

## Supporting information

### The Solution Characteristics of Nitrated Bacterial Cellulose in Acetone

Qingping Luo<sup>a</sup>, Juan Zhu<sup>b</sup>, Zhaoqian Li<sup>a</sup>, Xiaohui Duan<sup>a</sup>, Chonghua Pei<sup>a</sup>, Changyong Mao<sup>b</sup>

a. State Key Laboratory Cultivation Base for Nonmetal Composites and Functional Materials,  
Southwest University of Science and Technology, Mianyang 621010, China.

b. Luzhou North Chemical Industries Co., Luzhou 646000, China.

\*CORRESPONDING AUTHOR FOOTNOTE

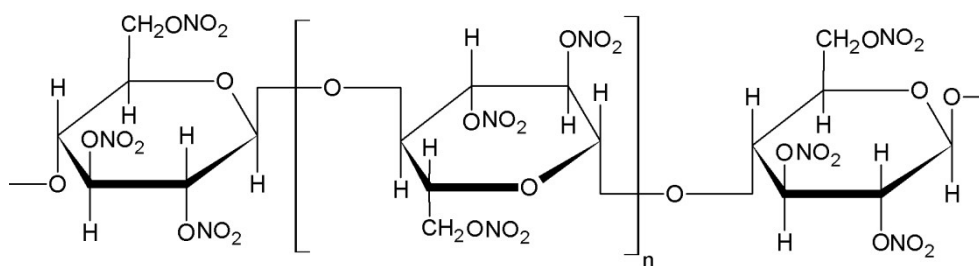
Prof. Q.P. LUO

State Key Laboratory Cultivation Base for Nonmetal Composites and Functional Materials,  
Southwest University of Science and Technology, Mianyang 621010, China.

E-mail: [luoqingping@swust.edu.cn](mailto:luoqingping@swust.edu.cn)

Tel: +86 351 2419280; fax: +86 351 2419280.

## Figures



$$\text{Degree of substitution, DS} = \frac{3.6 \cdot \text{nitrogen content}[\%]}{31.13 - \text{nitrogen content}[\%]}$$

Cellulose mononitrate DS=1 (6.76% of nitrogen content)

Cellulose dinitrate DS=2 (11.11% of nitrogen content)

Cellulose trinitrate DS=3 (14.14% of nitrogen content)

Fig. S1. Chemical structure of NBC polymer and its degree of substitution (DS).

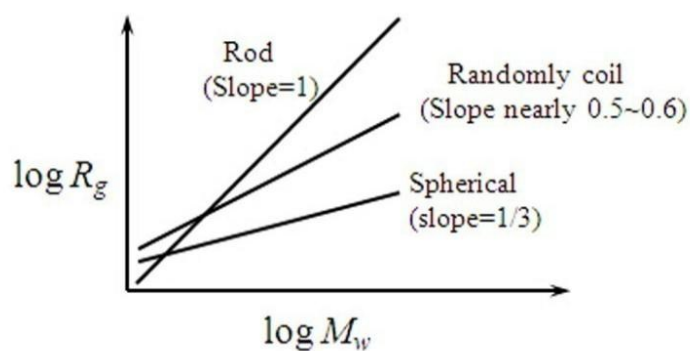


Fig. S2 The relationship between  $M_w$ ,  $R_g$  and the molecular shape.

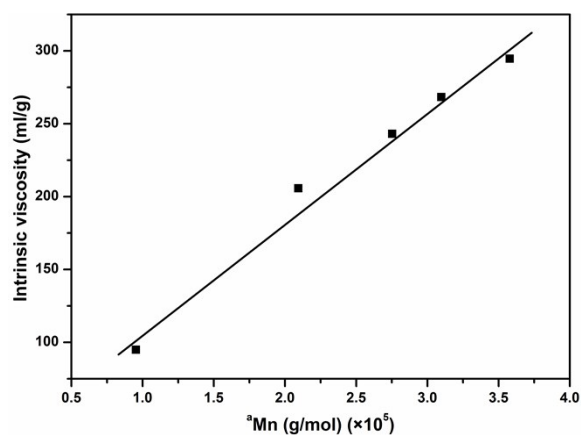


Fig. S3 The relationship curve between NBC's molecular weight and intrinsic viscosity

## Tables

Table S1 The degrees of substitution of NBC samples with different nitrogen contents.

Nitrogen content (%)	11.97	12.55	12.73	12.88	13.16
Degree of substitution	2.25	2.43	2.49	2.54	2.64