

Supplementary Information

The Efficacy of Oleic Acid Treatment in Passivating MAPbI₃ Films

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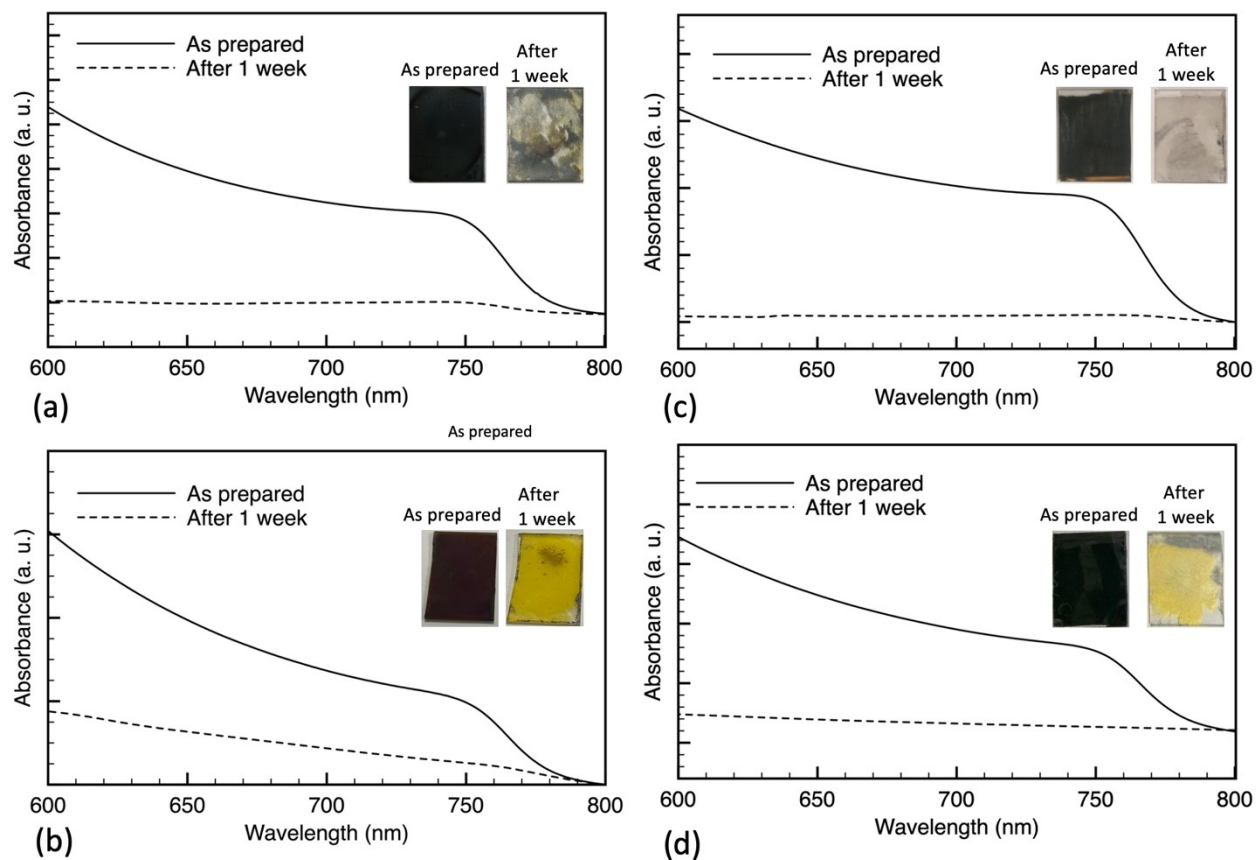


Figure (S1): Absorbance spectra of untreated control MAPbI₃ films prepared via different deposition methods and aged at $\approx 76\%$ RH : (a) SC-1, (b) SC-2, (c) BC-1, (d) BC-2. Insets show the photos of the films before and after the exposure.

