EFFECTS OF SOME SPECIFIC INHIBITORS ON THE GERMINATION OF SPORES OF THE FUNGUS *TRAMETES BADIA* (BERK.) COOKE.

THE effects of gibberellic acid on the germination of fungal spores has been well studied[1-4]. The present study attempts to reveal the effect of some specific inhibitors on the germination behaviour of fungal spore, on which much work has not been reported.

Spores of *Trametes badia* were deposited on agar plate. Loopfuls of spores were taken in a test tube containing distilled water. One ml of 50 ppm aqueous solutions of refamycin, 5-fluorodeoxyuridine (FUDR), [2-chloroethyl]-trimethyl-ammonium chloride (CCC) and cycloheximide was poured in petridishes each containing equal amounts of malt-agar media (2·5%) just before solidification. Counting of spores was made in haemocytometer of 0·1 mm depth and the number was calculated in 1 ml of stock solution and was diluted upto 50 spores/ml. One ml of the diluted spore suspension was poured on each of the malt-agar plate containing the respective chemicals and was allowed to stand for a few minutes, water was then decanted off upto the last drop. Control plate was kept side by side. All the petridishes were incubated at 26° C. For studying germination behaviour, each petridish was observed under microscope at 24 hours' interval. At each observation spores from 10 microscopic fields of each of the replicated plates were counted from which the mean was derived. Final result was obtained when 100% germination was achieved in one or the other petridish relative to the rest. Experiments were performed at least twice and gave reproducible results. The whole experiment was performed under sterilized conditions.

Table I shows that after 120 hours 100% spore germination occurred in the control plate, at the same time 34, 42, 86 and 90% inhibition of spore germination was obtained in the plates treated with the chemicals refamycin, FUDR, CCC and cycloheximide respectively.

Contrary to previous findings[2-4] that GA inhibits germination, reports are also available[1] that low concentrations of GA promote germination of fungal spore. CCC is known to be antigibberellic in action[5]. GA has been reported to inhibit the dehydrogenase activity[6] and to interfere with carbohydrate metabolism[7]. The inhibition of spore germination by CCC may therefore be assumed through CCC endogenous GA interaction, though the inhibition of enzymes cannot be ruled out. Cycloheximide has been reported to inhibit enzyme and nucleic acid synthesis in higher plants[8] and

TABLE I

Percentage of germination of fungal spores treated with some specific inhibitors

Treatments	% of germinated spores				
	24 hours	48 hours	72 hours	96 hours	120 hours
Control	0	72	84	97	100
Refamycin	0	58	62	66	66
FUDR	0	48	51	58	58
CCC	0	6	9	14	14
Cycloheximide	0	3	7	10	10

in this experiment this chemical has exhibited 90% spore inhibition. Refamycin is an inhibitor of *m*-RNA synthesis and probably acted through the inhibition of RNA-polymerase necessary for the synthesis of *m*-RNA. FUDR has been proved to inhibit DNA synthesis. This chemical might, therefore, decrease the availability of DNA template for the synthesis of *m*-RNA, thereby inhibiting the synthesis of enzymes necessary for the germination of spores. Considering that fungal spore germination is a physiological process it can be concluded that the whole process is enzyme-controlled. Also considering from enzymological point of view, it appears, however, that the degrees of inhibition of spore germination is dependent on the degree of inhibition of enzyme synthesis necessary for the germination by the specific inhibitors.

Botany Department,
Burdwan University,
Burdwan (W.B.),
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TAPAN KUMAR DAS.
ASIT BARAN DE.
A. K. BISWAS.

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