921

IMPORTANCE OF SYMBIOTIC CILIATE *TROGLODYTELLA ABRASSARTI* FOR CHIMPANZEES (*PAN TROGLODYTES*)

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Herbivorous animals depend upon dietary fiber for energy and optimal health. Chimpanzees (*Pan troglodytes*) consume different types of food in the wild, but their diet always contains a significant amount of fiber. In the digestive tract of herbivores, the structural carbohydrates of plant cell walls are degraded and utilized by the complex microbial population of bacteria, fungi, and protozoa. Hindgut microbial fermentation is a key feature that enables apes to digest dietary fiber not available to animal hydrolytic enzymes. Entodiniomorphid ciliate protozoa are a remarkable component of the ape colon microbiome. The large intestine of both captive and wild chimpanzees harbors high numbers of entodiniomorphid ciliate *Troglodytella abrassarti*. The aim of this study was to investigate the hydrolytic activities of *T. abrassarti*. Cells of *T. abrassarti* were isolated from fresh feces of captive chimpanzees by galvanotaxis and sedimentation. Enzymatic activities were detected in cell-free ciliate suspension at different temperature and pH incubation conditions. Endoglucanase, xylanase, inulinase, and alpha-amylase activities of intestine chimpanzee ciliate *T. abrassarti* were evaluated qualitatively by SDS-PAGE (zymograms) and quantitatively by measuring specific activities as production of reducing sugars released from polymeric substrates. We confirmed that *T. abrassarti* has an active participation in the digestion of structural and storage polysaccharides in the large intestine of chimpanzees. Our results highlight the significance of entodiniomorphid ciliates for both captive and wild chimpanzees and contribute to understanding the digestion of great apes. The study was supported by grant of VEGA 2/0009/08, APW grant SK-CZ 0086-07, GACR 524/06/0264 and IGA 245/2009/FVL.

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