Supporting information

Melatonin Treatment as an Anti-Aging Therapy for UV-Related Degradation of Perovskite Solar Cell

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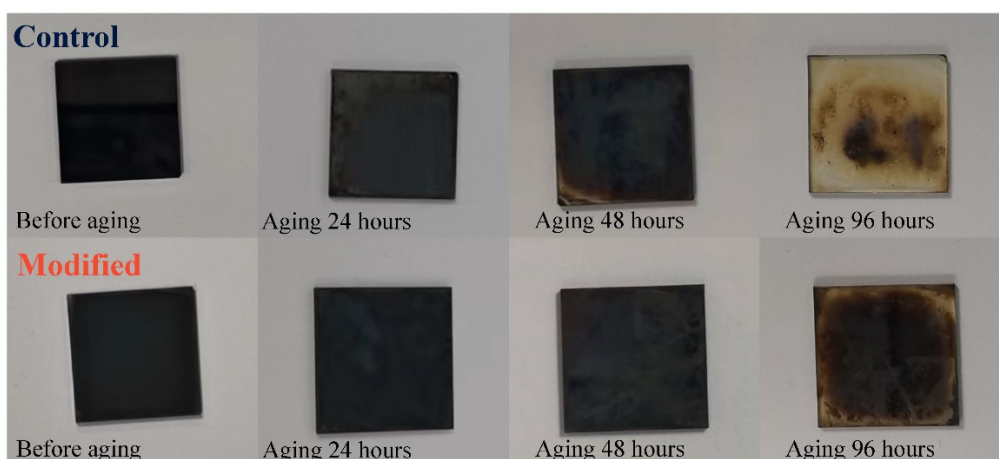
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Figure S1. Photographs of the control and modified perovskite films under 365 nm UV irradiation in air at RH of 65% and temperature of 35°C.
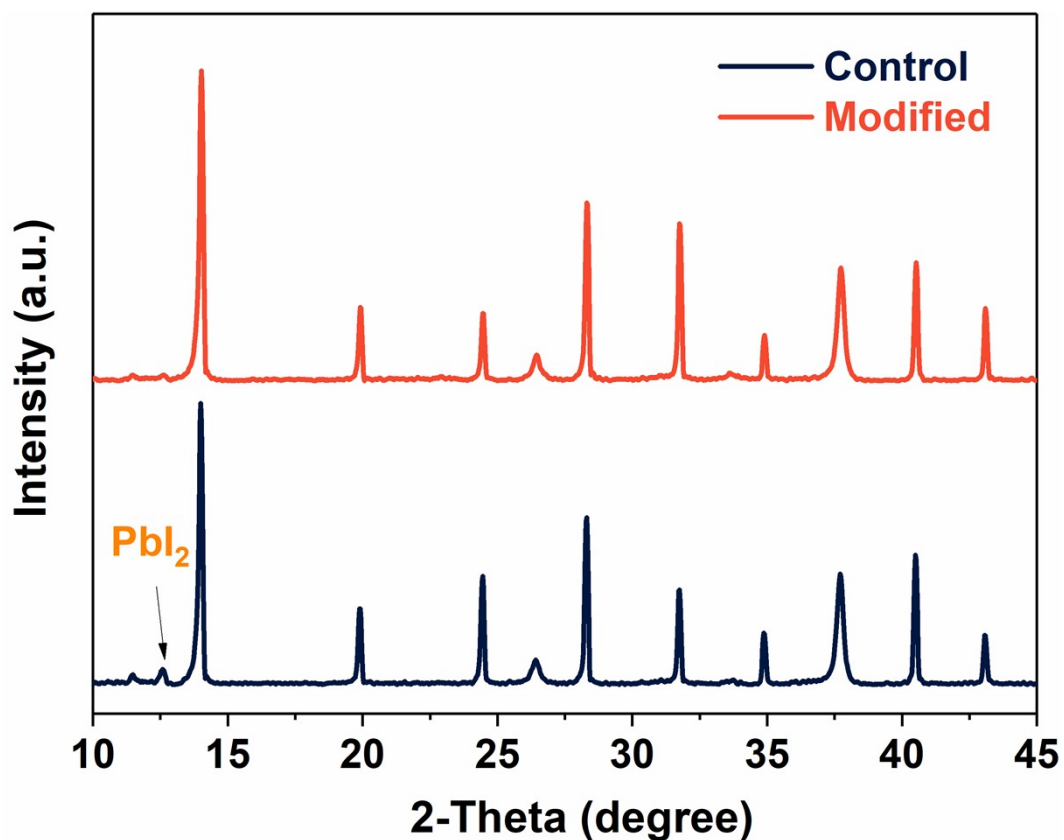

