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2 Paper title:

3 A cellulolytic fungal biofilm enhances the consolidated bioconversion of
4 cellulose to short chain fatty acids by the rumen microbiome

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6 Journal: Applied Microbiology and Biotechnology

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26 **Table S1 Changes in the diet of the fistulized cow before and after calving**

	Before calving			After calving			
	ca.15.5.- 21.5.2017	22.5.- 28.05.2017	29.05.- 7.6.2018	8.6.- 18.6.2017	19.6.- 25.6.2017	26.6.- 2.7.2017	3.7.- 9.7.2017
Hay	ad lib	ad lib	ad lib	ad lib	ad lib	ad lib	ad lib
Maize cubes (whole plant) (kg/d)	0.5	1	1.5	1.5	2	2	2
Protein concentrate (kg/d)	0	0.25	0.5	0.5	1	1.5	1.75
Energy supplementation (Organic acids, vitamins, cereals, sugars) (kg/d)	0.5	1	1.5	1.5	2	2.5	3.5
Mineral bolus	Normal mineral bolus			Lactation mineral bolus		Normal mineral bolus	

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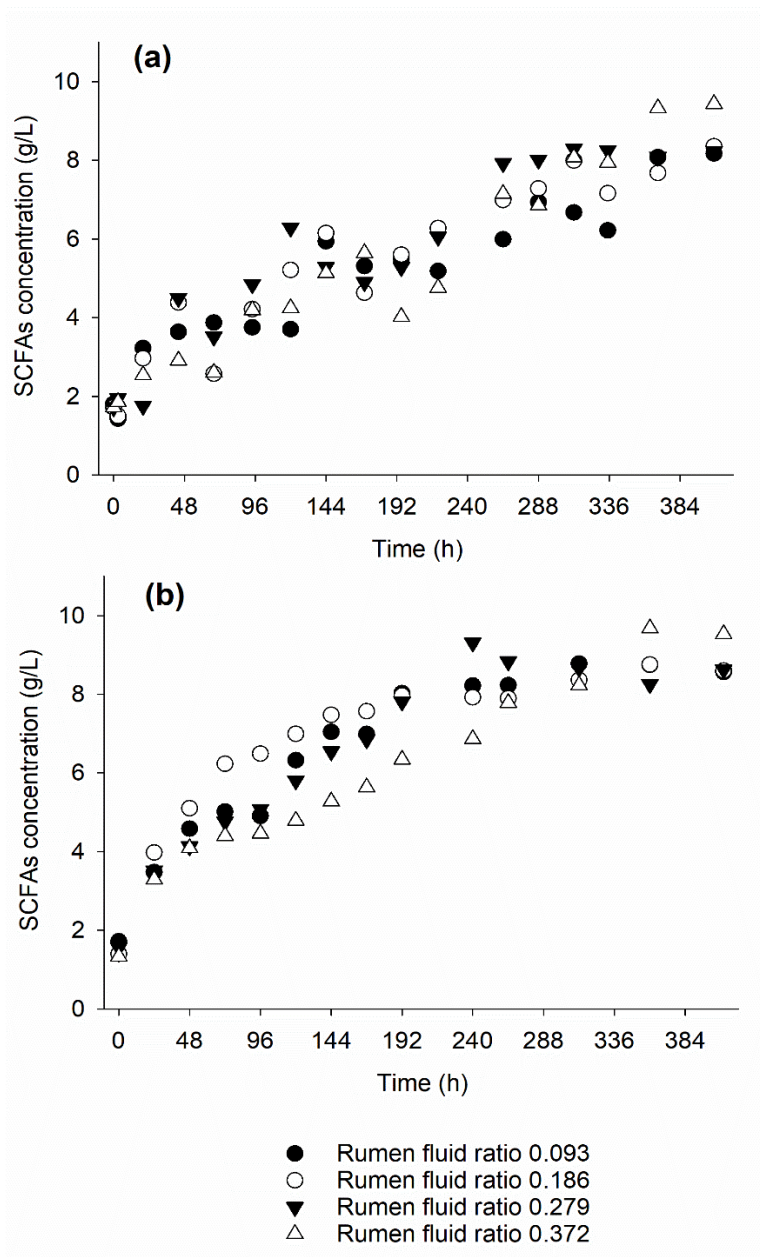
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39 **Fig S1 Effect of rumen inoculum volume to final fermentation volume ratio on**
 40 **SCFAs production.** Different rumen volumes were initially centrifuged, and the pellet
 41 was resuspended in 250 mL rumen fluid. Thus, in all cases the same volume of fluid
 42 was inserted in the reactor, but in each case, it contained a different number of
 43 rumen microorganisms corresponding to the initial rumen fluid volume. The
 44 fermentations were carried out in duplicate and both replicates are shown