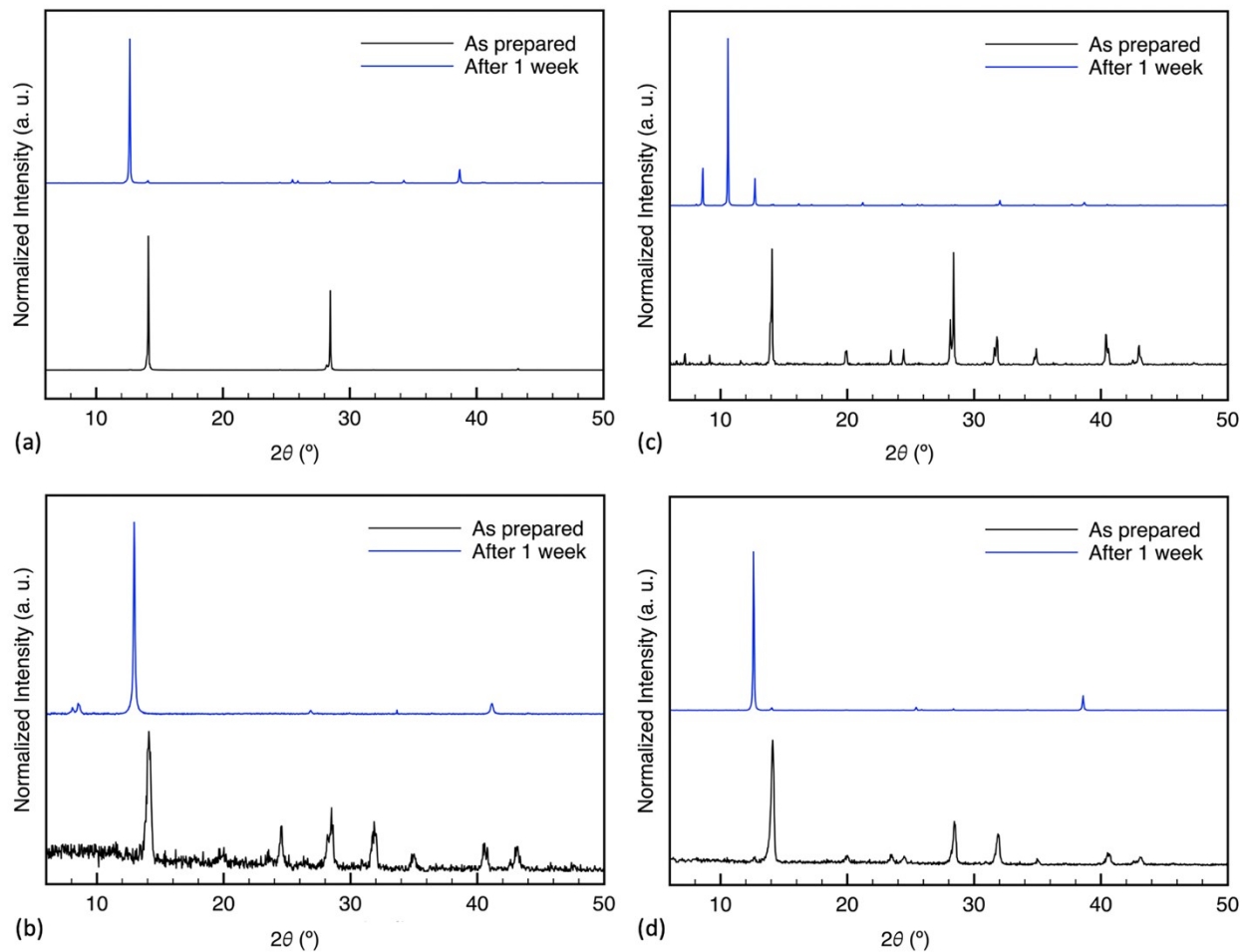


Figure (S2): X-ray diffraction pattern ($\lambda = 1.5406 \text{ \AA}$) of untreated MAPbI_3 films prepared via different deposition methods and aged at $\sim 76\% \text{ RH}$: (a) SC-1, (b) SC-2, (c) BC-1, (d) BC-2.