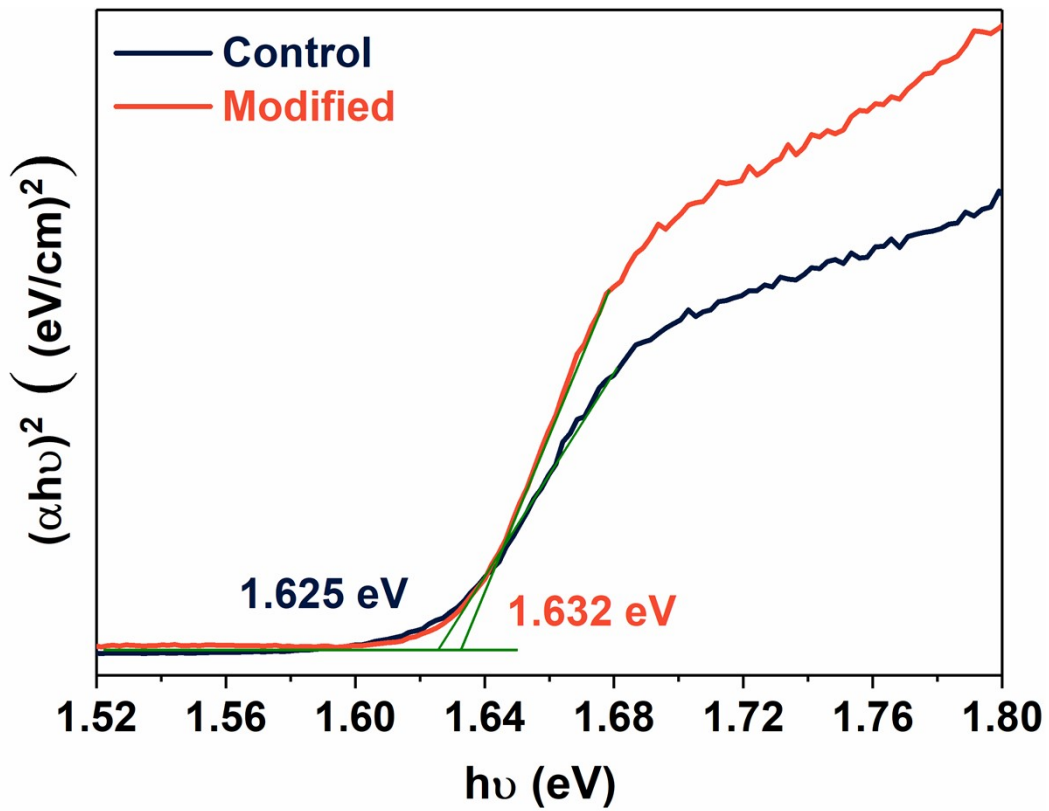Figure S2. XRD patterns of the control and modified perovskite films.

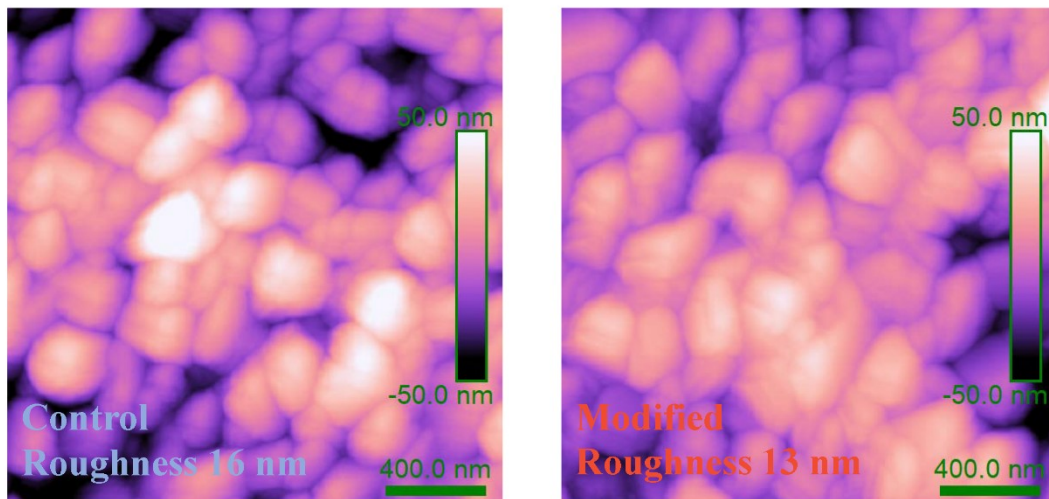Figure S3. Tauc plots of the control and modified perovskite films.

