

Supplementary

The Crystallization Behavior and Mechanical Properties of Biodegradable Poly(butylene succinate-*co*-2-methyl succinate)/Cellulose Nan^oCrystals Composites

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Preparation of PBSMS/CNC Composites

Two PBSMS/CNC composites were prepared through a solution and casting process, which contained 0.5 and 1 wt% of CNC and were named as PBSMS/CNC0.5 and PBSMS/CNC1, respectively. Taking PBSMS/CNC1 as an example, the preparation procedure was described as follows. First, 2.97 g of PBSMS was dissolved into 35 mL of DMF after stirring at 35 °C for 2 h to form a solution, and 30 mg of CNC was dispersed into 15 mL of DMF with the help of the sonication at 350 W for 2 h (KQ-700DE ultrasonic generator) to form a suspension. Second, the PBSMS solution and the CNC suspension were further mixed and stirred at 35 °C for 4 h. Third, the solvent was evaporated at 35 °C in a fume hood to form a film. Finally, the obtained film was further dried in a vacuum oven at 50 °C for 7 days to completely remove the residual solvent. For comparison, neat PBSMS also underwent the same process.

Nonisothermal Crystallization Behavior Study

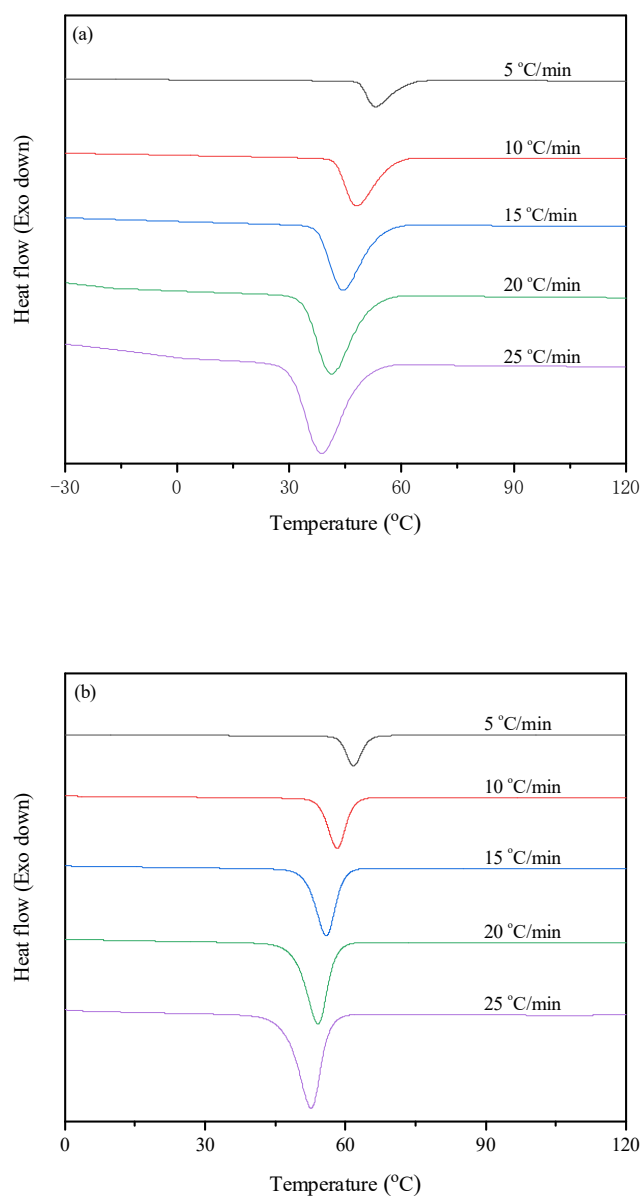


Figure S1. DSC cooling curves of (a) PBSMS and PBSMS/CNC1 at different cooling rates.

Isothermal Crystallization Kinetics Study

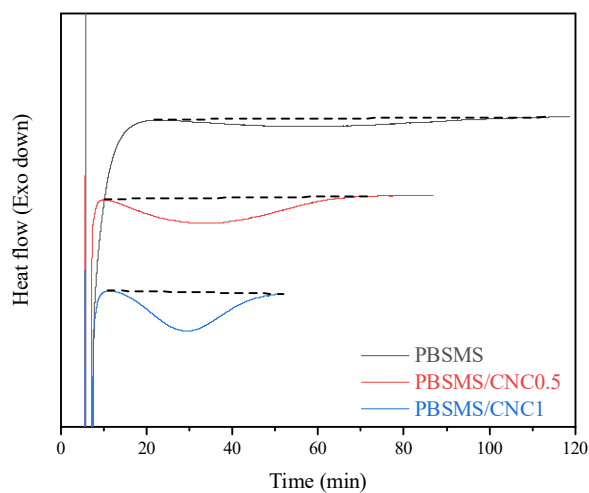


Figure S2. The heat flow evolution with crystallization time for PBSMS and its composites at 76 °C.

