

Mineralization of phosphorylated cellulose/ sodium alginate sponges as biomaterials for bone tissue engineering

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Supporting Figures

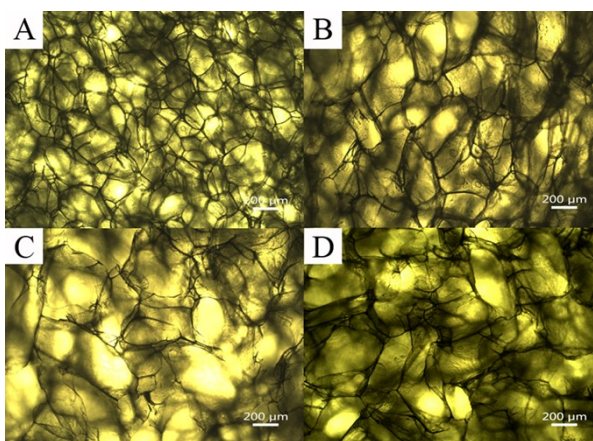


Fig. S1 Optical microscope micrographs of cellulose/SA composite sponges: (A) Cellu/SA00, (B) Cellu/SA10, (C) Cellu/SA20 and (D) Cellu/SA30.

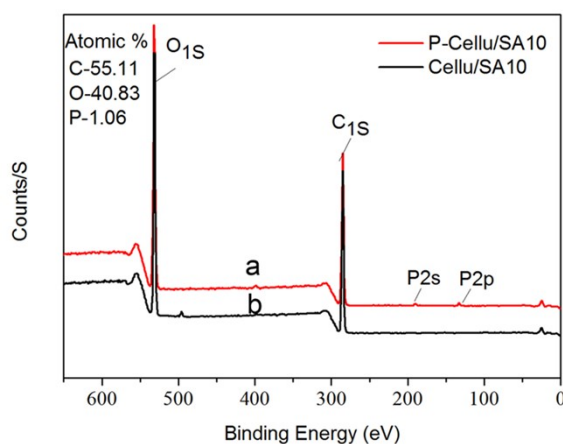


Fig. S2 XPS survey spectra of Cellu/SA10 and P-Cellu/SA10.

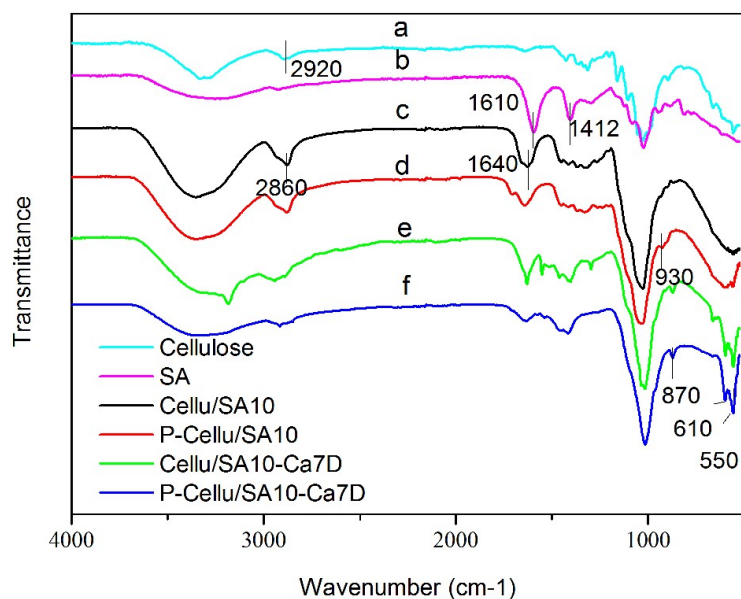


Fig. S3 FTIR spectra of various samples: (a) Cellulose, (b) SA, (c) Cellu/SA10, (d) P-Cellu/SA10, (e) Cellu/SA10-Ca7D, (f) P-Cellu/SA10-Ca7D.

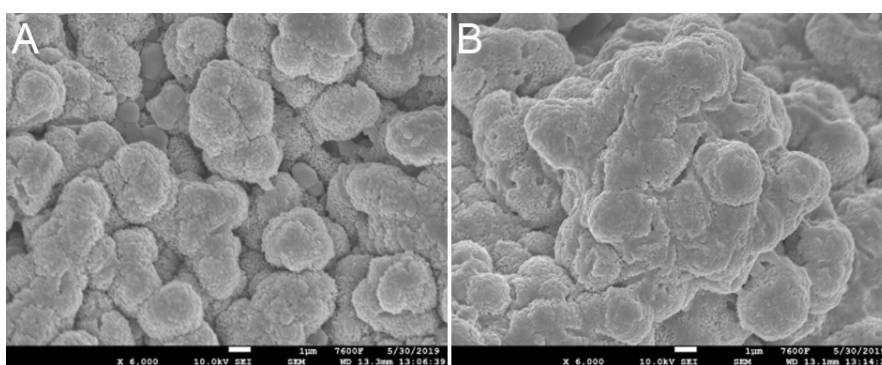


Fig. S4 SEM of HA in P-Cellu/SA00-Ca7D(A) and P-Cellu/SA10-Ca7D(B)

Supporting Table

Table S1 Peak areas and relative atomic percentage of O1s moieties in Cellu/SA10 and P-Cellu/SA10.

	C-OH/C-O-C	-COOR	C-O-P
Cellu/SA10	90486.600(53%)	81486.600(47%)	0
P-Cellu/SA10	84042.770(50%)	70647.880(41%)	16042.770(9%)

Table S2 The Ca/P value of HA in P-Cellu/SA00-Ca7D and P-Cellu/SA10-Ca7D.

	P-Cellu/SA00-Ca7D	P-Cellu/SA10-Ca7D
Ca (At%)	4.65	3.02
P (At%)	3.47	2.08
Ca/P ratio	1.34	1.45

As shown in SEM (Fig S4), compared with phosphorilated Cellu, the spherical apatite nanoparticles of phosphorilated Cellu/SA10 were aggregated into bigger rod-like apatite crystals, which may be caused by the high surface energy and density of HA nanoparticle. On the other hand, the Ca/P value in the P-Cellu/SA00-Ca7D and P-Cellu/SA10-Ca7D were 1.34 and 1.45, respectively (Table S2). It is indicated that phosphorilated Cellu/SA10 has a good mineralization function than phosphorilated Cellu. This behavior can be explained by the appropriate aperture size of the Cellu/SA10 which provides the contact area between SBF and sponge and enhances mineralization.