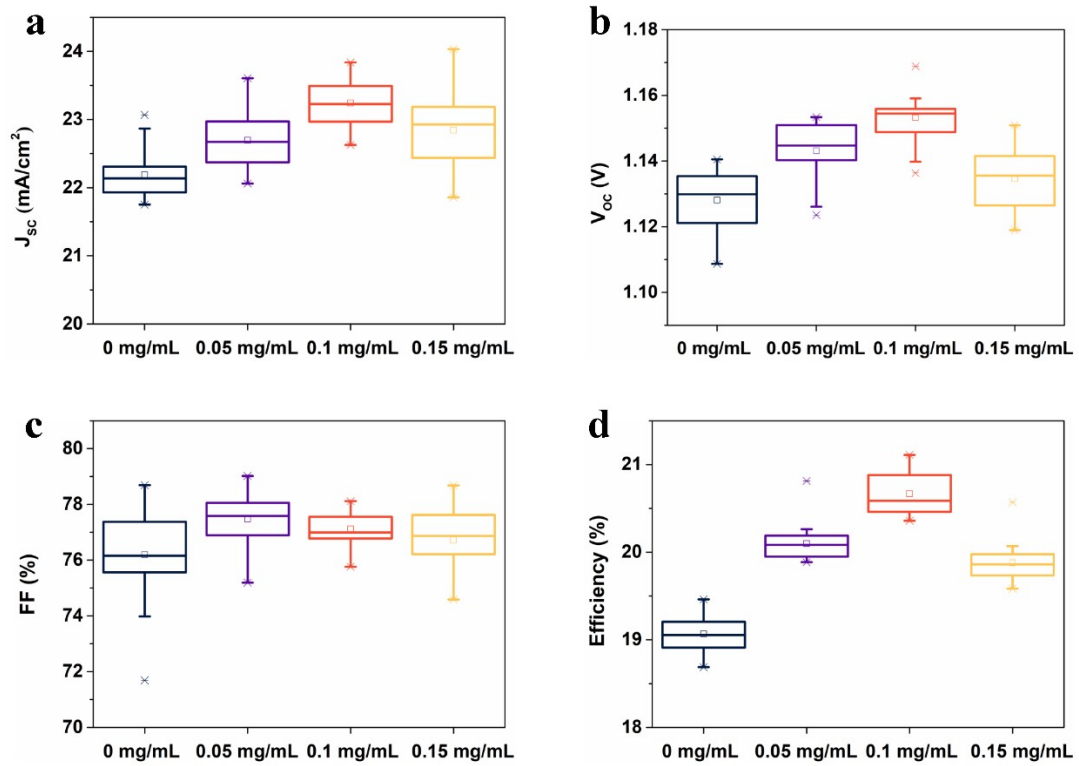Figure S4. AFM images of the control and modified perovskite films.

