

# Improving pulping performance as well as reducing consumption and increasing efficiency via microbial consortium pretreating bamboo

Chun Liu<sup>1,2</sup>, Zhijian Li<sup>1,\*</sup>, Xiuqiong Guan<sup>2</sup>, Yang Xu<sup>1</sup>, Nan Huang<sup>1,2</sup>, Kui Liu<sup>2</sup>

<sup>1</sup> College of Bioresources Chemical and Materials Engineering, Shaanxi University of Science and Technology, Xi'an 710021, China; liuchun163@126.com (C.L.); ppxuyang@126.com (Y.X.); huangnan@sust.edu.cn (N.H.)

<sup>2</sup> College of Biological Engineering, Sichuan University of Science and Engineering, Yibin 644000, China; xqguan2004@163.com (X.G.)

\* Correspondence: lizj@sust.edu.cn

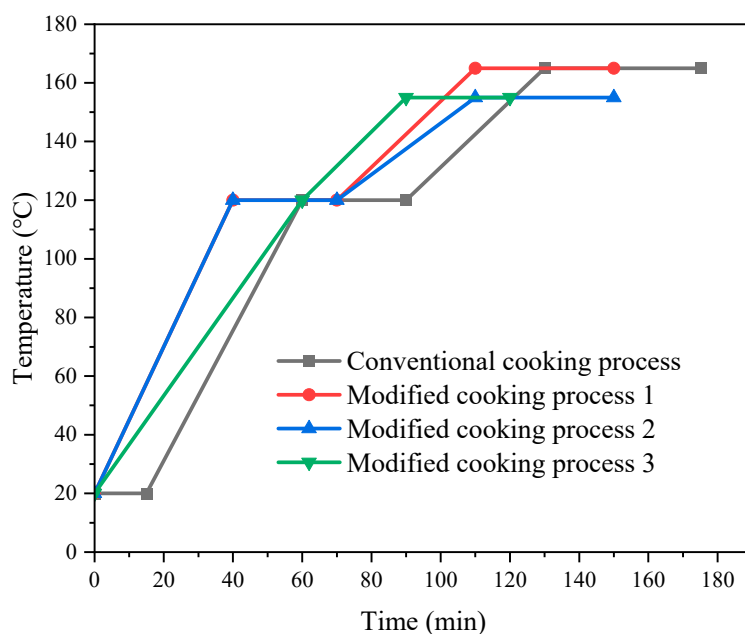


Figure S1. The cooking curve before/after modifying.

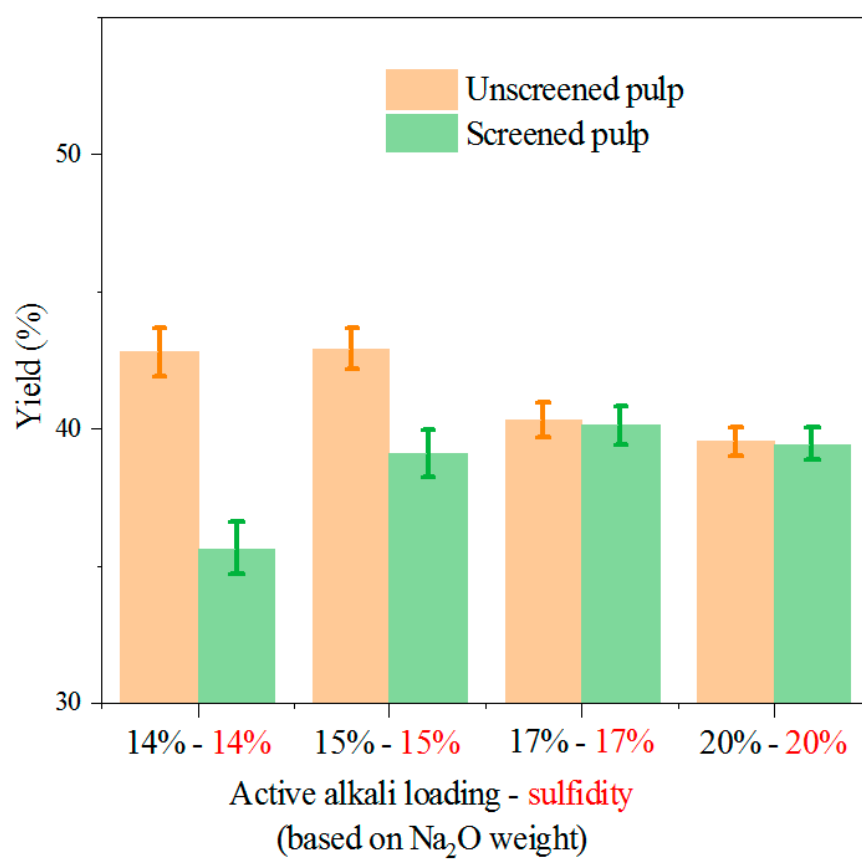


Figure S2. Results of yields of cooked pulp with different active alkali loading and sulfidity.

Table S1. The strength properties of hand papers and the requirement in strength properties of unbleached bamboo pulp.

| Item  |         | Tear index<br>(mN·m <sup>2</sup> /g) | Tensile index<br>(N·m/g) | Burst index<br>(kPa·m <sup>2</sup> /g) |
|---|---------|--------------------------------------|--------------------------|--|
| <b>Data obtained from conventional cooking conditions ( Section 3.3.2 and Figure 6b )</b> | Origin  | 49.25 ± 1.73                         | 46.55 ± 0.85             | 5.94 ± 0.05                            |
|   | Control | 45.24 ± 0.98                         | 52.00 ± 0.73             | 5.07 ± 0.06                            |
|   | A       | 74.07 ± 2.88                         | 64.79 ± 1.3              | 7.5 ± 0.17                             |
|   | B       | 66.02 ± 1.99                         | 62.92 ± 1.28             | 7.33 ± 0.09                            |
|   | C       | 61.93 ± 2.05                         | 63.18 ± 1.68             | 7.39 ± 0.20                            |
| Data obtained from modified cooking conditions ( section 3.3.2)                           | Origin  | 29.46                                | 38.60                    | 5.93                                   |
|   | C       | 35.17                                | 59.25                    | 6.07                                   |
| Q/79397065-5.2-2020   |         | 9.5                                  | 58                       | 4.5                                    |
| Sichuan Yongfeng County Pulp and Paper Co. , Ltd.   |         |                                      |                          |  |