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Abstract
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presence of inhibiting concentrations of thorazine were characterized by a “rice-like” morphology. This peculiar morphology persisted throughout the growth of the culture, even after inhibition had been overcome. No growth occurred over a period of 5 days in cultures containing thorazine in excess of 2 x 10^{-4} M.

Antimycin A: Inclusion of 1 µg/ml of antimycin A in the culture medium has been observed to lengthen the moss doubling time of the mycelium during the exponential phase of growth from 3 to 7 hours. — — Department of Biological Sciences, Stanford University, Stanford, California 94305.

Mücke, D. and M. Popp. Effect of malachite green on growth in presence of surface actants. The LD50 of malachite green was determined to be 3 x 10^{-5}g per 100 ml, using N. crassa 36A, cultured for 5 days at 27°C. At 18°C the same concentration of malachite green inhibits the mycelial growth more than 60% (control without malachite green = 100%) and at 30°C was increased in the presence of the following surface actants (Tween 40 (10^{-4} g/100 ml), Tween 80 (10^{-4} g/100 ml), Lauryl pyridinium chloride (10^{-5} g/100 ml), and Dimethyl-benzylamino-acetic-dodecamid (10^{-5} g/100 ml)) at 18°C and at 36°C (except for LK at 36°C). At 27°C the inhibitory effect of the surface octon test did not appear. The concentrations of surface actants tested in these investigations did not influence the growth of mycelium if the medium was free of malachite green. — — Institut für Physiologische Chemie der Universität Rortock, 25 Rortock 1, Leningallee 70, DDR.


2. Hyphal tip of microcultures (Wilson and Garnjobst 1966 Genetics 53: 621) develop abnormal morphology after exposure to concentrations of 0.6, 0.7, or 0.8 µg/ml. This change is accompanied by pronounced cytoplasmic flow into the tips, with consequent swelling and dichotomous branching even in the presence of a hypertonic (14%) sucrose solution.

3. Regeneration into punctured cells, typically 100% within 45 minutes at 30°C, is totally inhibited in the presence of 1.0 µg/ml. Of a group of cells individually injected with cycloheximid at a concentration of 10.0 µg/ml., two-thirds survived and one-half of all injected cells retained the ability to regenerate. Production, by absorption, of an intracellular level of antibiotic comparable to that obtained by microinjection would require 100% uptake of the total cycloheximid content of a microchamber filled with a concentration of 1 µg/ml.

A complete description of this study requires photographs of regeneration and data too extensive for a brief summary. The complete description will therefore be published elsewhere. We feel that, even on the basis of this brief description, caution must be exercised in the interpretation of data bored upon the use of cycloheximid concentrations above 1.0 µg/ml. In addition, even though the observations relating to regeneration were consistent with mechanisms based upon inhibition of protein synthesis, the tolerance of cells to the high injected concentration suggests that the toxicity of external cycloheximid may result directly from effects upon the cell membrane, and only secondarily from inhibition of protein synthesis. — — Department of Biology, University of North Carolina at Greensboro, Greensboro, North Carolina 27412.


Hitchcock, S.E. and V.W. Cochran. Effect of cycloheximid and actinomycin Don germinating conidio. In a study of the germination of conidio of wild type strain Em 5207a (ATCC# 10816), the synthetic capacities of conidio incubated in minimal medium with and without a carbon source were investigated. Conidio were grown on Vogel’s medium N with 1% glucose incubated in Vogel’s liquid medium N with (called “germinating”) 2% glucose at a spore concentration of 10 mg/ml wet weight.

Cycloheximid (Upjohn Co.) at concentrations of 1, 10, and 100 µg/ml (0.1, 1.0, 10.0 µg/mg wet weight) inhibits germination completely and inhibits the incorporation of leucine-U-C¹⁴, phenylalanine-U-C¹⁴, and proline-U-C¹⁴ into protein (hot TCA insoluble, hot NaOH soluble material). Inhibition at 1 µg/ml was usually greater than 84%. At 10 µg/ml greater than 97%, and at 100 µg/ml greater than 99%. The inhibitor had complex effects on the amino acid pools which have not been analyzed.

Figure 1 and 2 show the effect of cycloheximid on RNA synthesis in “germinating” conidia. When cycloheximid was added at the beginning of the incubation, germination was inhibited and RNA synthesis approximated that in “non-germinating” conidia (Figure 1). When the inhibitor was added after germination had begun, RNA synthesis continued at a short period and then leveled off and never attained the level of the control (Figure 2). Addition of cycloheximid at 30 minutes inhibited germination completely, while if added at 80 minutes, it halted germination after 20 minutes. It may be concluded that, while some RNA synthesis occurs in the absence of protein synthesis, continued protein synthesis is required for RNA synthesis at the rate found in germinating conidia.