

Supplementary Information for

Dual roles of nanocrystalline cellulose extracted from jute (*Corchorus olitorius* L.) leaves in resisting antibiotics and protecting probiotics

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49 **Supplementary figures**

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51 **Fig. S1. The biological potential protective effects of jute NCC on human gut bacteria**

52 (*Escherichia coli*) after kanamycin treatment. (A) Effects of cellulose and NCC (50

53 $\mu\text{g/mL}$) on growth curves of gut bacteria after ampicillin treatment ($10 \mu\text{g/mL}$). (B-C) Effects

54 of cellulose and NCC ($50 \mu\text{g/mL}$) on the bacterial colonies of gut bacteria after ampicillin

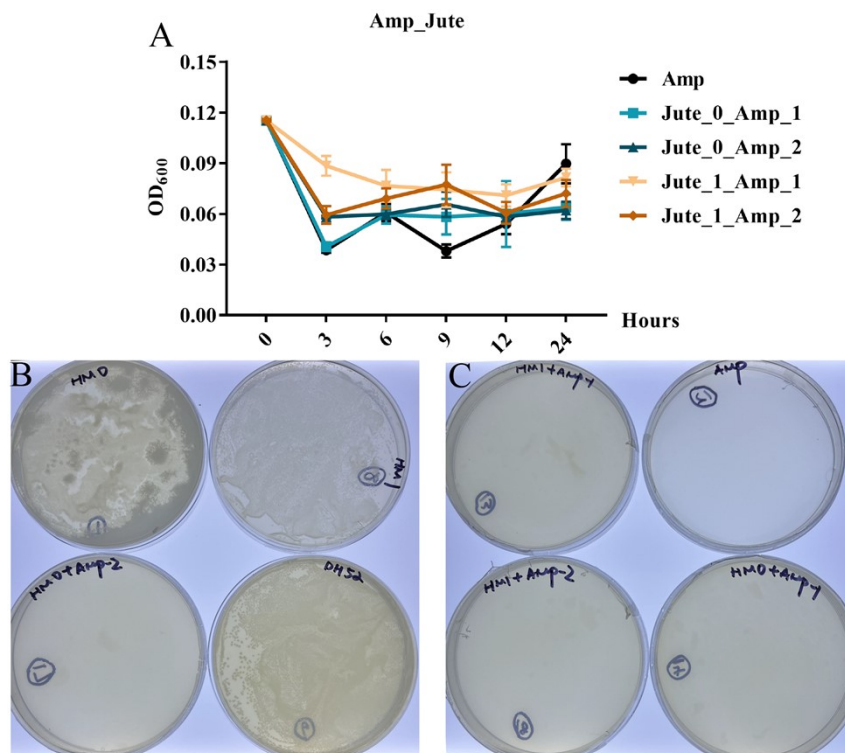
55 treatment were presented on the plates for 18 h. Jute 0 represents jute cellulose; Jute 1

56 represents jute nanocrystalline cellulose; Amp represents ampicillin treatment.

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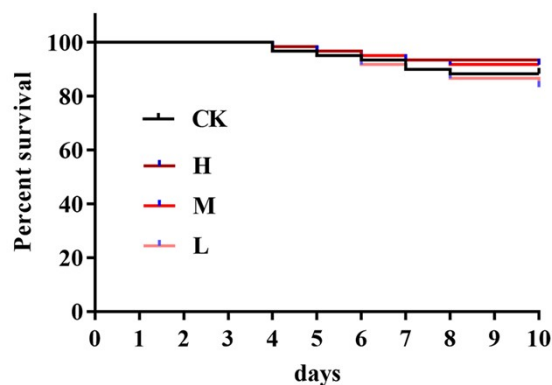
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61 **Fig. S2. The effect of different concentration of jute NCC on survival rate of honeybees.**

62 H: high, $100 \mu\text{g/mL}$; M: medium, $10 \mu\text{g/mL}$, and L: low, $1 \mu\text{g/mL}$.



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