Electronic Supplementary Material (ESI) for RSC Advances.

Tuning the mechanical properties of cellulose nanofibrils reinforced polyvinyl alcohol composites via altering the cellulose polymorphs

Xiaran Miao,[b§] FengTian,[a, b§] Jinyou Lin,[*a, b] Hui Li,[c] Xiuhong Li,[b] Fenggang Bian,[b] and Xiangzhi Zhang[*b]

[a] State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, Donghua University, Shanghai 201620, China

[b] Shanghai Synchrotron Radiation Facility, Shanghai Institute of Applied Physics, Chinese Academy of Sciences, Shanghai 201204, China

[c] School of Materials Science and Engineering, East China University of Science and Technology, Shanghai 200237, China

[*]Corresponding author. Tel: +86-21-33931904; Fax: +86-21-33931904.

E-mail address: jinyoulin82@gmail.com & linjinyou@sinap.ac.cn; Zhangxiangzhi@sinap.ac.cn

[§] These authors have contributed equally to this work.

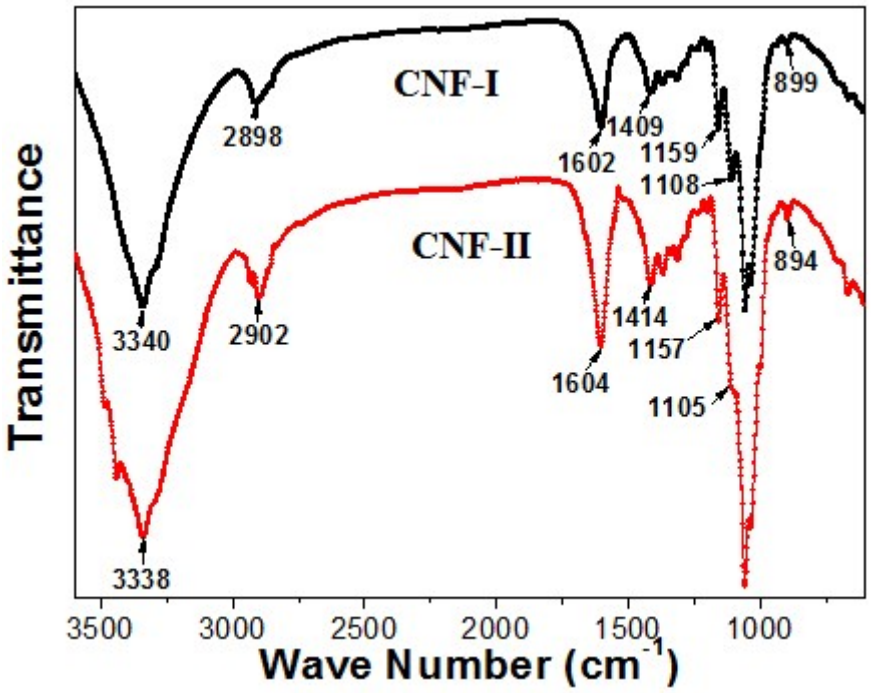


Fig. S1. FTIR spectra of CNF-I and CNF-II.

