fomes lividus *in presence of different sources of vitamins and at the different incubation periods*

Source of Vitamins	DRY WEIGHT OF MYCELIUM (MG.) Incubation period (Days)				
	4	8	12	16	20
Biotin	17.4	31.9	44.6	55.4	62.0
Inositol	16.4	29.0	41.1	52.4	59.3
Pyridoxin	41.5	75.4	98.2	126.6	153.4
Thiamin	47.1	88.9	118.9	143.3	169.3
Control	13.9	26.0	39.3	49.5	56.3

It will be evident that thiamin has a maximum stimulatory effect on vegetative growth of *Fomes lividus*. Next comes pyridoxine, biotin and inositol in order of sequence. Though in the absence of thiamin, the fungous grows very slowly yet it is obvious from the data that the fungous has a high order of partial deficiency for thiamin, which is nearly to the nature of total deficiency. It has also partial deficiency for pyridoxine. Little difference in growth in case of biotin and inositol, however, does not indicate their actual deficiency in them.

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