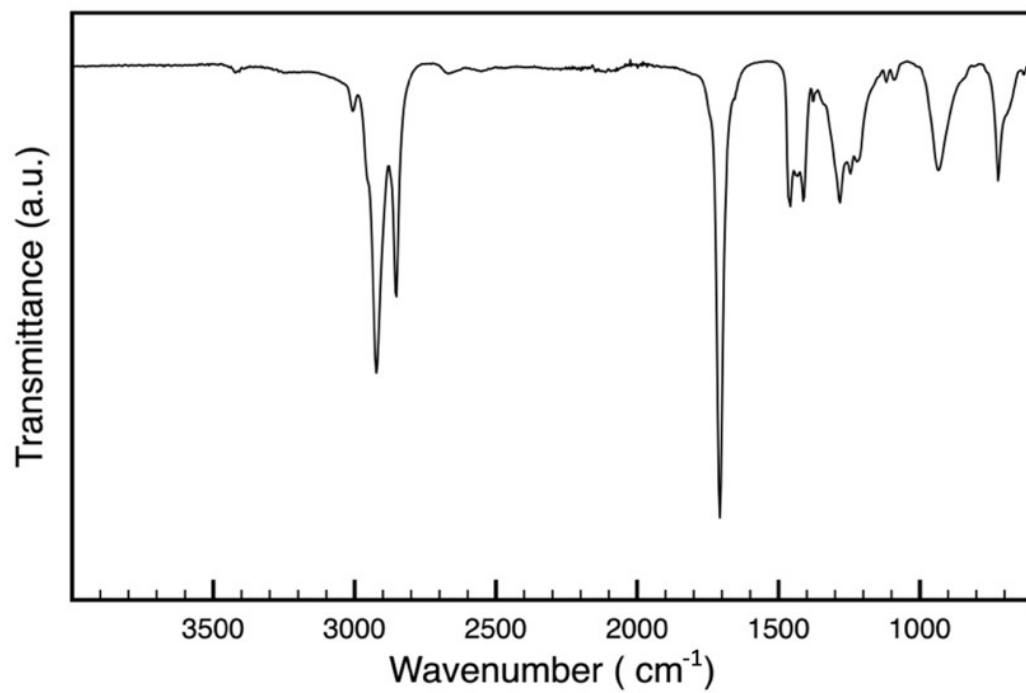


Figure (S3): FTIR spectrum of oleic acid.

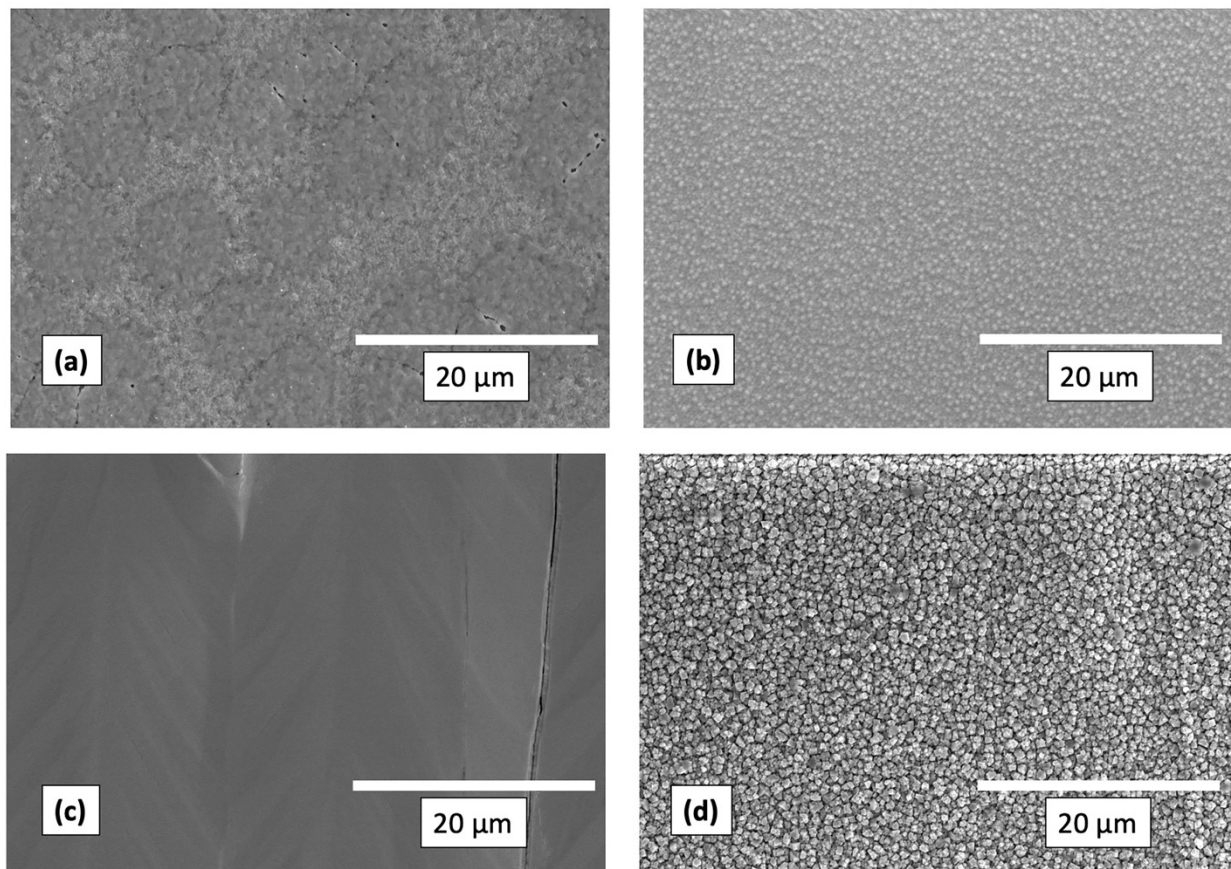


Figure (S4): SEM images (2.5k magnification) of MAPbI_3 films prepared via different deposition methods: (a) SC-1, (b) SC-2, (c) BC-1, (d) BC-2.

