Effects of CMC Addition on Bacterial Cellulose Production in a Biofilm Reactor and Its Paper Sheets Analysis

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Results of BC production, and its crystallinity and crystal size with and without CMC addition.

BC production increased with CMC concentration and reached stable (max ~13.0 g/L) when 1.5 ~ 2.0% CMC was added, which was 1.7-fold higher than the result obtained from the control culture (**Table S1**). The crystallinity of BC decreased from 86 to 80% with the presence of 1.5% of CMC. The crystallite size of <200> plan also decreased from 5.3 to 4.2 nm (**Table S2**).

Table S1. Effects of CMC addition on BC production (g/L) in PCS biofilm reactor^a

CMC Conc. (%; w/v)	0	0.2	0.5	0.8	1.0	1.5	2
BC in suspension	0	0.3	0.3	0.7	3.4	11.9	12.2
BC on PCS	7.1	7.3	8.2	9.2	8.2	0.99	0.89
Total BC	7.1	7.6	8.5	9.9	11.6	12.8	13.1
Suspension BC (%)	0	3.9	3.5	7.0	41.5	92.3	93.2
Control culture ^b	3.0	4.8	6.6	7.9	8.1	8.2	8.1

^aThe results are the average of two duplicates.

^bBC production conducted in a suspension culture without PCS.

^cSuspension BC (%) = (BC in suspension/ Total BC)*100

Table S2. Results of crystallinity and crystal size of BC from PCS biofilm reactor.

CMC addition (%)	Crystallinity (%)	Crystallite size of <200> (nm)
0	86.2±0.6 ^a	5.3±0.3 ^a
1.5	80.3±0.5 ^b	4.2±0.2 ^b

Values (in the same column) not marked by the same letter are significantly different ($p \leq 0.05$; $n = 3$).