ELECTRONIC SUPPLEMENTARY INFORMATION

Additional Table 1: Metabolites formed by *C. cellulolyticum* in batch fermentations using different cellulose concentrations (0 - 30 g/l). Cultivations were run as triplicates except duplicate for 30 g/L.

Cellulose	Glucose	Acetate	Lactate	Ethanol
	mM	mM	mM	mM
0 g/L	0	0	0	0
5 g/L	3.8 ± 0.5	6.63 ± 1.1	1.68 ± 0.2	2.6 ± 0.3
10g/L	6.5 ± 0.4	6.76 ± 0.7	2.30 ± 0.8	2.5 ± 0.2
20 g/L	7.1 ± 0.7	6.36 ± 0.3	2.22 ± 0.4	2.3 ± 0.1
30 g/L	5.2 ± 0	6.43 ± 2.2	4.91 ± 2.7	1.9 ± 0.4



Additional Figure 1: Schematic presentation of the collection system. 1-undecene evaporates from the aerated bioreactor (1) to the collection vessel (2) where it is

trapped in the heptane phase. A secondary collection vessel (3) ensures that no 1undecene escapes the system through the air outlet. Both vessels were cooled with an ice bath (4) and attached to a cooling system (5). Samples for 1-undecene analysis were collected from the first vessel (2) as the second vessel (3) contained no 1undecene.



Additional Figure 2: GC-MS chromatograms for the sample extracted from the cells

(upper panel) and the sample from the collection system collected 1-undecene

(lower panel). The retention time for 1-undecene is 7.27 min.



Additional Figure 3: A comparison of proton NMR spectra of the reaction product (upper panel) and the starting 1-undecene (lower panel). The upper panel shows the absence the characteristic signal at 5.82 ppm for an olefin proton of the monomer at C2-position (CH₂=C<u>H</u>-), which is present in the spectrum of the starting material (lower panel). The complete conversion of the starting material followed to the formation of products with completely substituted atom C at this position. The ratio of signals integrals for proton groups CH₂=C-, CH₂=C-CH₂-, -CH₃ and -CH₂- with -CH< according to the product spectrum was 2:4:12:53 what approximately corresponds to the theoretical ratio of these protons in undecene trimer 2:4:12:50.



Additional Figure 4: The analysis of the reaction products of 1-undecene oligomerization, determined by GC. The upper panel shows the products after oligomerization reaction and lower panel shows the starting material 1-undecene (RT 4.5). Dimers (RT 8.22) and trimers (RT 9.35) can be detected after oligomerization reaction (upper panel).