

## Supplementary Materials:

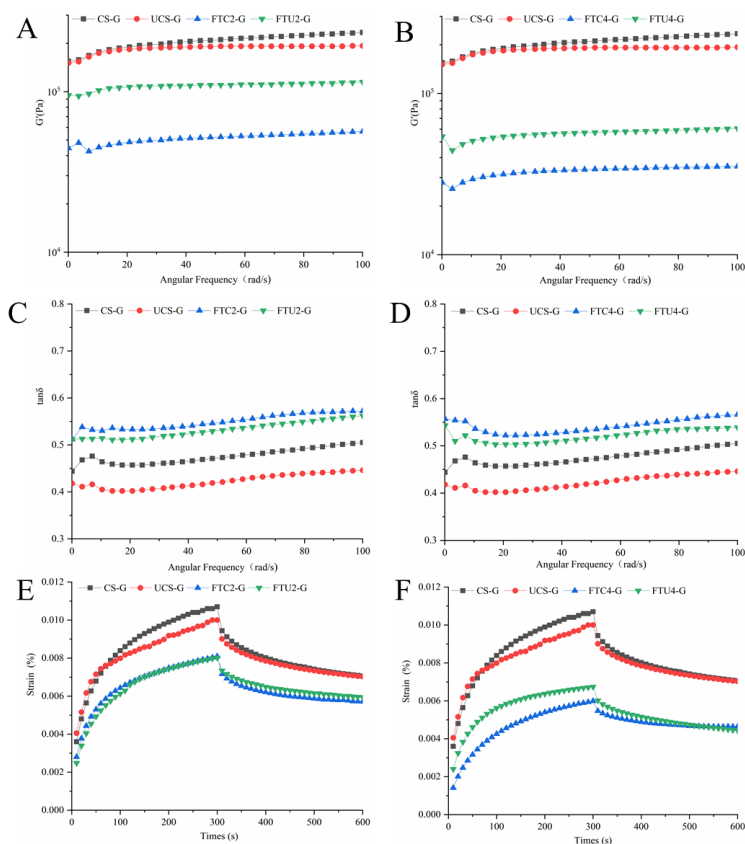


Figure S1. The elastic modulus, loss angle tangent and creep recovery curves of ultrasonically modified corn starch model dough at 2,4 freeze-thaw cycles. A-B is the elastic modulus, C-D is the loss angle tangent and E-F is the creep recovery curve.

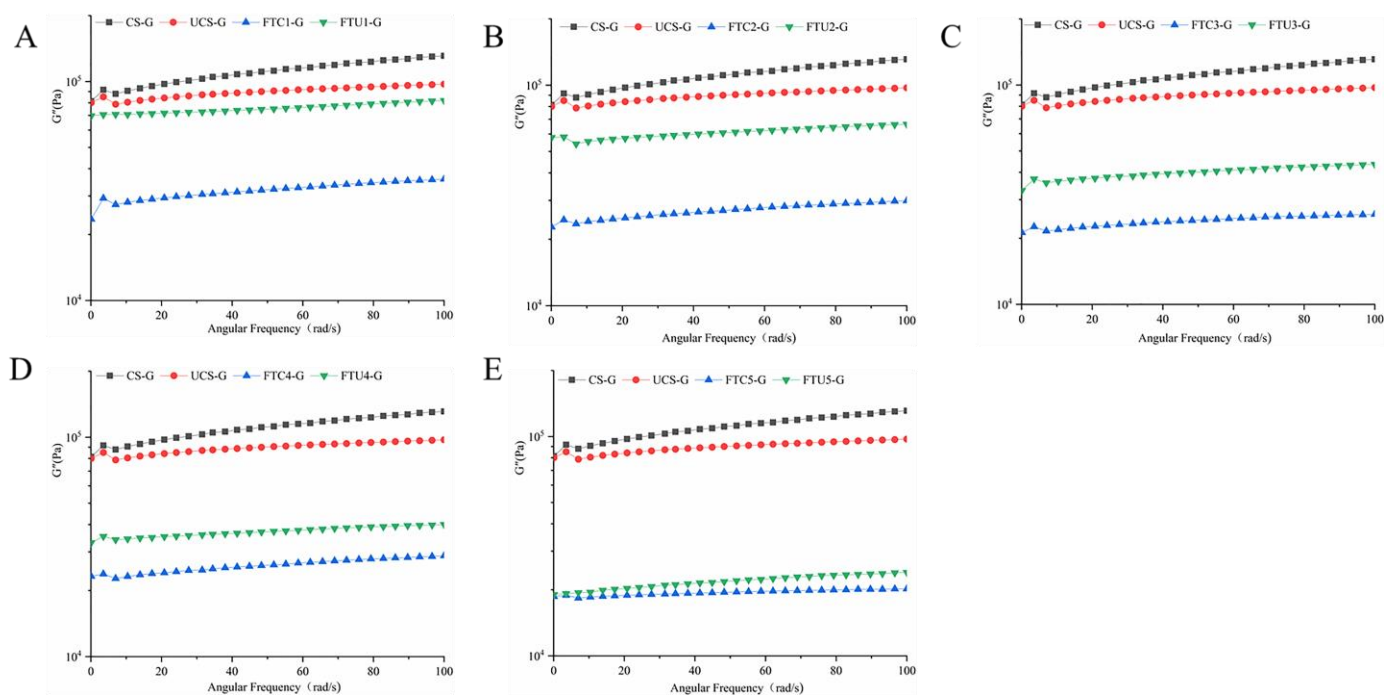


Figure S2. Viscosity modulus of ultrasonically modified corn starch model doughs under different number of freeze-thaw cycles

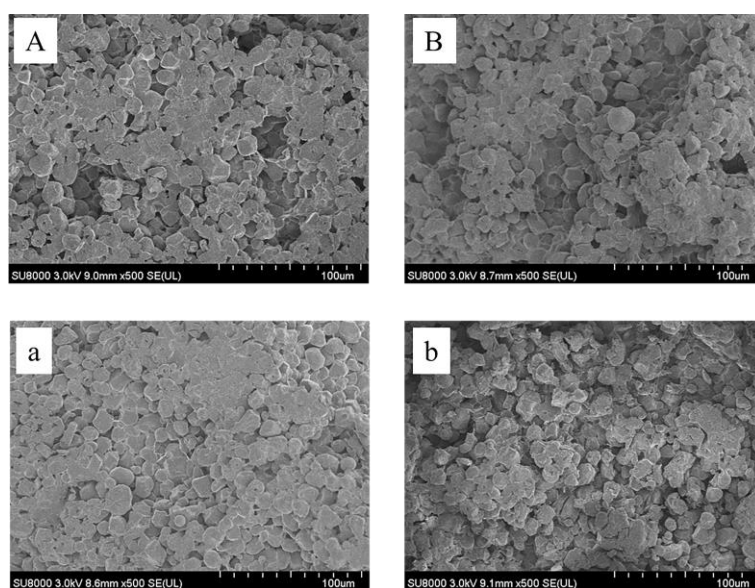


Figure S3. Scanning electron micrographs of ultrasonically modified corn starch model dough at 2,4 freeze-thaw cycles.