Abstract

Aphelida, Cryptomycota and Microsporidia representatives are obligatory intracellular parasites which attack a wide range of hosts. They infect them with a unique invasive apparatus in which so-called penetrating tube structure plays an important role. They pierce the host's wall using this tube and enter rapidly multiplying trophic stage within the host's cell. Often, they also use the penetration tube when leaving the host. Therefore, the main goal of this work is to present the method of invasion and the structure of the penetration apparatus of these three groups of organisms in more details with an emphasis on their mutual relationship but also their different life stages. In a broader context, study of these organisms is also important from a phylogenetic point of view as their revolutionary history could help clarify the whole Fungi kingdom development. Up until now the scientific community has paid the most attention to the Microsporidia group and detailed information about the remaining groups is lacking.

Key words: Aphelida, Cryptomycota, Microsporidia, Rozella, penetration tube, invasion