

known to catalyze chain scission of RNA (e.g. LINDAHL⁹), the action of Mg^{++} on DNA is probably different (e.g. LYONS and KOTIN¹⁰). LYONS and KOTIN indicated that an excess of $MgCl_2$ could cause charge reversal of calf thymus DNA and that large charge reversal would destabilize the 2-stranded structure. Also, the mere changing of adenovirus DNA from a polyanion to a polycation by adding Mg^{++} might give a product whose infectivity would not be enhanced by a polycation like DEAE-dextran¹¹.

Zusammenfassung. Diäthylaminoäthyl Dextran erhöht die Infektion menschlicher Krebszellen (Stamm KB) mit hitzebehandelten (70°C, 20 sec) menschlichen Adenoviren, Typ 1, stark. Inkubation dieser hitzebehandelten Viren mit Desoxyribonuklease, Trypsin oder $MgCl_2$ (nicht

mit Ribonuklease oder spezifischem Antiserum) konnte die Infektiosität leicht beseitigen.

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Formation of Abnormal Mycelium of *Fusarium roseum* Link. on a Modified Czapek-D-Amino Acid Medium

In the previous reports^{1,2}, the authors have mentioned that some of plant pathogenic fungi have an ability to utilize D-amino acid. The present study was undertaken to investigate the morphological characteristics of the mycelium which developed meagerly on a medium containing D-amino acid as a nitrogen source.

G-strain (Shinshu University) of *Fusarium roseum* Link. was inoculated on a modified Czapek's medium in which $NaNO_3$ was replaced by an equivalent nitrogen content of D- or L-isomer of 9 amino acids, and then kept at 28°C.

After 10 days, the mycelium was examined under a light microscope; the mycelium which developed poorly on a modified Czapek's medium containing D-alanine, D-arginine, D-lysine or D-methionine, is broader in width than that of the respective L-amino acid, and has many large granules in the cell.

Figures 2 and 3 show a yeast-like cell of the mycelium developed on the medium containing D-arginine, on which the growth was retarded. The morphological development in the plot of L-alanine, L-arginine, L-lysine or L-methionine was the same as that in Czapek ($NaNO_3$) medium. It was evident, however, that yeast-like cells of mycelia were observed on the medium containing D-arginine, and chlamydospore-like cells were found on the medium containing valine, especially its D-isomer, as shown in Figure 4. The yeast-like cells were found after 4 days on the Czapek-D-arginine medium. These cells are clearly different from the chlamydospore.

To clarify the effect of D-arginine concentration on the formation of this yeast-like cell, D-arginine was diluted to $1/2$, $1/4$, $1/8$ and $1/16$ from a modified Czapek's basal medium. After 10 days, a lot of yeast-like cells was observed in all the plots of D-arginine concentration up to $1/8$. But, in the plot of $1/16$ D-arginine, the formation was poor.

To know the effect of D/L ratio of amino acid in Czapek's medium on the formation of yeast-like cells, the ratio of D-arginine to L-arginine was varied to (6:0), (5:1), (4:2), (3:3), (2:4), (1:5) and (0:6) respectively. After 10 days, abnormal mycelia were observed abundantly in the plots of higher ratio, (6:0) and (5:1). The formation was poor in (4:2) or (3:3) and no formation in (2:4), (1:5) or (0:6).

In this connection, it would be interesting to study the metabolism of D-amino acids, especially D-arginine by

plant pathogenic fungi in view of the morphogenesis in fungi^{3,4}. Details will be reported elsewhere.

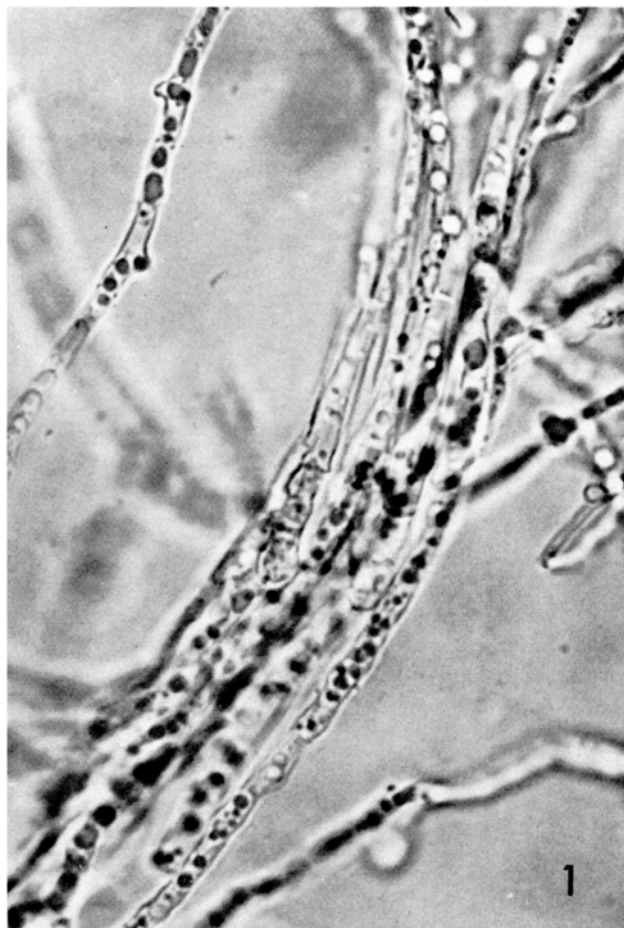


Fig. 1. Mycelia of *F. roseum* obtained from a Czapek-L-arginine medium. Ca. $\times 400$.



