Supporting Information

Efficient and stable perovskite solar cells fabrication in open air through adopting a dye interlayer

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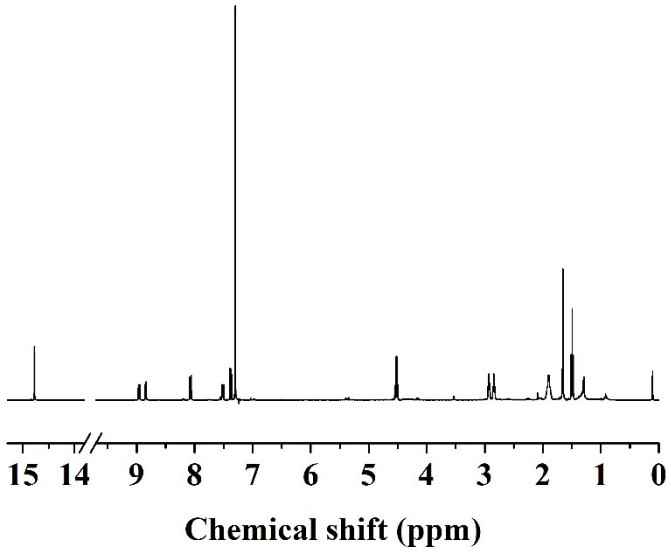

Figure S1. ^{1}H NMR spectrum of HQTh-EC.

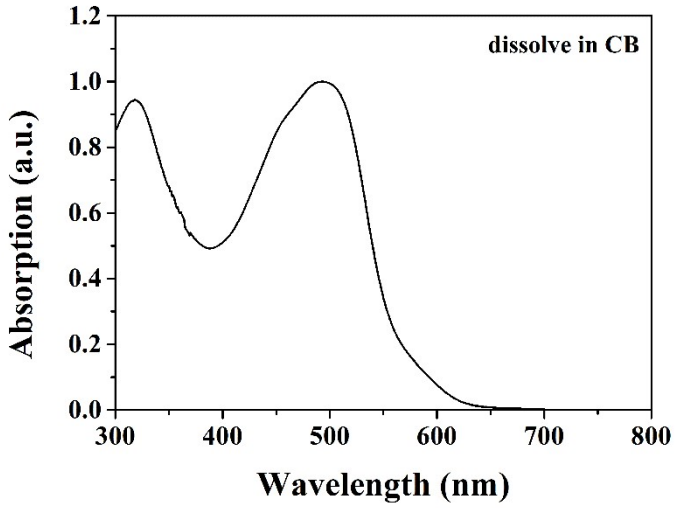

Figure S2. The absorption spectrum of HQTh-EC solution dissolved in chlorobenzene.

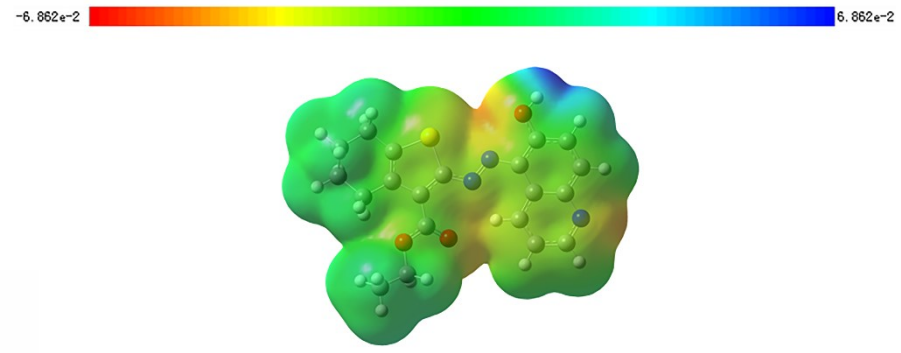

Figure S3. The electrostatic potential of HQTh-EC.

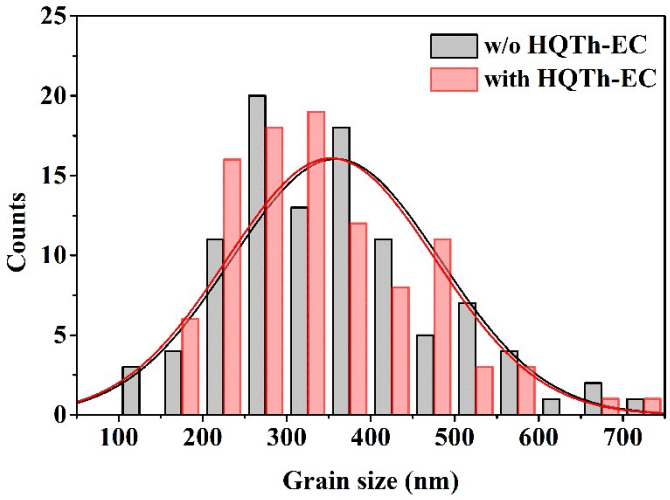

Figure S4. The statistical histograms of perovskite grain size (without and with HQTh-EC).

