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Saccharomyces cerevisiae live cells stimulate degradation and fermentation of cellulose by the rumen anaerobic fungus *Neocallimastix frontalis* MCH3.

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Some live micro-organisms such as *Saccharomyces cerevisiae* or *Aspergillus oryzae* are commonly used as feed additives (probiotics) in order to improve ruminant performances and health. With certain diets, they are known to have beneficial effects on digestibility, to alter fermentation patterns and to increase numbers of rumen bacteria, especially cellulolytic species (Wallace and Newbold, 1992, Probiotics : the scientific basis, Fuller R Ed, Chapman and Hall, London, 317-353).

The effects of a *Saccharomyces cerevisiae* strain (SC) were investigated, *in vitro*, on degradation and fermentation of cellulose by an anaerobic fungus, *Neocallimastix frontalis* MCH3, which is particularly efficient on plant cell wall degradation (Bernalier *et al*, 1992, Curr Microbiol, 25, 145-148).

The addition of 10^6 to 10^7 live SC cells to fungal zoospores, in a vitamin-deficient medium, stimulated cellulose breakdown and fermentation end products concentration. Stimulation was dependent on the concentration of yeast cells added and their viability. At the early stages of fungal development, dry matter disappearance was greater in the vitamin-depleted medium in the presence of SC than that measured in the non deficient medium, indicating that SC increased the rate of cellulolysis. SC provided vitamins to *N. frontalis*, especially thiamine, which is found in yeast cells in high concentrations, and which is essential to fungal growth.

Live SC are able to stimulate plant cell wall degradation by the fungi, and could therefore enhance forage digestibility in the rumen.

DM (cellulose) disappearance (%)	2 days	4 days	6 days
MCH3	3.69 ± 0.4	9.79 ± 0.48	17.70 ± 2.62
MCH3 + SC	20.34 ± 1.23	41.96 ± 3.14	45.50 ± 2.44

	Fermentation end products (mM) after 6 days of incubation		
	Formate	Acetate	Hydrogen
MCH3	3.9 ± 0.2	2.9 ± 0.3	3.7 ± 0.2
MCH3 + SC	12.1 ± 0.2	6.6 ± 0.4	7.7 ± 0.7