Figure S5. Statistical photovoltaic parameters of devices modified with different concentrations of melatonin.
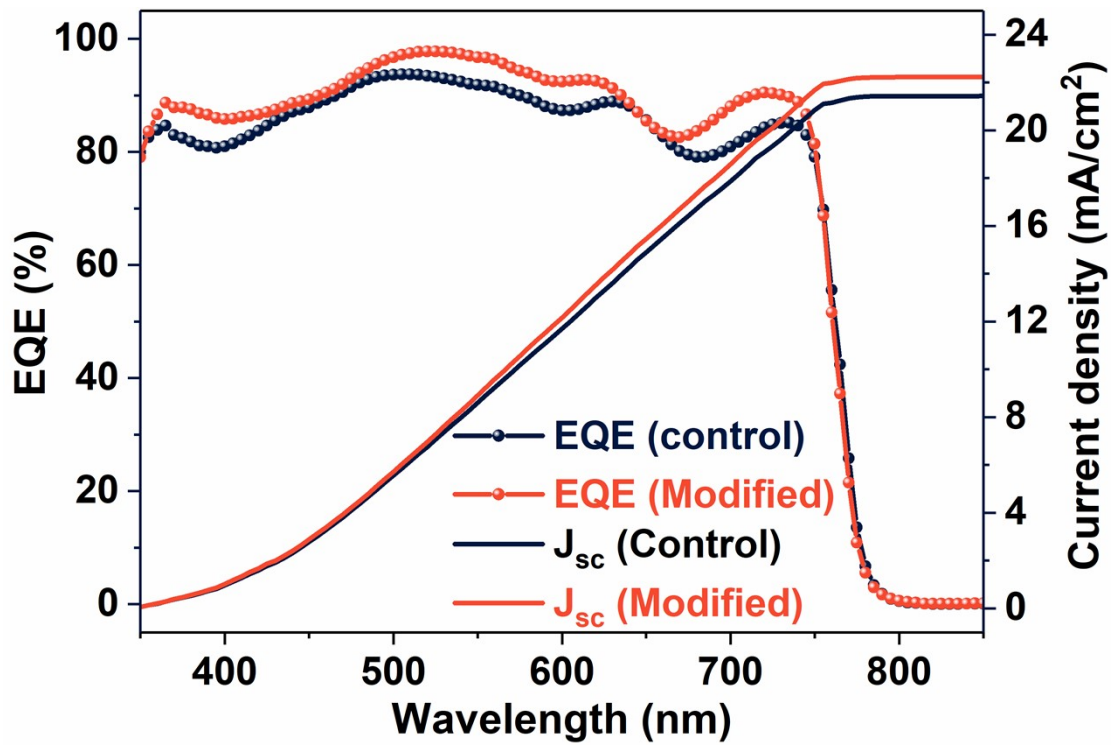

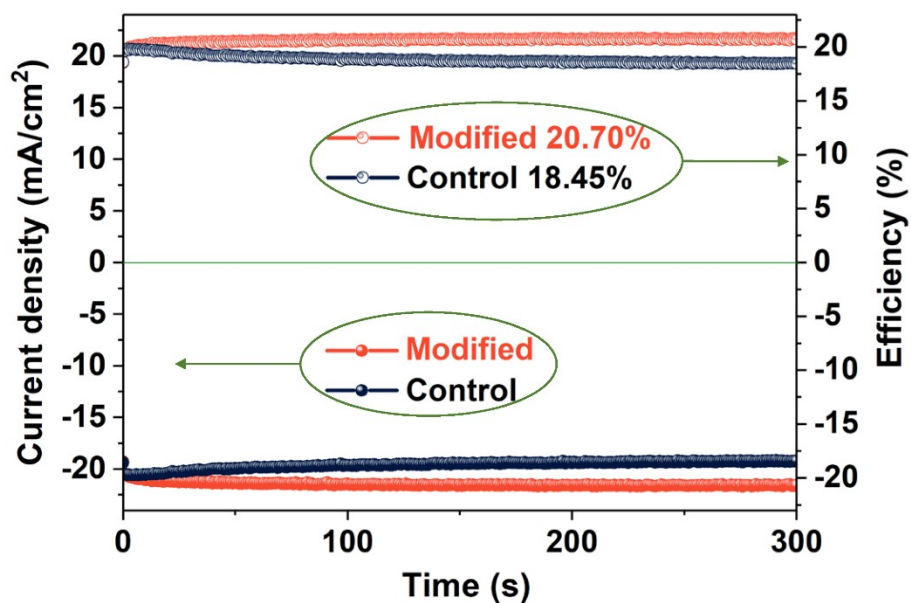Figure S6. EQE spectra of the control and modified devices.