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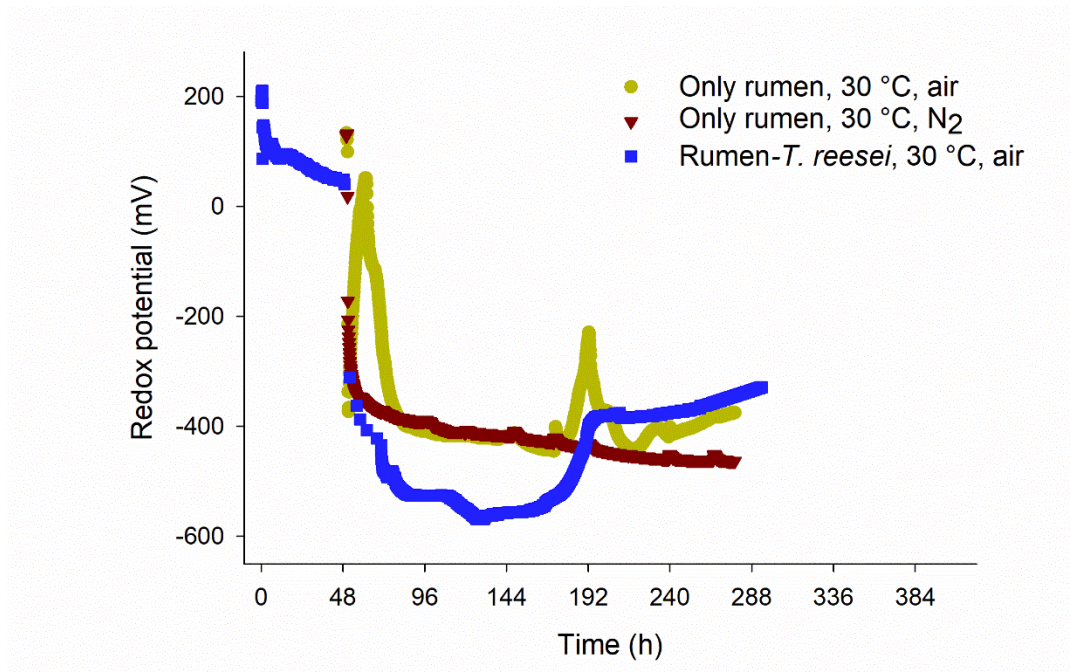


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48 **Fig S2 Evolution of the redox potential in the reactors, with or without the**
49 **development of a fungal biofilm on the membrane. As zero, at the time scale, the**
50 **moment of *T. reesei* inoculation is counted.**

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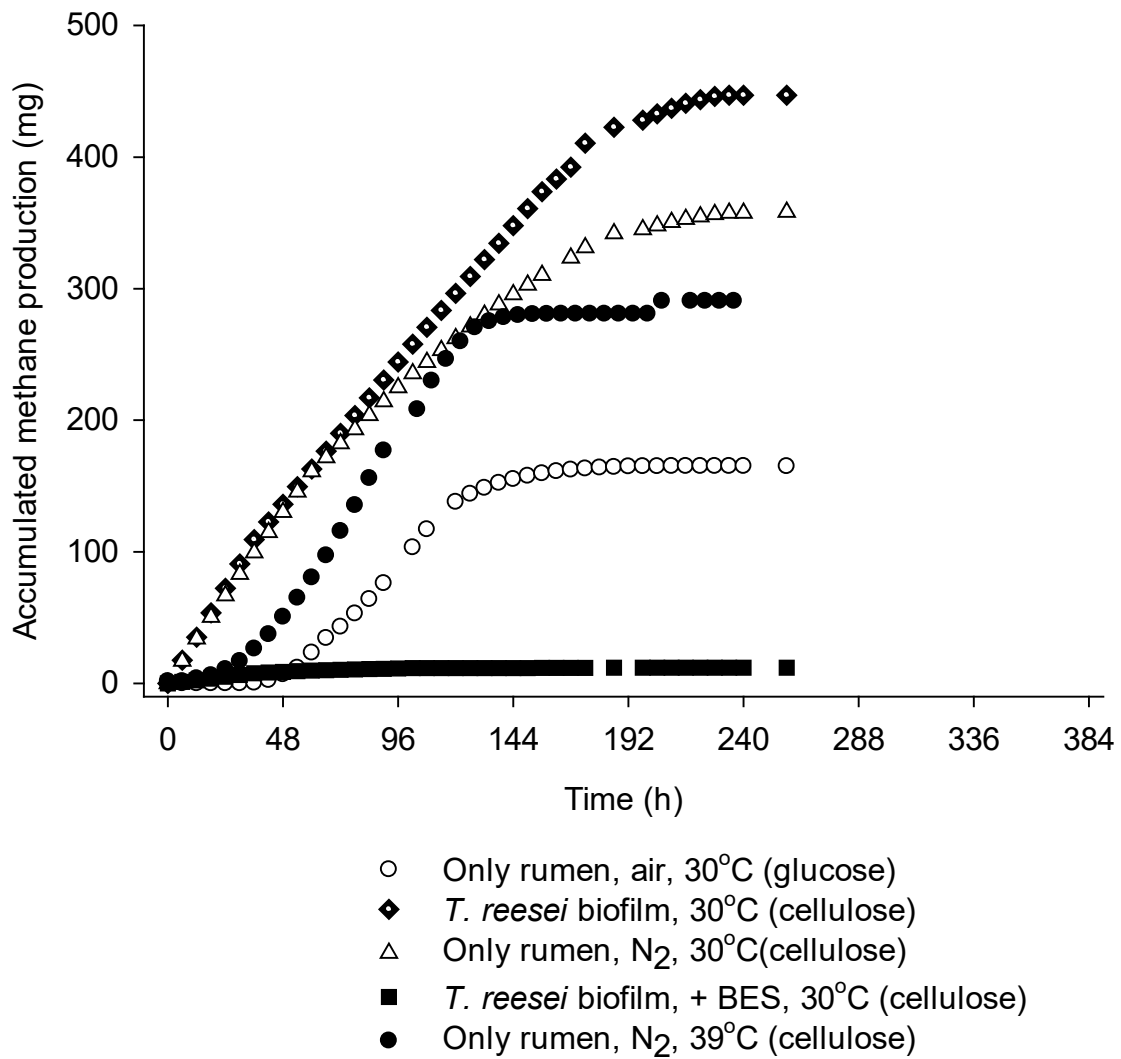
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63 **Fig S3 Methane production in the MBM system with or without the inhibition of the**
 64 **methanogenic activity.** The accumulated amount produced is shown. BES
 65 concentration was 5 mM. The membrane was flushed with air during all co-
 66 cultivations with *T. reesei*.

