AN ELECTRON MICROSCOPIC OBSERVATION OF CONIDIUM AND HYPHA OF ERYsipHE GRAMINIS HORDEI1)

by

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(with 12 figs.)

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Since the electron microscopic technique was introduced into the biological field, the fine structure of cells of filamentous fungi and higher plants has attracted wide attention of some plant pathologists. Now the fungal cells are fundamentally considered to have a similar structure as those of higher plants. On the fungi causing the powdery mildews there are a few informations on the fine structure of cells. AKAI et al. (1966) reported on the structure of conidia of Sphaerotheca pannosa attacking rose, and HOSSAIN & MANNERS (1964) on the surface structure of the conidia of Erysiphe graminis by replica techniques. The results reported herein concern the fine structure of conidia and hyphae of the powdery mildew fungus of barley.

MATERIALS AND METHODS

The strains of Erysiphe graminis hordei3) causing the powdery mildew of barley, used in this experiment, were cultured successively on the leaves of barley, var. Kuromugi. Conidia and hyphae were collected from infected leaves. They were wrapped in thin lens-paper and fixed with 3 % KMnO₄ at either 0°C or room temperature for one hour. After the fixation, they were dehydrated through ethanol series and embedded in epoxy resin. Ultrathin sections were prepared from ultramicrotome and observed under JEM-7 electron microscope.

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Fig. 1. A transverse section of a conidium of *Erysiphe graminis* hordet. CW: cell wall, M: mitochondria, N: nucleus, PM: plasma membrane, V: vacuole, US: unknown structure.

Fig. 2. A longitudinal section of a conidium showing two vacuoles and glycogen granules (G) scattered within endoplasm.

Fig. 3. A section of cell wall of a conidium. OL: outer layer, IL: inner layer.

Fig. 4. Glycogen granules (G) congregated in groups in endoplasm.