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NOTES

Synaptinemal Complexes in *Schizophyllum commune*

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Current knowledge of ultrastructural features of basidiospore germination (H. Voelz and D. J. Niederpruem, J. Bacteriol. **88**:1497, 1964), complex septa (R. Jersild, S. Mishkin, and D. J. Niederpruem, Arch. Mikrobiol. **57**:20, 1967), and fruiting (K. Wells, Mycologia **57**:236, 1965) of the wood-rotting mushroom *Schizophyllum commune* has been gained entirely from permanganate-fixed material, thus precluding identification of certain cellular constituents ordinarily destroyed by this procedure. This report describes the application of glutaraldehyde-fixation to dikaryotic fruits of *S. commune* and the occurrence of synaptinemal complexes in this sporogenous tissue.

Sporulating dikaryotic fruitbodies of *S. commune* which arose from the mating of strain 699 A41B41 with strain 845 A51B51 on minimal agar (D. J. Niederpruem, H. Hobbs, and L. Henry, J. Bacteriol. **88**:1721, 1964) were fixed in 1% phosphate-buffered glutaraldehyde (*p*H 7.1) at room temperature for 1 hr, rinsed in phosphate buffer, and postfixed in 1% phospate-buffered OsO_4 (*p*H 7.3) at room temperature for 1 hr (G. Millonig, J. Appl. Phys. **32**:1637, 1961). Specimens were then dehydrated through a graded series of ethyl alcohol and embedded in Epon (J. H. Luft, J. Biophys. Biochem. Cytol. **9**:409, 1961). Sections were stained with lead citrate (E. S. Reynolds, J. Cell Biol. **17**:208, 1963).

A portion of the hymenial surface of a sporulating fruitbody of *S. commune* is shown in Fig. 1. The ultrastructural features of a basidium endowed with sterigmata included ribosomes, vacuoles, and "glycogen" aggregates. Additional sections of this tissue indicated that meiotic structures in the form of synaptinemal complexes were also present, with representative material shown in Fig. 2. The tripartite nature of these structures is readily discerned as three parallel constituents which, at times, seemed to terminate at or near the nuclear membrane. Synaptinemal complexes, first described in crayfish (M. J. Moses, J. Biophys. Biochem. Cytol. **2**:215, 1956) and vertebrates (D. W. Fawcett, J. Biophys. Biochem. Cytol. **2**: 403, 1956), also occur in slime molds, including *Didymium iridis* (G. Carroll and R. Dykstra, Mycologia **58**:166, 1966), three species of *Physarum* (H. C. Aldrich, Mycologia **59**:127, 1967), and in the Ascomycete *Neotiella rutilans* (M. Westergaard and D. vonWettstein, Compt. Rend. Trav. Lab. Carlsberg **35**:261, 1966) and the basidiomycetous fungus *Coprinus lagopus* (B. C. Lu, Exptl. Cell Res. **43**:224, 1966). The similarity of chromosomal organization in fungi and higher forms emphasizes the utility of studying problems of development in microbial systems such as *S. commune*.

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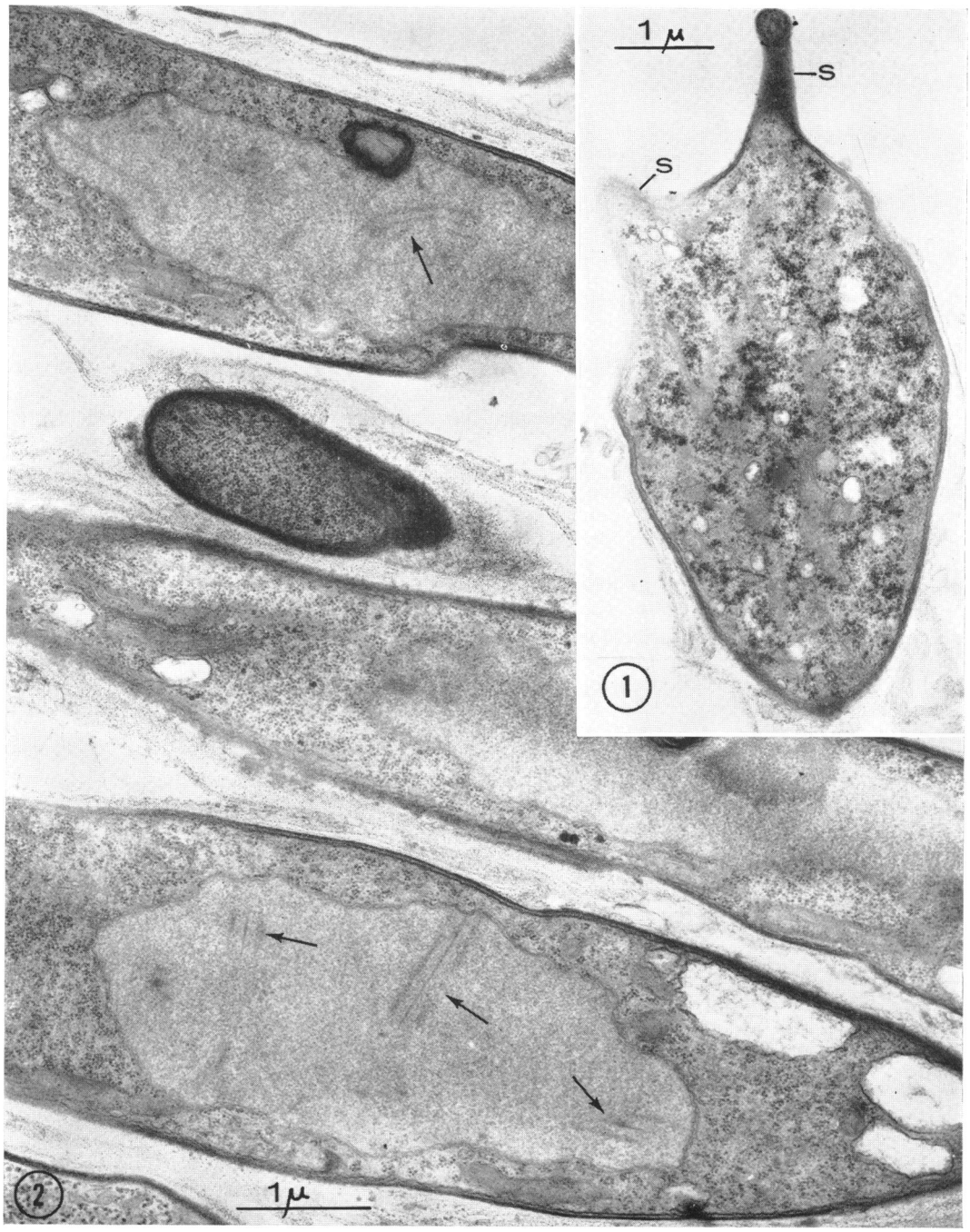

FIG. 1. *Basidium in the hymenial surface of a dikaryotic fruitbody of Schizophyllum commune. Two sterigmata (S), clear vacuoles, ribosomes, and dense glycogen granules are present.*

FIG. 2. *Section through a hymenial surface. Tripartite structures of the synaptinemal complexes (arrows) are shown in the nuclei of two basidia.*