

**Abstract:**

Specimens of mycetome, a portion of anterior midgut harboring intracellular bacterioids (endocytobionts), obtained from both untreated control female tsetse, *Glossina morsitans morsitans*, and those inoculated twice with strain D31 of *Escherichia coli*, were processed for routine electron microscopy, and the endocytobionts were examined for structural alterations. In the controls, mycetocytes contained intact bacterioids with numerous, electron-dense ribosomal particles in the cytoplasm. Female *G. m. morsitans* subjected to two hemocoelic inoculations with the live *E. coli* showed severe degeneration of the subcellular components of the endocytobionts characterized by advanced lysis and rarefaction. The observed endocytobiotic degeneration is attributed to effects of induced humoral antibacterial factors.