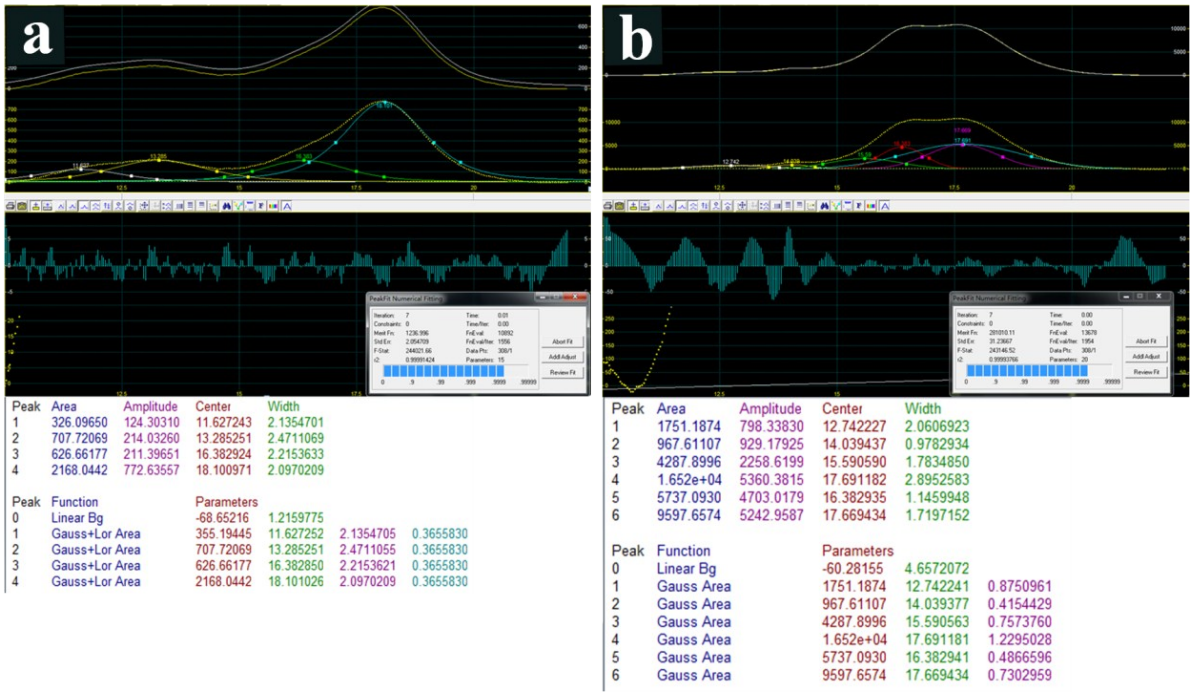
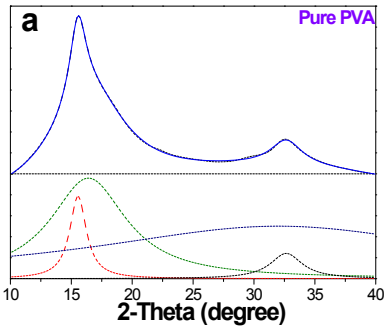
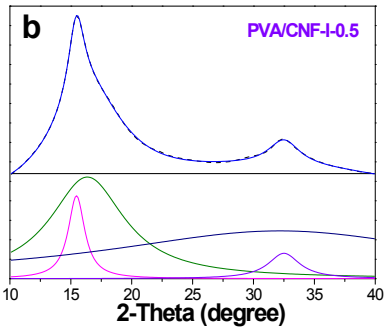
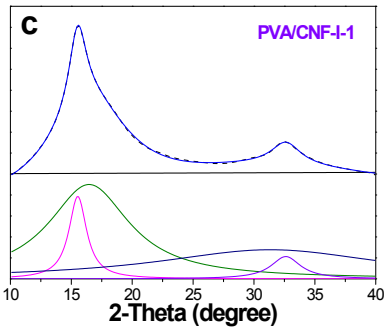
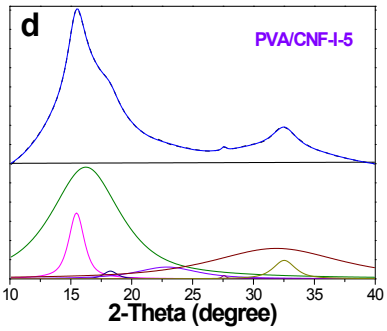


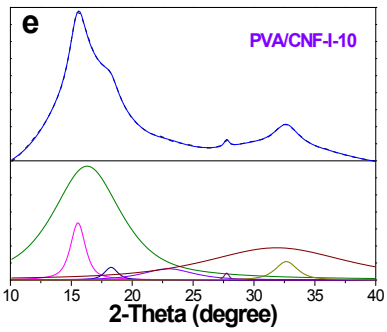
Fig. S2. Peak fit results of 1D SR-WAXS integral curves in the 2θ range of 10-22°: (a) CNF-I and (b) CNF-II.


a
Pure PVA
10 15 20 25 30 35 40
2-Theta (degree)


b
PVA/CNF-I-0.5
10 15 20 25 30 35 40
2-Theta (degree)


c
PVA/CNF-I-1
10 15 20 25 30 35 40
2-Theta (degree)


d
PVA/CNF-I-5
10 15 20 25 30 35 40
2-Theta (degree)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PVA/CNF-I-10
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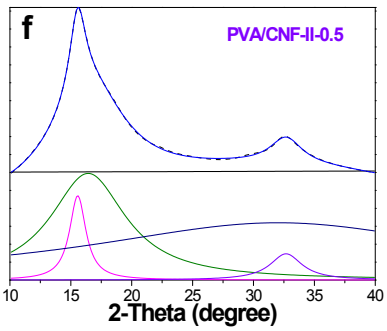
2-Theta (degree)


f
PVA/CNF-II-0.5
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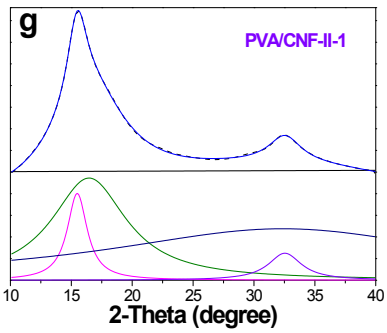
2-Theta (degree)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PVA/CNF-II-1
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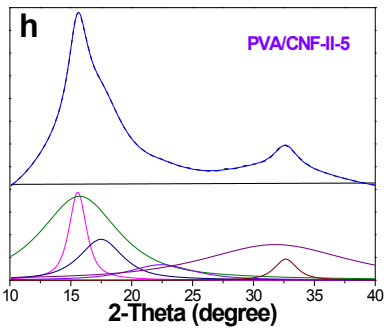
2-Theta (degree)


h
PVA/CNF-II-5
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2-Theta (degree)