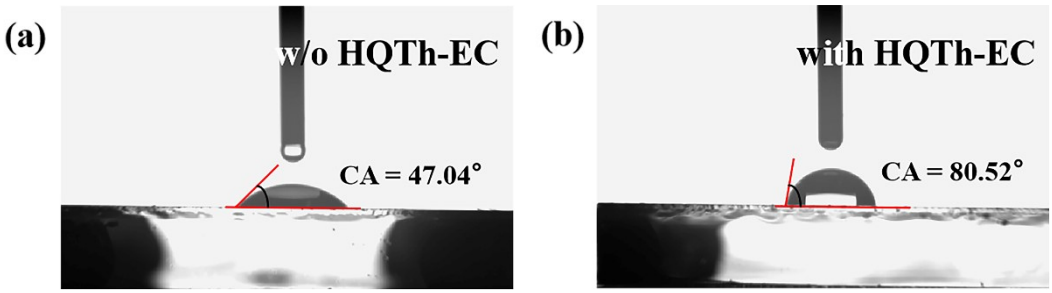

Figure S5. The water-contact-angle images of the perovskite films without and with HQTh-EC.

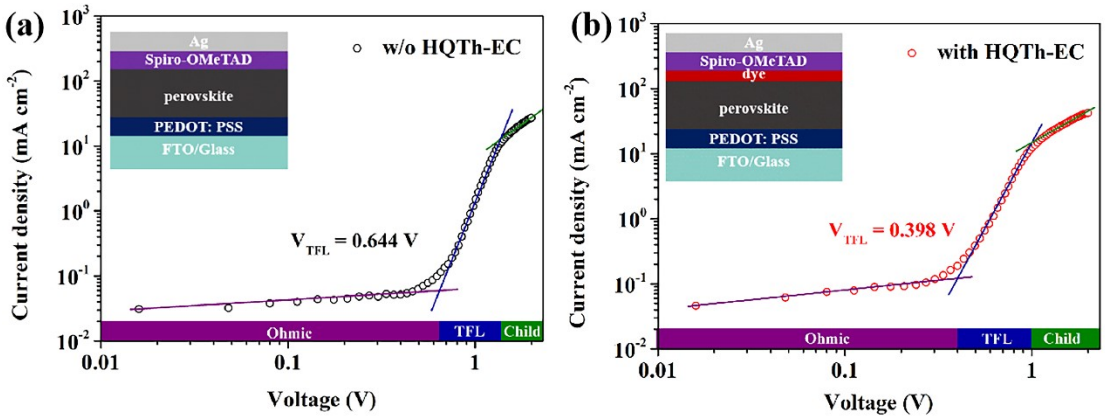

Figure S6. (a, b) SCLC curves (for the hole-only devices) of PSCs without and with HQTh-EC.

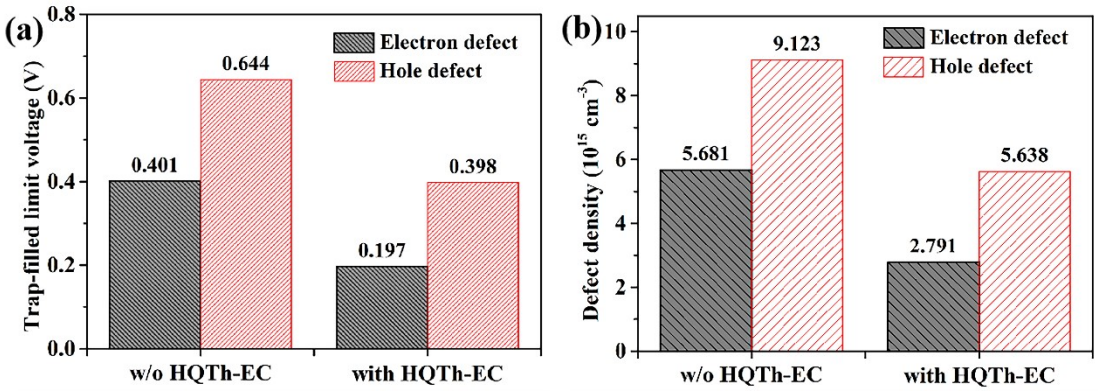

Figure S7. (a) Trap-filled limit voltage and (b) defect density calculated from SCLC measurements of the PSCs without and with HQTh-EC.

Table S1. The fitting R_s and R_{ct} results of perovskite films without and with HQTh-EC.

Sample	R_s	R_{ct}
w/o dye	0.24775	1192
with dye	0.09225	1615