Development and Metabolic Significance of Microbodies in the Nematophagous Fungus Arthrobotrys oligospora; Infection of Nematodes by the Endoparasitic Nematophagous Fungus Drechmeria coniospora

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phobe) membrane-bound lipids. 2) Maceration effects on structural proteins are minor. 3) A slightly hypotone 0.1% OsO_4 solution avoids swelling and breaking of cell organelles. 4) A light G.A. fixation (0.1%, 5-10 min) does not influence maceration effects notably. 5) Maceration clears structures; mitochondria, double membranes in cristae, nuclei, cell borders, ER, Golgi apparatus, goblet cells, sarcomeres, etc. become visible. 6) The method is a very useful tool in correlating TEM and SEM images, producing high resolution SEM (stereo) images.

DEVELOPMENT AND METABOLIC SIGNIFICANCE OF MICROBODIES IN THE NEMATOPHAGOUS FUNGUS ARTHROBOTRYS OLIGOSPORA

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The fungus Arthrobotrys oligospora Goodey is able to capture and digest nematodes by means of 3-dimensional hyphal networks, so-called traps. After capturing the nematode cuticle is penetrated by a short hyphal tube which develops into a large infection bulb, from which the nematode invading trophic hyphae arise. In trophic hyphae microbodies abundantly develop which most probably are involved in the metabolism of lipid storage materials, which accumulate in these hyphae in the early stages of digestion. In order to further understand the significance of microbodies in A. oligospora, we have sought conditions to induce the proliferation of these organelles in vegetative cells. In glucose-grown cells of A. oligospora microbodies were scarce and small in size (0.1 - 0.3 μm). However, after a shift of glucose-grown cells in oleic-acid-containing media, many large microbodies developed; growth was associated with the synthesis of enhanced levels of the different enzymes of the β-oxidation pathway which were located in these organelles. Similarly, D-amino acid oxidase containing microbodies were induced during growth of cells on D-alanine as the sole carbon source.

INFECTION OF NEMATODES BY THE ENDOPARASITIC NEMATOPHAGOUS FUNGUS DRECHMERIA CONIOSPORA

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Endoparasitic nemaphagous fungi are almost obligate parasites of nematodes. Infection starts with the adhesion of conidia to the nematode cuticle by means of an adhesive knob. Electron microscopical evidence suggests that penetration of the nematode cuticle is the result of a combined action of (local) enzymic softening of the cuticle and mechanical force. Subsequently, trophic hyphae of D. coniospora invade the nematode via the pseudocoel. The sinusoidal growth pattern typical for this stage of infection probably prevents rupture of these hyphae due to the movements of the nematode prior to their death. Further infection included:
1) Digestion of the nematode contents.
2) Formation of conidiophores shortly after death of the nematode.
3) Successive production of numerous conidia one after the other by single sterigmata following development of the conidiophore, the latter occurring concurrent with a further colonization of the nematode. Newly formed spores cannot infect nematodes immediately after they have separated from the sterigma since they do not contain adhesive knobs at that stage (they are formed later).

GROWTH PATTERNS OF RAT COLON CARCINOMA IN ENVIRONMENTS THAT DIFFER WITH RESPECT TO AMOUNT AND COMPOSITION OF CONNECTIVE TISSUE

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We compared the growth patterns of rat colon carcinoma after inoculation into three different sites that differ with respect to both amount and composition of connective tissue. These sites were: a) The liver, which is extremely poor in connective tissue--notably,