

Unique endosymbiotic ciliates of wombats in Australia.

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Fermentative digestion in herbivores is facilitated by endosymbiotic micro-organisms in their digestive tracts, notably bacteria, archea and protista. Numerous species of ciliated protozoa have been described from the foreguts of ruminants and the hindguts of equids, most species being cosmopolitan in distribution. In contrast, recent studies have described several endemic ciliate assemblages from the foreguts of macropodid marsupials in Australia. Three new ciliate families were discovered: the Macropodiniidae, Amylovoraciidae and Polycostidae. Preliminary studies conducted on wombats (metatherian hindgut fermenters) detected the presence of at least two unique ciliate species which appear to be related to the Amylovoraciidae on the basis of their holotrichous somatic ciliation and simplified adoral/vestibular ciliation. Electron microscopic studies are being conducted to confirm identity and determine the organelles of energy transduction as all other amylovoracids lack mitochondria but possess numerous small hydrogenosomes.