

EFFECT OF DIFFERENT HYDROGEN-ION CONCENTRATIONS
ON THE GROWTH OF *COLLYBIA SP.*, *TRICHOLOMA*
SP. AND *OUDEMANSIELLA CANARI*

Hydrogen ion concentration in the medium plays a direct role on the mycelial growth of mushrooms. It has already been reported that very much acidic and alkaline nature in the medium have an inhibitory influence on the growth of mushrooms. According to Jennison *et al* (1975) that the pH 5.0-5.5 is the optimum for the growth of 42 spp. of higher fungi.

In order to evaluate the optimum pH for the mycelial growth of *Collybia Sp.*, *Tricholoma Sp.* and *Oudenansiella canarii*, the following experiment was done.

Erlenmeyer flask (250 ml) containing 50 ml of the basal synthetic complete Indian mushroom medium (Yeast extract-2 g, Peptone-5.2 g, Malt extract-10gm, Thiamine-100 μ g, Biotin-50 μ g, Folic acid-100 μ g, Inositol-50gm, FeCl_3 -10mg, CaCl_2 (0.1M)-5ml, ZnSO_4 -0.1mg, KH_2PO_4 -0.25 g and distilled water-1 litre) plugged and sterilized at 10 p. s. i. for 20 minutes. Each flask was inoculated aseptically with a single inoculum disc (5 mm diameter) punched out aseptically from actively growing mycelium of respective fungi. Several such flasks were inoculated in order to have three replicates for each treatment for such fungus. The inoculated flasks were incubated (stationary) at 30°C for *Collybia Sp.* and at 20°C for both *Tricholoma Sp.* and *O. canarii*.

Every five day, three flasks for each treatment for each test fungi were harvested and washed several times with distilled water to make it free from the adhering medium and dried at 60°C for 48 hours. The dried mycelia were kept in a desiccator for 24 hours and weighed. The dry weight of mycelium was taken as an index of the growth and the data obtained are presented in the table 1.

From the table 1, it is clear that *Collybia Sp.* and *Tricholoma Sp.* grow best at 6.5 pH and *O. canarii* grows best at 6.0 pH. These results are very much similar to that of optimum growth of *Agaricus bitorquis* and *Pleurotus ostreatus* at pH 6.0-6.5 and 5.0-6.5 respectively which is reported by Hong *et al* (1981). Litchfield *et al* (1963) reported that *Morchella hortensis* grows best at pH 6.5. Kosaric *et al* (1981) found that an initial pH 5.0-5.5 is the best for the growth of morel mushroom in cheese whey culture. While others like Brodziak (1980) reported that optimum pH for the growth of *Lentinus edodes* is at 3.5.

TABLE 1. Effect of different pH on growth (g/l)* of *Collybia* Sp., *Tricholoma* Sp. and *Oudemansiella canarii*

pH	INCUBATION PERIOD (DAYS)											
	<i>Collybia</i> Sp.				<i>Tricholoma</i> Sp.				<i>Oudemansiella canarii</i>			
	5	10	15	20	5	10	15	20	5	10	15	20
4.5	6.225	15.723	18.646	14.926	3.060	4.280	7.120	7.510	2.970	3.535	10.770	13.570
5.0	6.890	15.330	16.366	13.306	3.180	4.490	7.40	7.980	3.345	10.600	11.610	17.350
5.5	7.566	17.506	18.386	14.200	2.680	4.670	7.520	8.270	3.950	11.350	12.530	17.500
6.0	7.926	16.673	20.360	16.440	3.070	6.380	10.350	13.340	4.030	11.670	14.050	18.780
6.5	14.360	19.310	25.540	20.460	3.280	9.305	11.230	13.570	3.600	9.640	9.710	16.510
7.0	17.295	19.700	23.280	21.386	3.575	7.820	9.500	12.820	3.380	9.50	7.750	15.900
7.5	6.423	24.946	21.710	20.286	3.400	7.400	7.650	8.337	3.180	9.120	7.480	14.030

*Data are the mean of three replicates.

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