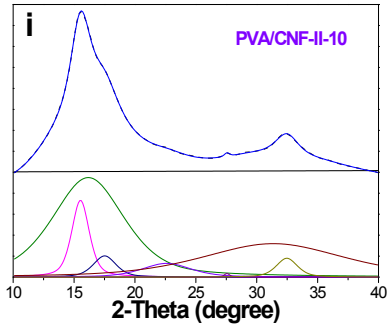

Fig. S3. Peak fit results of 1D SR-WAXS integral curves of PVA/CNF composite films.

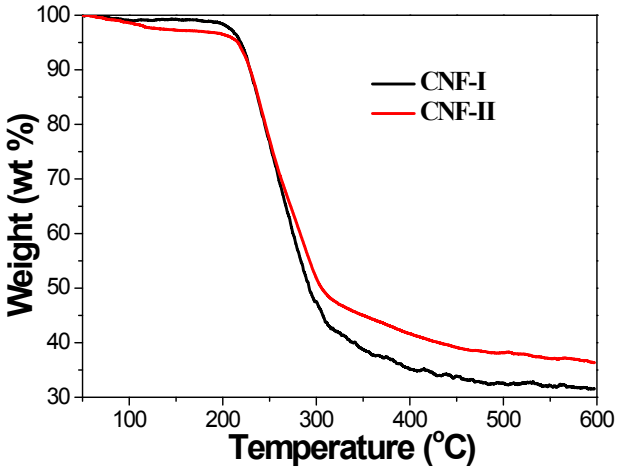

Fig. S4. TGA curves of CNF-I and CNF-II at a heating rate of 10 °C/min.

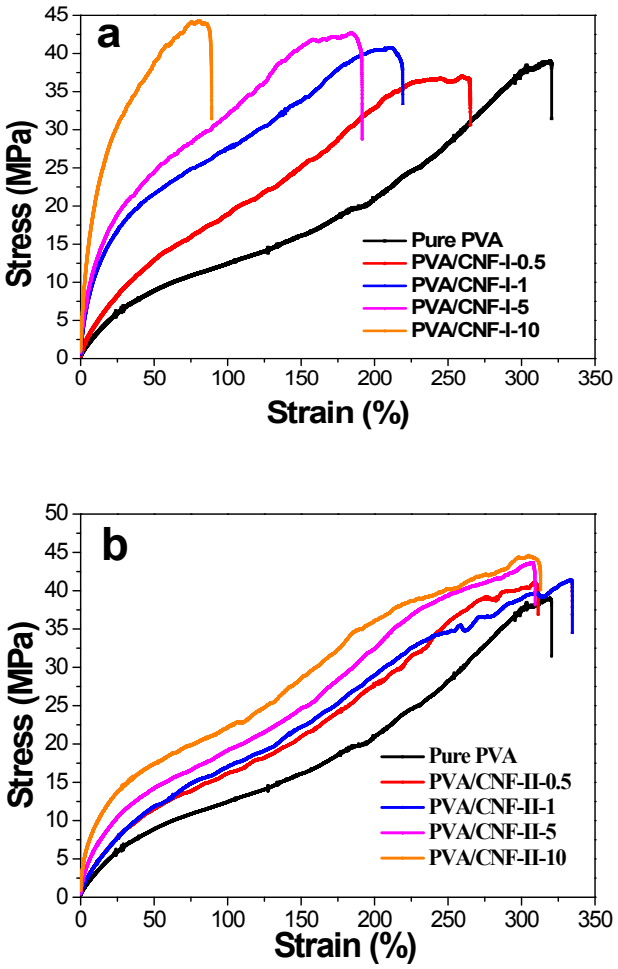

Fig. S5. Typical stress-strain curves of (a) PVA/CNF-I and (b) PVA/CNF-II composite films.

Table S1. The temperatures at 10% weight loss (T_{-10} °C) and the maximum weight loss rate (Tp).

Samples	Pure PVA	PVA/ CNF-I-1	PVA/ CNF-I-5	PVA/ CNF-I-10	PVA/ CNF-II-1	PVA/ CNF-II-5	PVA/ CNF-II-10
T_{-10} (°C)	272.5	284.9	294.9	257.4	279.9	287.4	265.0
Tp (°C)	317.5	319.9	324.9	307.4	319.4	320.0	312.5