

Table S1. Characteristic for bacterial cellulose and impurities vibrations (700-4000 cm⁻¹)

Assignment of vibration	Position, cm ⁻¹						
	Ref*	bKMC**	tKMC	TrKMC	tKMC /MGR	IKMC	iKMC
Inter-OH OH, NH, proteins 3300-3400	3394	3396	3314	3395	-	3308	-
Asymmetric C-H stretching in CH₃	2960	2957	2960	2963	2959	2961	2961
Asymmetric C-H stretching in CH₂	2929	2923	2925	2933	2933	2925	2925
Amide I C=O	1655	1656	1655	1654	1648	1652	1655
Amide II bond in proteins	1540	1536	1540	1542	1540	1542	1540
Scissoring C-H bending vibration in CH₂-groups of lipids	1450	1440	1449	1449	1445	1447	1459
CH₃ in lipids	1397	1397	1399	1396	1399	1400	1398
Amide III bond in proteins	1311	-	1312	1306	1311	1313	1313
-P=O asymmetric vibration in -PO₂-groups	1224	1230	1238	1229	1233	-	-
v(C-C) ring breathing, asymmetric	1155	1147	1154	1152	1147	1146	1155
C-O stretching in COH/C-O-C	1105	1100	1102	1110	1110	1112	1110
β-C₁-O-C₄ glycosidic	1095, 993	1099, 992	1099, 992'	1092, 1002	- -	1090, 995	1092, 992
-CH- stretching vibration at C₃	1078	1076	1074	1075	1073	1078	1078
Skeletal vibrations involving C-O stretching at C₆	1035	1028	1032	1033	1033	1035	1035
The stretching vibration at C₃-O₃	1001	1001	-	1001	1008	1001	1001
OH stretching in cellulose structure due to Iα crystalline phase	748	731	743	747	747	747	747

* Ref. (Fuller et al., 2018; Eckel et al., 2001; Sheng et al., 2013; Sekkal et al., 1995)

** bKMC – KMC samples located at a bottom level of a tray; tKMC - KMC samples located at a top level of a tray; tKMC/MGR - KMC samples located at a top level of a tray in Mission Ground Reference experiment (DLR, Cologne, Germany); TrKMC – a transportation control KMCs; IKMC – laboratory kept KMCs.