Figs. 2 and 3. Yeast-like cells of *F. roseum* obtained from a Czapek-D-arginine medium. Fig. 2 ca. $\times 200$, Fig. 3 ca. $\times 400$.

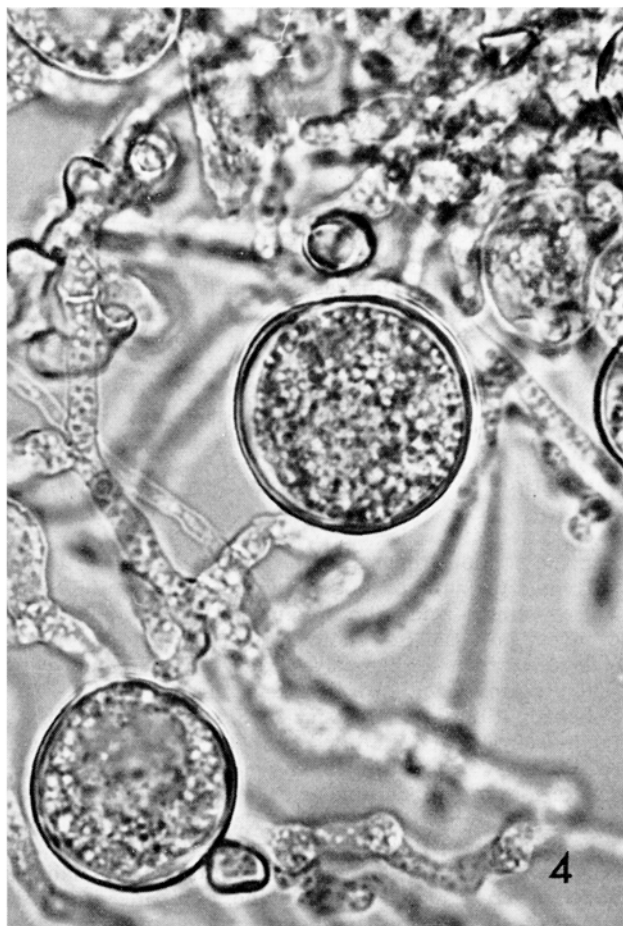
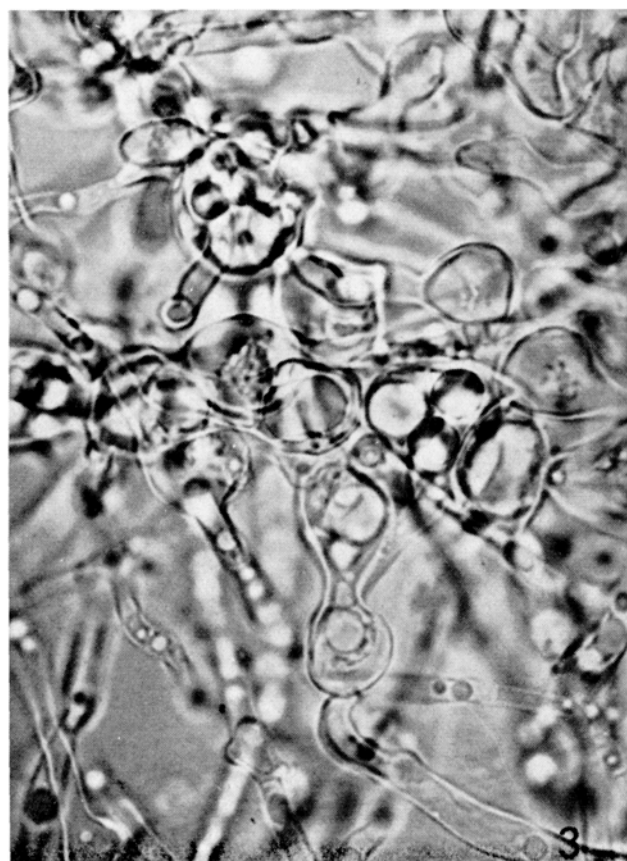


Fig. 4. Chlamydospore-like cells of *F. roseum* obtained from a Czapek-D-valine medium. Ca. $\times 400$.



Zusammenfassung. Es wird über den Einfluss von einigen D-Aminosäuren auf den morphologischen Charakter von *Fusarium roseum* Link. berichtet. Von den geprüften Aminosäuren spielt D-Arginin eine wichtige Rolle für die Bildung der hefeähnlichen Zellen. L- und besonders D-Valin beschleunigen die Bildung von Chlamydosporen-ähnlichen Zellen.

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