

# **Flavonoids Isolation from *Stellera Chamaejasme* for Preparing Antimildew and Anti-decay Soybean Protein Isolate-based Adhesives**

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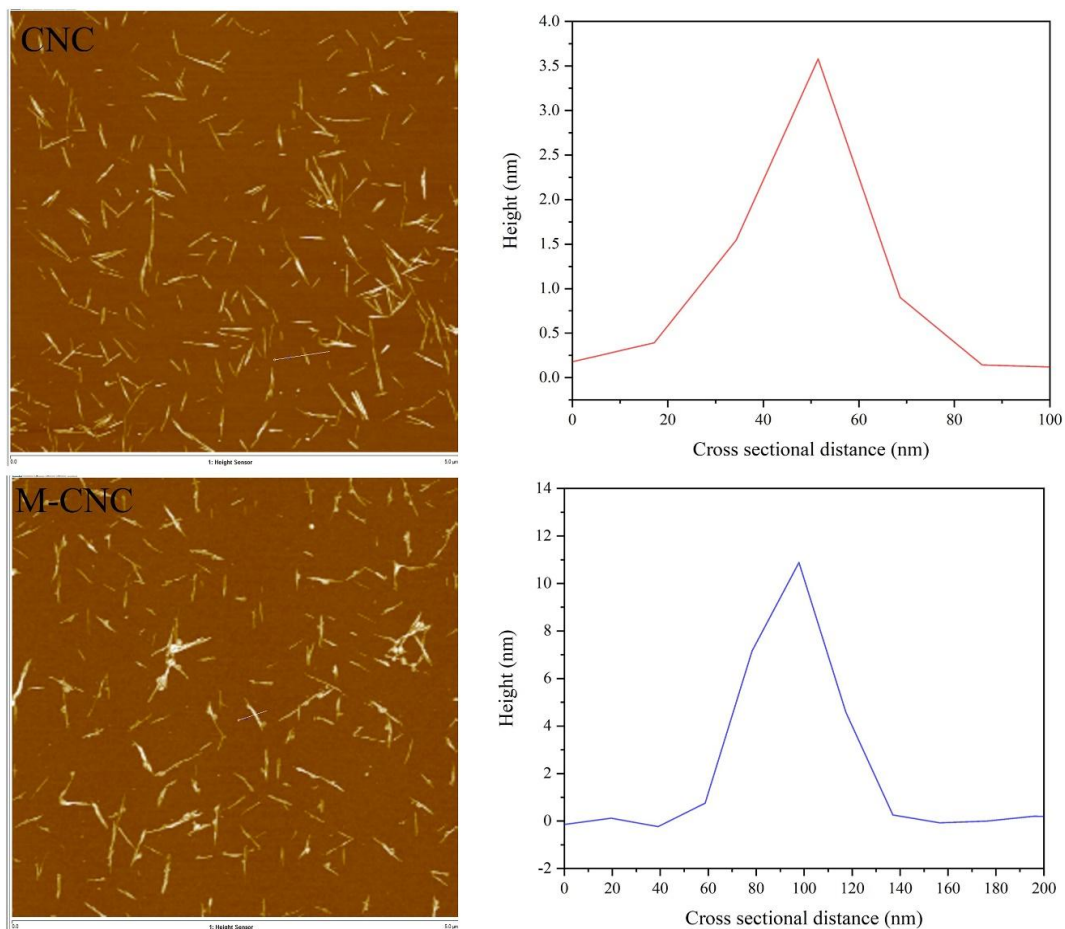
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## **S1. Extraction steps of cellulose**

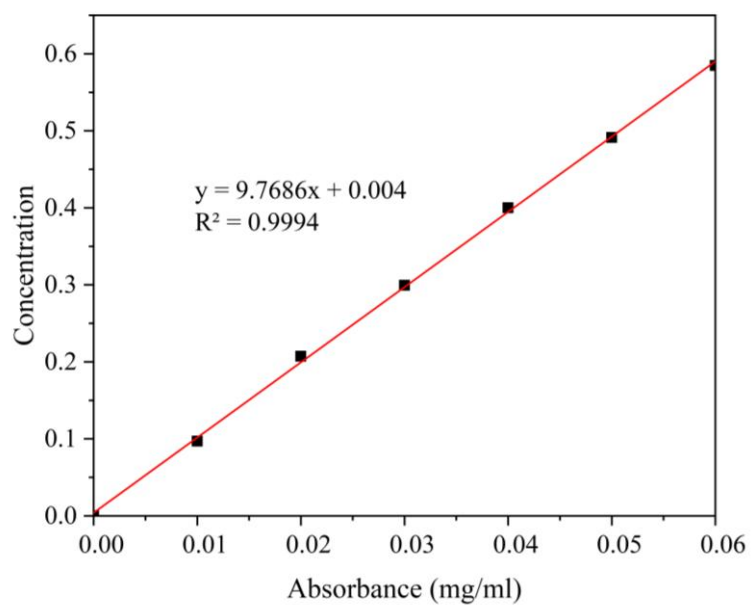
600mL of water was added to a beaker, followed by 32g of sodium hydroxide and 24.2g of sodium sulfite, and fully dissolved. 40g of *Stellera chamaejasme* root residue was added to 600ml of alkaline solution and reacted for 9 hours at 320 °C. Then residue was filtered and boiled the residue in boiling water for 1 hour, repeating this step twice. Afterwards, the residue was performed bleaching treatment. 180ml of acetic acid buffer (2mol.L<sup>-1</sup>) was measured and diluted with 600ml of water. Then 6.02g Sodium chlorite, 0.168g sodium hypochlorite, 0.128g TEMPO were added to solution. Then the residue place in 600ml of bleach solution, and reacted for 8 hours at 200 °C. After the reaction was completed, filtered, washed the filter residue, and dried to obtain cellulose.

## **S2. Preparation procedure of cellulose nanocrystals**

100g of 64% mass fraction sulfuric acid solution was prepared, and 4g of cellulose was added, and reacted at 50 °C for 2 hours. After centrifugation of the reaction solution, the sediment was collected and repeatedly washed it until a stable dispersion appeared on the upper layer. The upper turbidity was collected and dialyzed for 3 days to obtain a stable and dispersed CNC suspension.



**Fig. S1:** AFM images and corresponding cross-section profiles of CNC and M-CNC .



**Fig. S2:** Standard curve of rutin.

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