Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supplementary material 2

1 Compression performance test

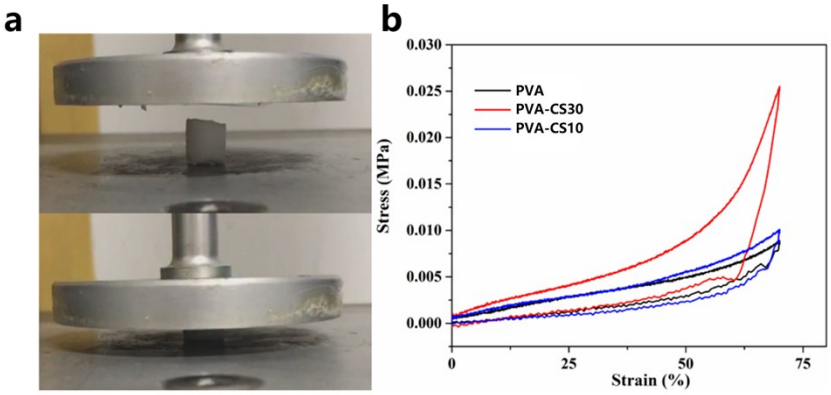
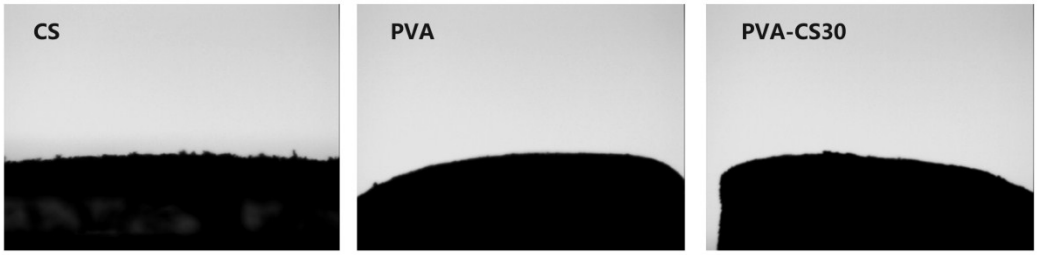


Fig. Compression performance test (A) and Compression stress-strain curve (B)

According to the compressive stress-strain curve, it can be concluded that all samples are compressed to 70% of the deformation at the same time. The compressive strength of sample 2 is the highest, followed by that of sample 3, and the compressive strength of sample 1 is the lowest. It can be concluded that the compression strength of pure PVA is the smallest, and the compression strength of the material increases with the chitosan content. The degree of crosslinking and the apparent density increased in the PVA-CS30 group.

2 Contact Angle:



The absorption angles of all the samples were less than 10 degrees, which indicated they were hydrophilic.

3 Thermodynamics:

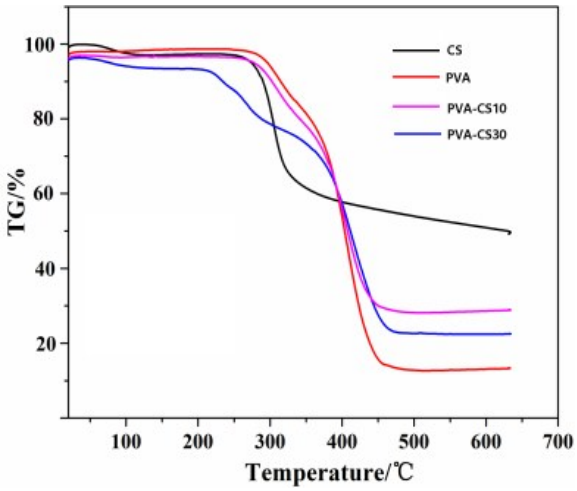


Fig: As can be seen from the figure, sample 1 PVA (without chitosan) had the highest thermal decomposition temperature, indicating that it had the best thermal stability and the residual content was less than 20%. Sample 3 PVA-CS 10 (a small amount of chitosan) was pyrolyzed at lower temperature, and the residual content was less than 40%. The thermal decomposition temperature of sample 2 PVA-CS 30 was the lowest, and its thermal stability was not as good as the first two samples. Two obvious thermal decomposition platforms appeared in PVA-CS 30 with two thermal decomposition temperatures.The thermal decomposition temperature of chitosan was lower than pure PVA, and the residual content was more than 40%.

Analysis: The addition of chitosan reduced the thermal decomposition temperature and thermal stability of the material.PVA-CS 30 has two thermal decomposition temperatures, which proves that it is a two-phase mixture. The burning residuals of PVA-CS 30 and PVA-CS 10 were between pure PVA and pure chitosan, which proved that it contained chitosan.