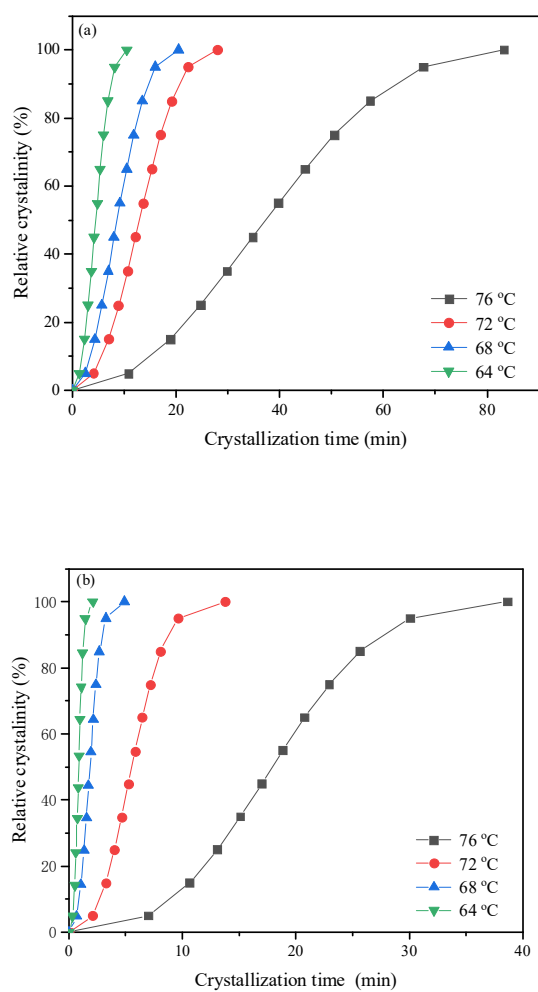


Figure S3. Plots of relative crystallinity versus crystallization time for (a) PBSMS and (b) PBSMS/CNC1.

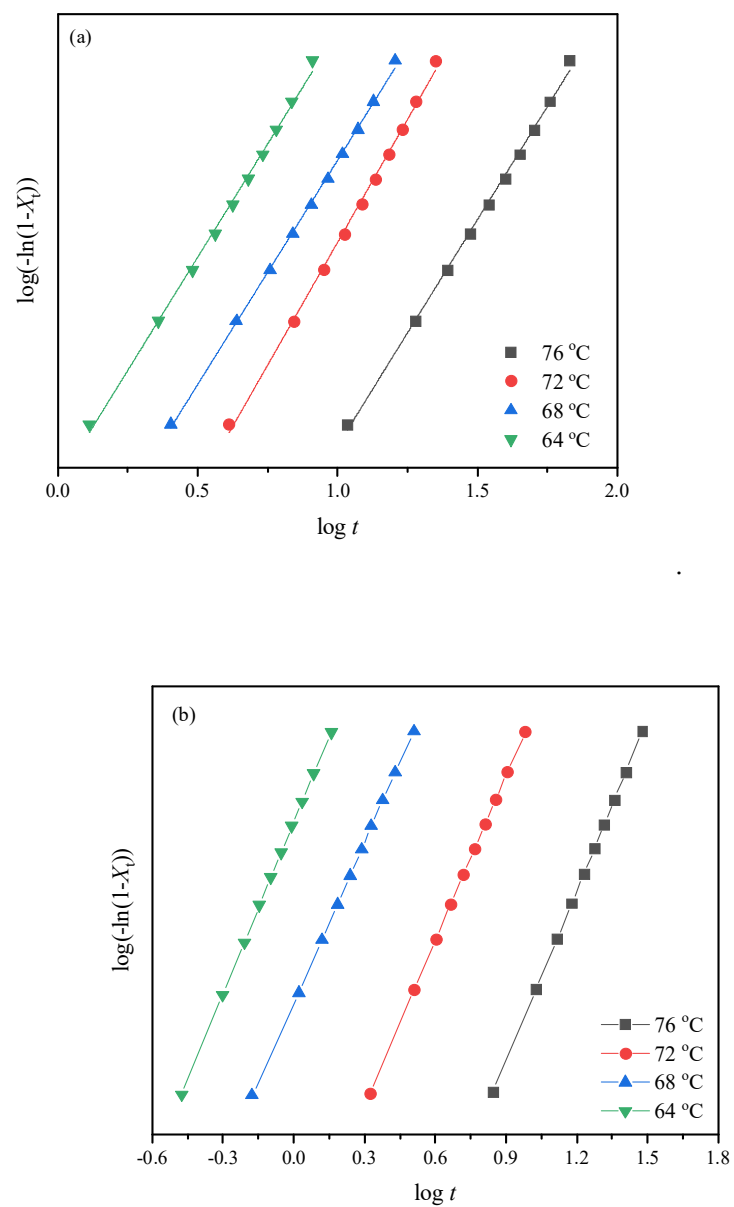


Figure S4. Avrami plots for (a) PBSMS and (b) PBSMS/CNC1.

Mechanical Property Study

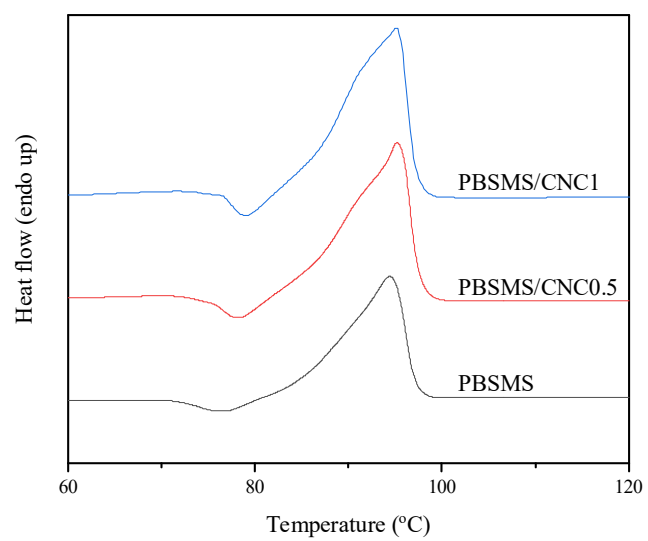


Figure S5. DSC heating curves of the samples for the mechanical property test at 10 °C/min.