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

Highly conductive hydrogel driven by phytic acid towards wearable sensor with freezing and dehydration resistance

Qin Zhang[a], Xin Liu[b], Jiawei Zhang[b], Lijie Duan[a]*, and Guanghui Gao[b]*

[a] Polymeric and Soft Materials Laboratory, School of Chemistry and Life Science and Advanced Institute of Materials Science, Changchun University of Technology, Changchun 130012, China.

[b] Polymeric and Soft Materials Laboratory, School of Chemical Engineering and Advanced Institute of Materials Science, Changchun University of Technology, Changchun 130012, China.

Corresponding authors: Lijie Duan, Guanghui Gao

E-mail: duanlijie@ccut.edu.cn; ghgao@ccut.edu.cn

Figure S1. The PAM/CS-PA hydrogels (0:20) resisted the cut with a blade.

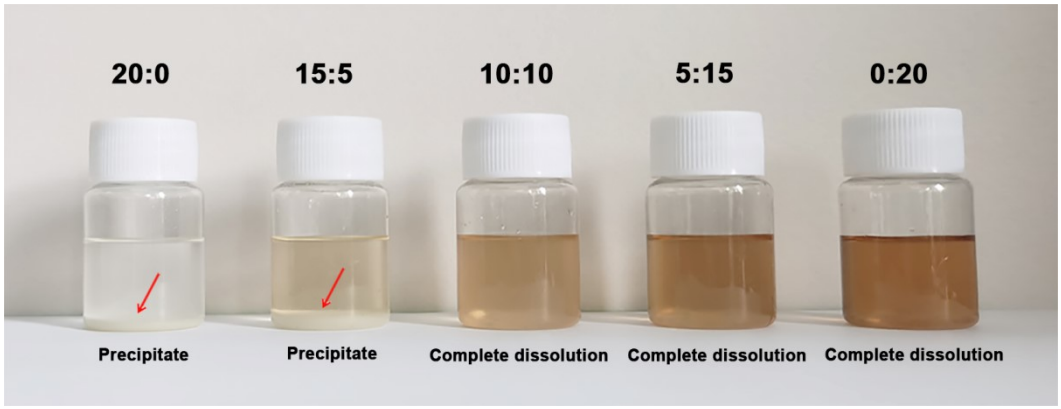

Figure S2. Dissolution of CS in the solvent with different volume ratios of H_2O/PA.

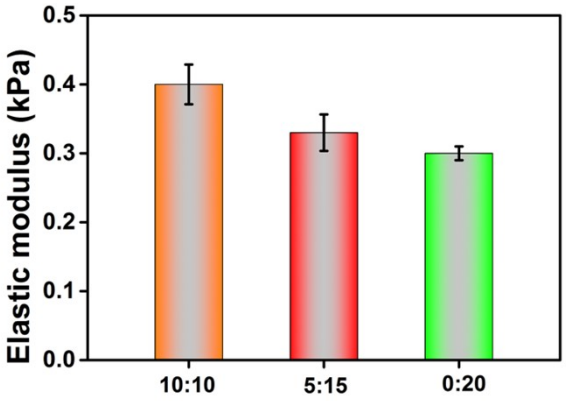

Figure S3. Elastic modulus of the hydrogels with different volume ratios of H_2O and PA.

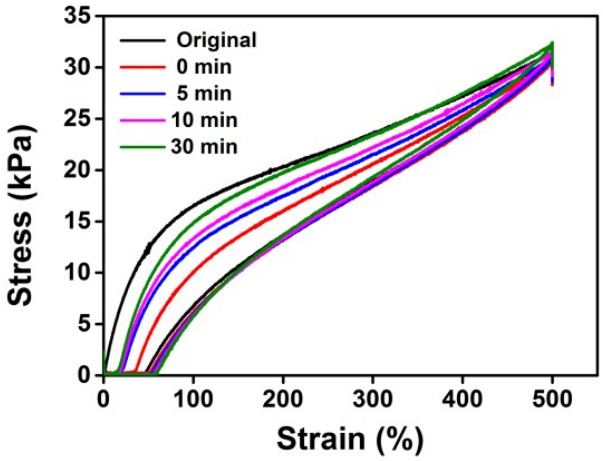

Figure S4. Cyclic tensile curves of hydrogel (0:20) under different recovery time at the strain of 500%.

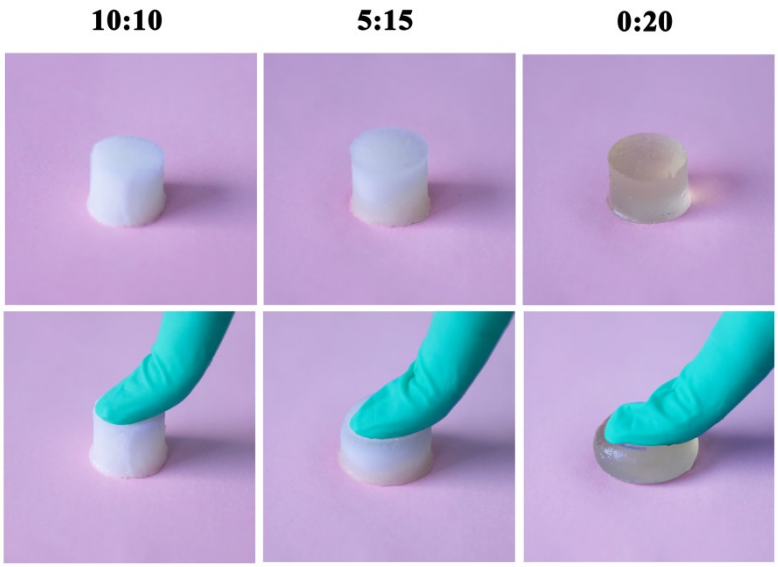

Figure S5. Photographs of the hydrogels with different volume ratios of H_2O and PA after storage at -20 °C for 1 day.

