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Ultrastructural studier of microconidium formation.

Microconidiating cultures of N. crassa strain peach-fluffy (Y8743m, L) (FGSC#569) were fixed at various times after the initiation of growth ond examined with the electron microscope. Hyphae from which microconidio form are markedly vacuolated and show a much more extensive system of rough endoplasmic reticulum than do young vegetative hyphoe. A bulge in the hypho presages the start of microconidium formation, followed by the rupture of the outermost wall layers. A thick collar forms wound the protruding microconidiophore due to extensive thickening of the inner wall layer of the parent hypho. At this stage the cytoplasm of the developing microconidiophore is still continuous with that of the hyphol cell from which it arises and is contained by a wall which is derived from the thickened collar. The microconidium is finally isolated from the cytoplasm of the microconidiophore by a centripetal extension of its wall, the material of which seems to be derived from the collar.

The present data suggest that microconidia differ from macroconidia in their smaller size, denser array of ribosomes, more extensive endoplasmic reticulum, more conspicuously layered wall, fewer mitochondria, and single nucleus. There results confirm ond extend those of Dodge (1932 Bull. Torrey Botan. Club 59: 347) and Moreau and Moreau (1939 Bull. Soc. Botan. France 86: 12) whore observations with the light microscope were the principal sources of information on the subject. ▪ ▪ ▪ Department of Botany, University of Michigan, Ann Arbor, Michigan 48104.