THE ULTRASTRUCTURE OF ENDOTHIA PARASITICA: GENERAL FEATURES AND VISUALIZATION OF VIRUS-LIKE PARTICLES IN A HYPOVIRULENT ISOLATE

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ABSTRACT.--Transmission electron microscopy was done to cytoplasmically compare a virulent (V) and hypovirulent (H) isolate of *Endothia parasitica.* Hyphae of V isolate 16-15-1 (West Virginia) and H isolate EP-4 (France) were preserved by freeze substitution and embedded in an Epon-Araldite medium. In both isolates, mitochondria, nuclei, and many other cellular constituents closely resembled those described for freeze substituted *Fusarium acuminatum* hyphae. A spitzenkorper region was identifiable at the extreme hyphal tip, and was composed of a roughly circular congregation of microvesicles surrounded by larger apical vesicles. Membrane profiles were smooth and centers of presumed Golgi activity were relatively flat and fenestrated. The vacuole-lysosomal system was similar to that reported in freeze substituted hyphae of the basidiomycete, *Laetisaria arvalis.* In comparing the isolates, two major points of contrast were observed. First, there was a close association between smooth cisternae and mitochondria in the H fungus. Second, aggregations of spherical, isometric virus-like particles (VLP's) were seen associated with endoplasmic reticulum and free in the cytoplasm of the H isolate, but not the V isolate. It is possible that the VLP's are responsible for hypovirulence in the EP-4 isolate. Other H isolates will be screened for VLP's and compared to V isolates to determine whether any consistent ultrastructural differences exist.