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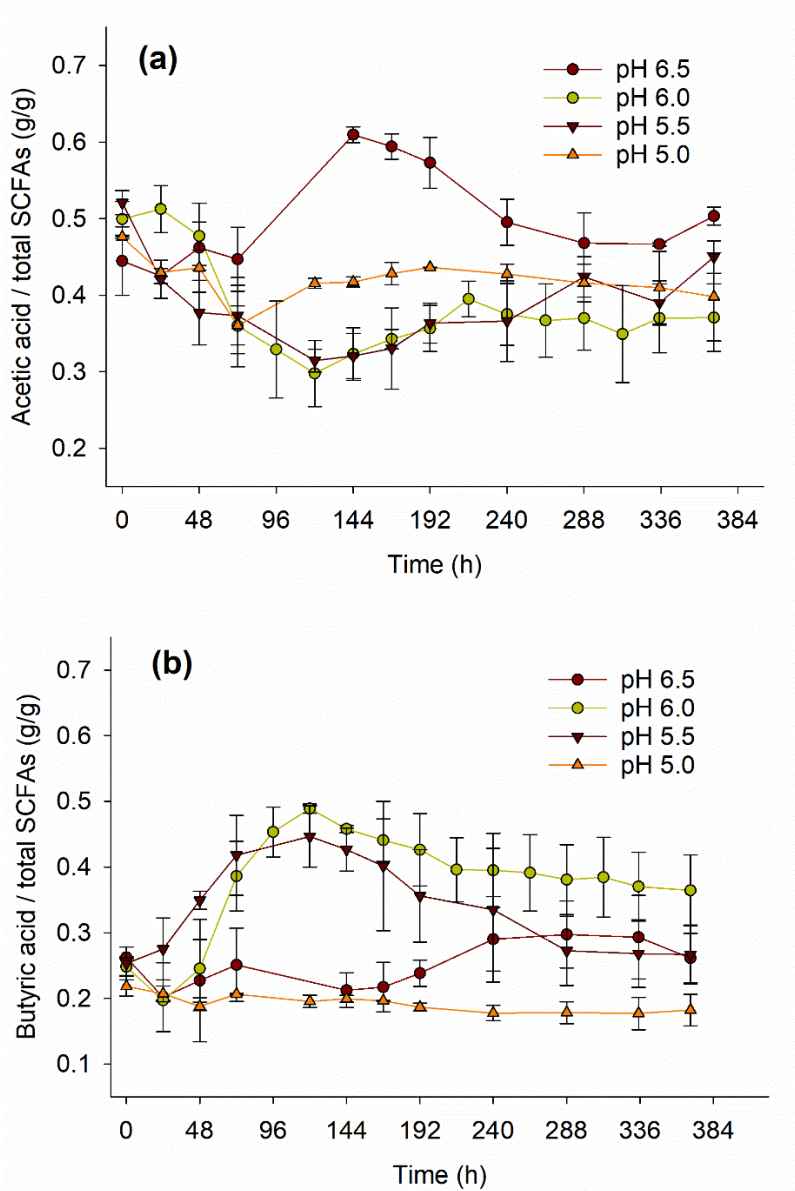
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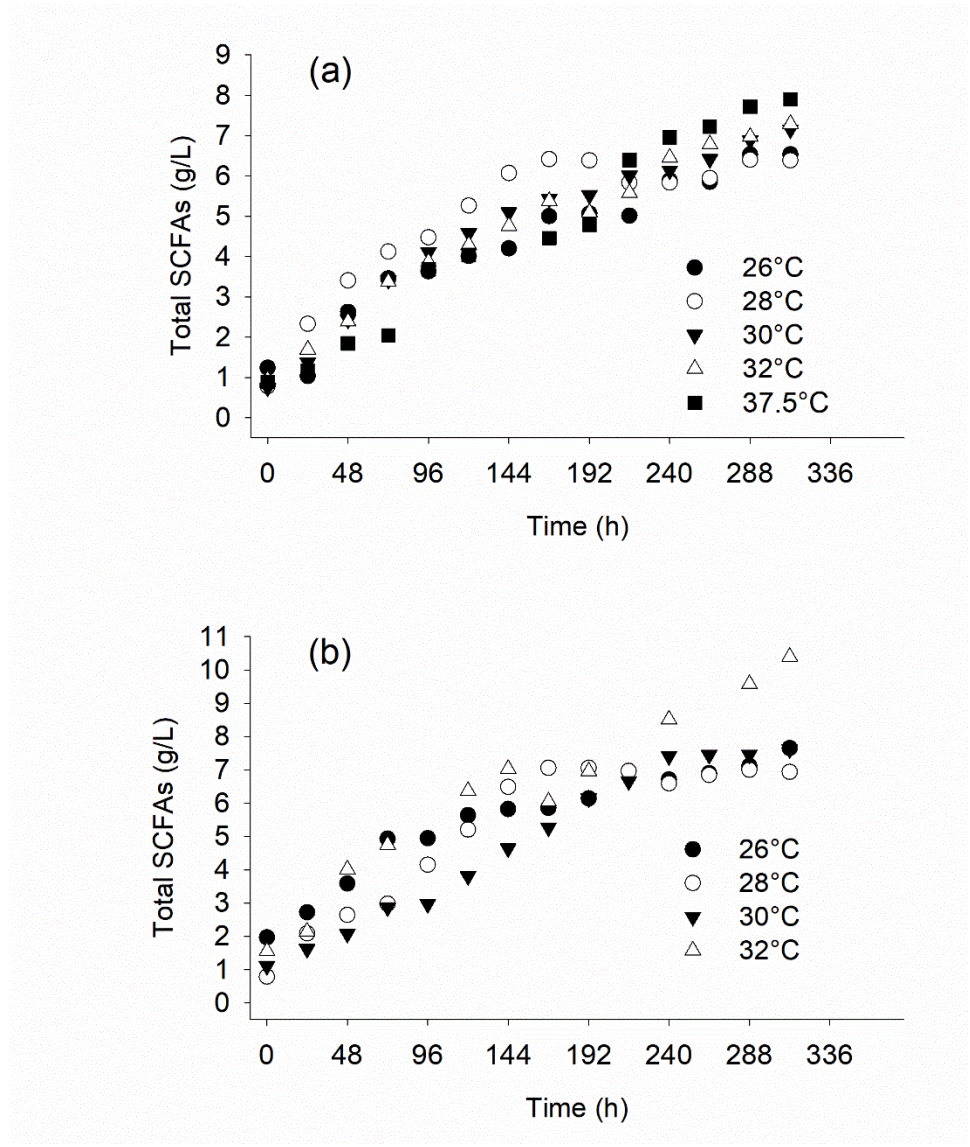
73 **Fig S4 SCFAs selectivity in the MBM system at different fermentation pH values.** The
74 selectivity was defined as the ratio of the amount of a SCFA produced to the amount
75 of total SCFAs (g/g).



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81 **Fig S5 SCFAs production at different fermentation temperatures.** Experiments with
82 *T. reesei* (26°C – 32°C) were performed at pH 6 in duplicate, at different periods of
83 the year: spring (A) and autumn (B). Crystalline cellulose (1.5 % w/v) was used as the
84 cellulosic substrate in all cases. The experiment with *C. cinerea* was performed once
85 during winter. The rumen fluid inoculum volume in all cases was 250 mL (ratio to
86 total volume 0.093)

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