

Transparent Cellulose Films with High Gas Barrier Properties Fabricated from Aqueous Alkali/Urea Solutions

Quanling Yang,[†] Hayaka Fukuzumi,[†] Tsuguyuki Saito,[†] Akira Isogai,^{*†} and Lina Zhang[‡]

[†]Department of Biomaterial Sciences, Graduate School of Agricultural and Life Sciences, University of Tokyo, 1-1-1 Yayoi, Bunkyo-ku, Tokyo 113-8657, Japan

[‡]Department of Chemistry, Wuhan University, Wuhan 430072, China

E-mail: aisogai@mail.ecc.u-tokyo.ac.jp

Supporting Information

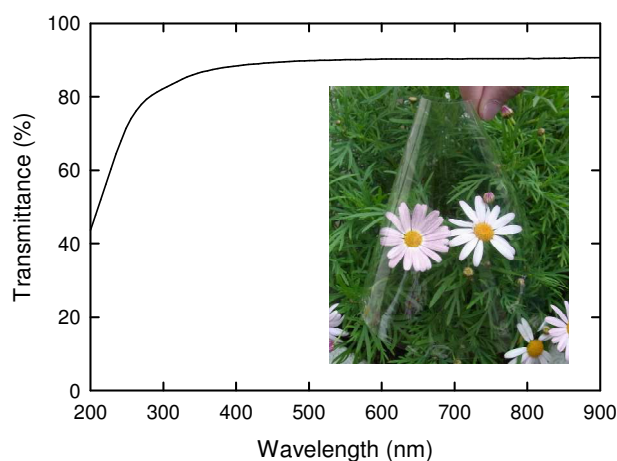


Figure S1. UV-Vis transmittance and appearance of an approximately 50 μm thick cellulose film prepared from 5 wt % FP cellulose solution in NaOH/urea/ H_2O by regeneration with 5 wt % H_2SO_4 at 0 $^\circ\text{C}$.

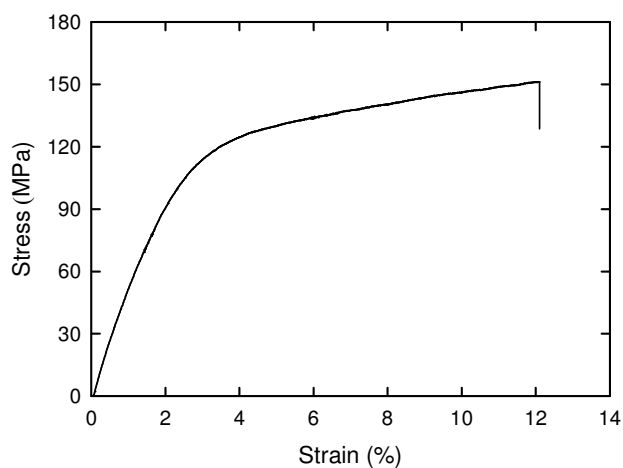


Figure S2. Stress-strain curve of cellulose film prepared from 5 wt % FP cellulose solution in NaOH/urea/H₂O by regeneration with 5 wt % H₂SO₄ at 0 °C.

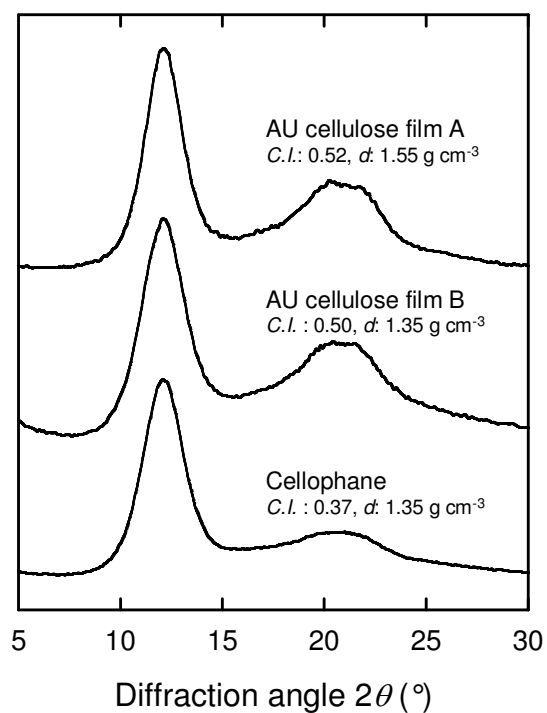


Figure S3. XRD patterns of AU cellulose films prepared from 6 wt % FP cellulose solution by regeneration with acetone at 20 °C (AU cellulose film A), from 5 wt % FP cellulose solution by regeneration with 5 wt % H₂SO₄ at 60 °C (AU cellulose film B), and that of cellophane. *C.I.*: crystallinity index; *d*: density.