

Anaerobic fungi: the effective warriors in biomass degradation and fermentation

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Abstract

Substantial wealth of knowledge about anaerobic fungi has accumulated in recent years, which may guide the attention of the biotechnology-oriented scientists towards the possible exploitation of their fascinating capabilities. Very efficient, unique and complex enzyme systems of anaerobic fungi play determining role in the conversion of lignocellulosic fodder to milk and meat in mammalian herbivores. Mitigation of the concomitant greenhouse gas emission by ruminants is a major environmental, climate change issue. In turn, controlled management of the inter-kingdom syntrophic co-operations among the eukaryotic anaerobic fungi, bacteria and archaea can lead to the production of valuable bio-fuels, e.g. bio-methane, bio-hydrogen, bio-ethanol, and organic acids, the latter could serve as building blocks in numerous biosynthetic processes in circular bioeconomy.

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