Supplementary Tables

Supplementary Table S1. RVA parameters of NPB treated with exogenous substances at different temperatures.

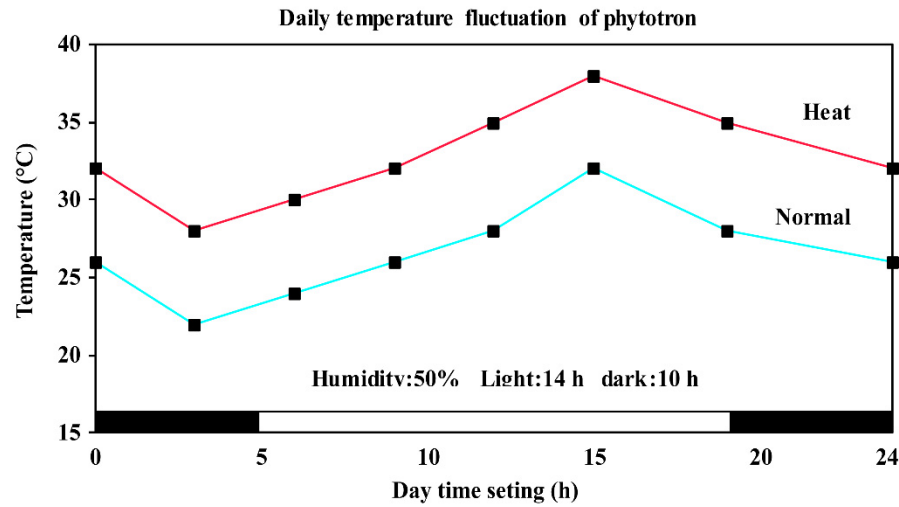| Sample		PKV(Cp)	HPV(Cp)	BDV(Cp)	CPV(Cp)	SBV(Cp)	PeT(min)	PaT(℃)
NPB	N-C	1703±4.95 b	1444±7.78 c	259±3.54 a	2610±2.12 b	907±3.54 c	6.33±0.09 b	91.85±0.04 d
	N-MT	1173±5.66 f	1096±4.95 f	77±4.95 c	2046±9.90 c	873±2.12 d	6.2667±0.10 b	94.3±0.28 a
	HT-C	1860±6.36 a	1779±11.31 a	81±6.36 c	2971±7.07 a	1111±6.36 a	6.8±0.12 a	93.5±0.35 b
	HT-MT	1577±4.95 c	1529±4.95 b	48±4.24 d	2601±5.66 b	1024±4.24 b	6.8±0.07 a	92.7±0.42 c

The data presented in the figure are repeated through three independent experiments, and the significance analysis is carried out between the data of different exogenous material treatment conditions of the same sample, ** indicates that the Student's t-test reaches a very significant level ($P <$ 0.01), "N" and "HT" indicate normal and high temperature conditions. "C" and "MT" indicate H_2O and melatonin treatment respectively.

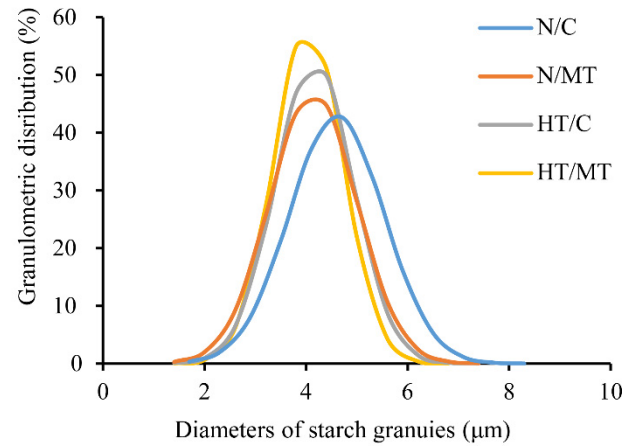**Supplementary Table S2.** DSC parameters of NPB treated with exogenous substances at different temperatures.

Sample		To(℃)	Tp(℃)	Tc(℃)	△H (J/mol)
NPB	N-C	60.25±0.35 d	65.75±0.64 cd	77.05±1.20 c	12.66±0.93 a
	N-MT	60.65±0.07 cd	66.55±0.21 c	77.10±0.14 c	12.53±0.75 a
	HT-C	64.15±0.07 b	70.35±0.21 b	82.60±0.85 a	12.31±0.81 a
	HT-MT	64.15±0.07 b	70.20±0.14 b	82.60±0.00 a	12.25±1.05 a

The data presented in the figure are repeated through three independent experiments, and the significance analysis is carried out between the data of different exogenous material treatment conditions of the same sample, ** indicates that the Student's *t*-test reaches a very significant level ($P < 0.01$), "N" and "HT" indicate normal and high temperature conditions. "C" and "MT" indicate H_2O and melatonin treatment respectively.
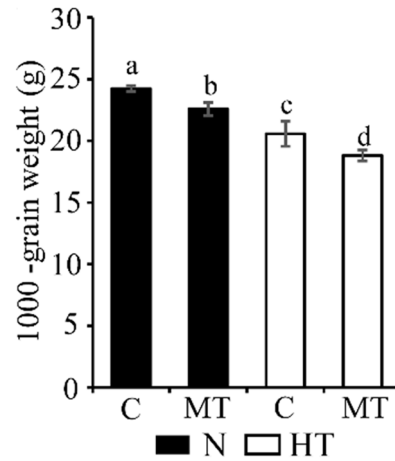
Supplementary Figures

Supplementary Figure S1. Artificial climate chamber condition setting for temperature treatment

Supplementary Figure S2 Distribution analysis of starch particle size of NPB under different treatment conditions.

Supplementary Figure S3 1000-grain weight of NPB planted with different treatment conditions. The data presented in the figure are repeated through three independent experiments, values with different letters (a, b, c and d) in the same column are significantly different at $p < 0.05$, calculated by one-way ANOVA. "N" and "HT" indicate normal and high temperature conditions. "C" and "MT" indicate H_2O and melatonin treatment respectively.