Figure S6. Photographs of the hydrogel (0:20) after storage at -30 °C for 1 day.

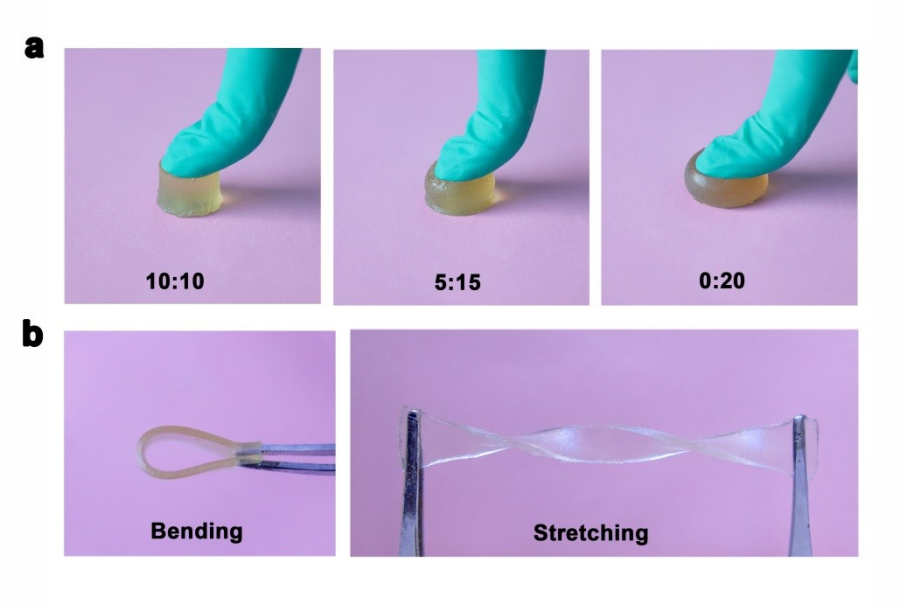

Figure S7. (a) Photographs of the hydrogels with different volume ratios of H_2O and PA pressed by finger after storage in an open environment for 15 days. (b) Photographs of the hydrogels (0:20) under bending and stretching after storage in an open environment for 15 days.

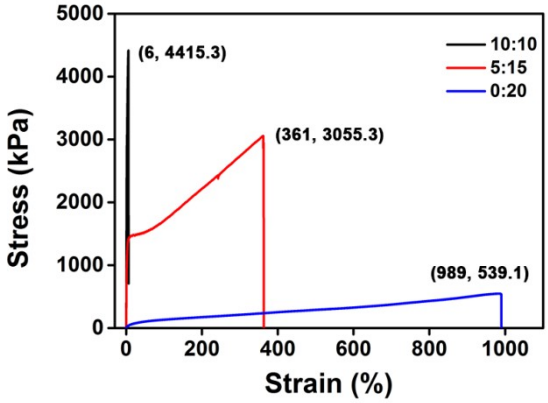

Figure S8. Tensile curves of hydrogels with different volume ratios of H_2O and PA after storage in an open environment for 15 days.

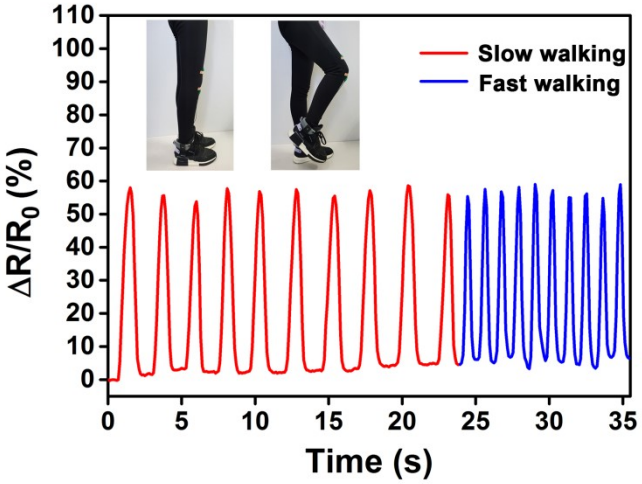

Figure S9. Time-dependent $\Delta R/R_0$ of the sensor when walking with different speeds.

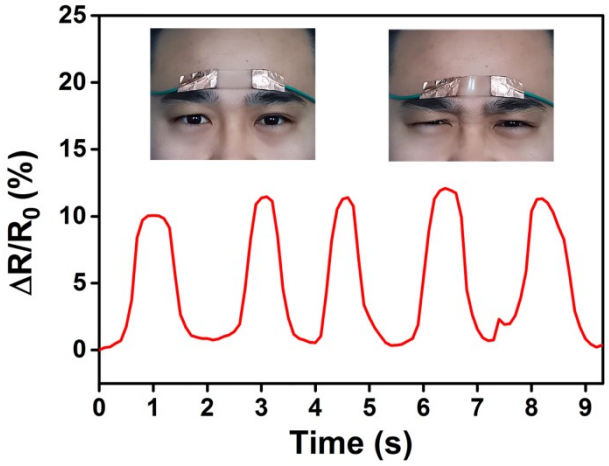

Figure S10. Time-dependent $\Delta R/R_0$ of the sensor when frowning.