Figure S7. Steady-state current density and PCE of the control and modified devices measured under maximum power point.
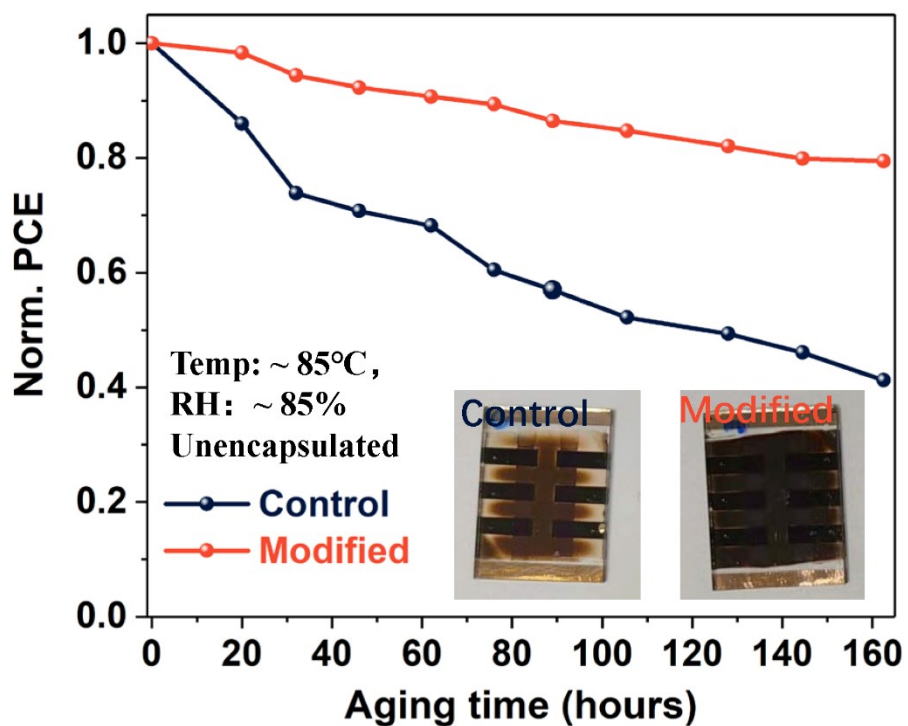

Figure S8. PCE decay of the control and modified devices at 85 °C and 85% humidity. Insets show the photographs of the control and modified devices after aging for 160 hours.
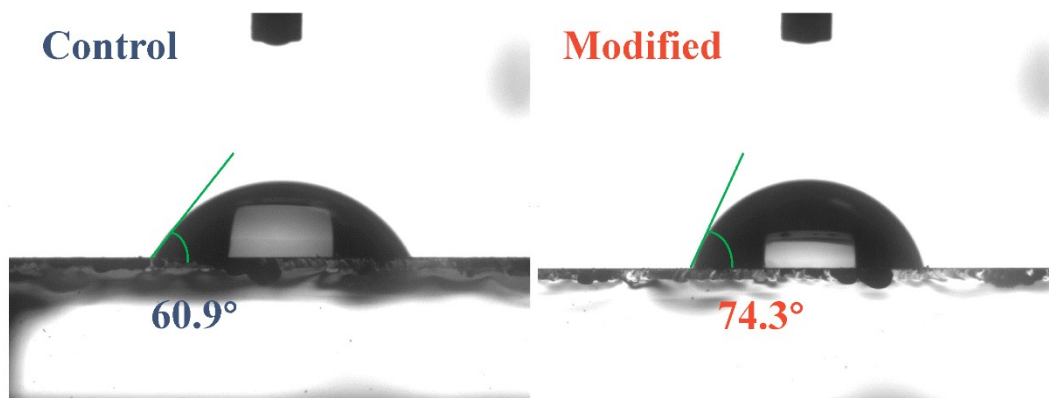
Figure S9. Water contact angle of control and modified perovskite film.

Table S1. Fitted TRPL parameters of different perovskite films on ITO glass.

	A_1	T_1 (ns)	A_2	T_2 (ns)	τ_{avg} (ns)
wo ME	199.28	29.92	501.21	634.31	586
w ME	195.08	15.93	797.68	1057.17	1020

Table S2. Photovoltaic parameters of modified PSCs at different concentration.

Concentration of melatonin	V_{OC} (V)	J_{SC} (mA/cm^2)	FF (%)	PCE (%)
0 mg/mL	1.142	22.69	75.19	19.48
0.05 mg/mL	1.152	23.61	76.50	20.81
0.1 mg/mL	1.168	23.56	76.73	21.11
0.15 mg/mL	1.12	24.03	76.21	20.57