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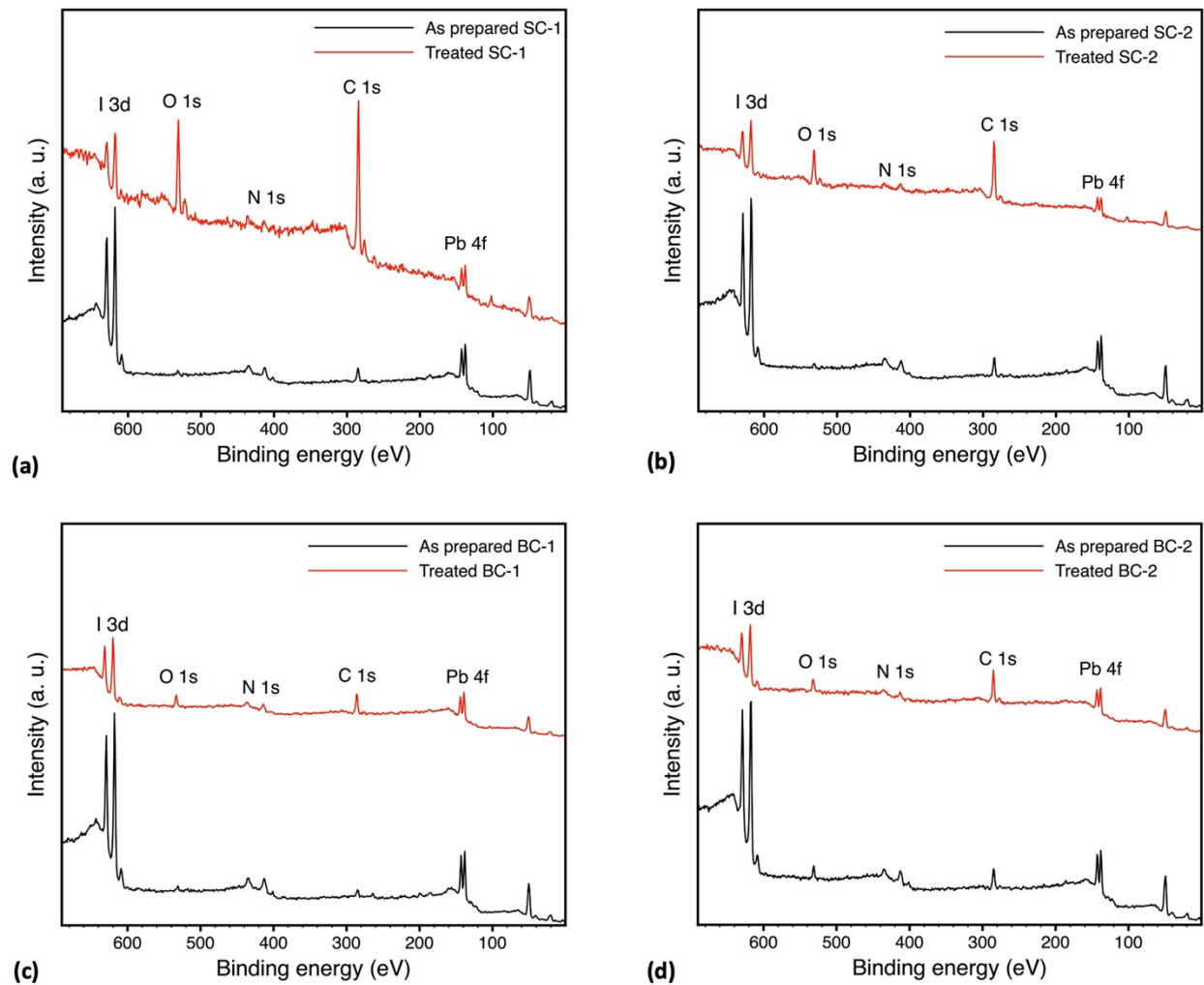


Figure (S5): XPS survey spectra of MAPbI₃ films prepared via different deposition methods: (a) SC-1, (b) SC-2, (c) BC-1, (d) BC-2.

Reference:

1. Abdelmageed, G. *et al.* Improved Stability of Organometal Halide Perovskite Films and Solar Cells toward Humidity via Surface Passivation with Oleic Acid. *ACS Appl. Energy Mater.* **1**, 387–392 (2018).