

## Supplementary Information For

# Tuning chemistry of CuSCN to enhance the performance of TiO<sub>2</sub>/N719/CuSCN all-solid-state dye-sensitized solar cell

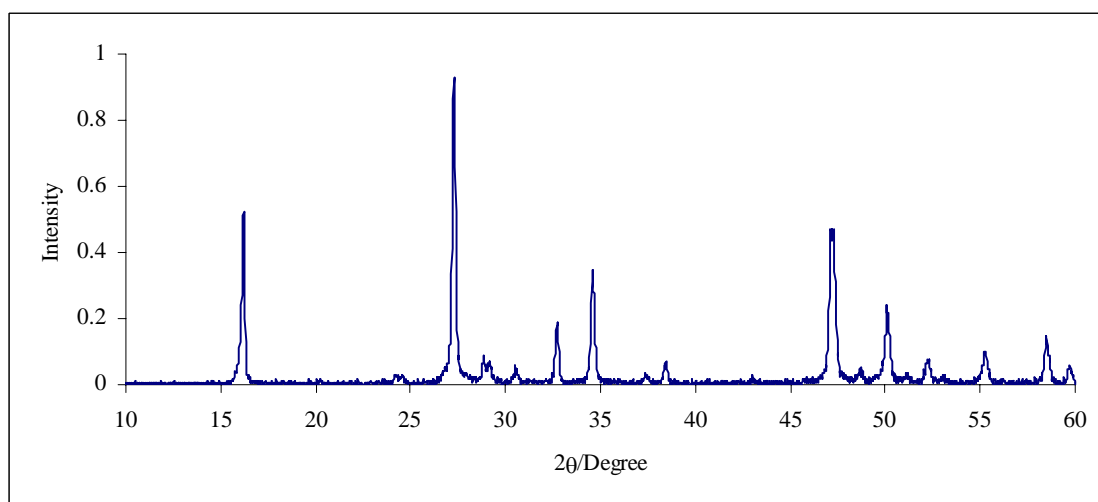
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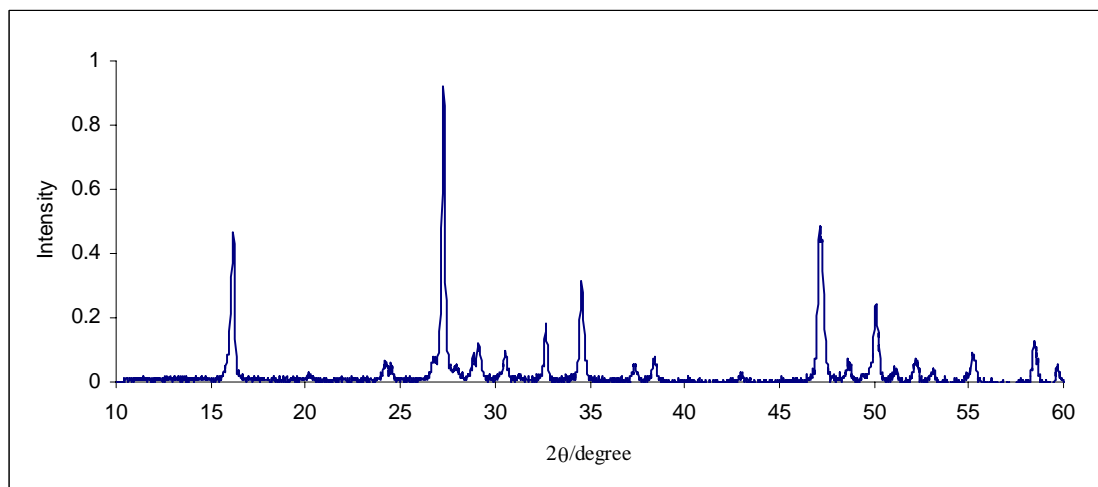
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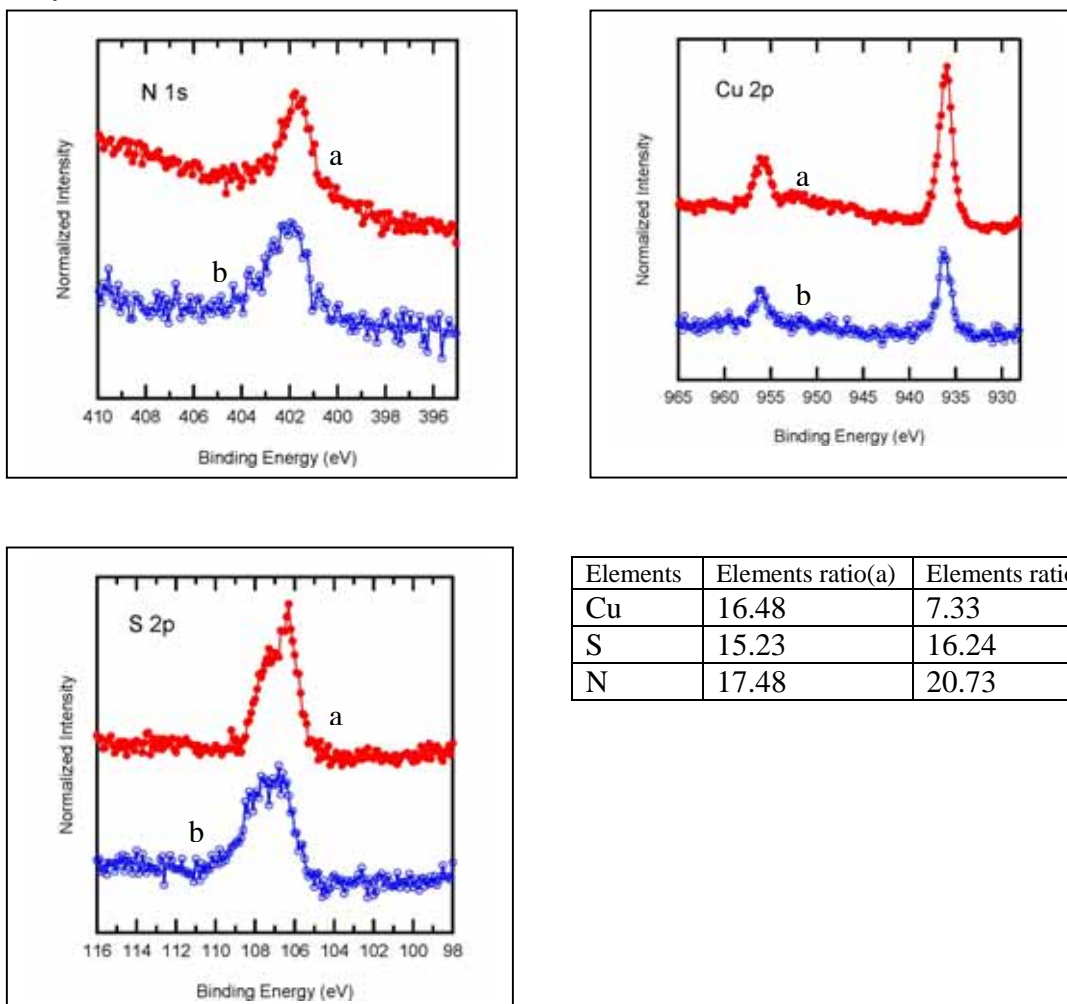
Supplementary figure S1: Normalized XRD spectra of (a) commercial CuSCN, (b) CuSCN prepared by the precipitation from aqueous solution



(a)

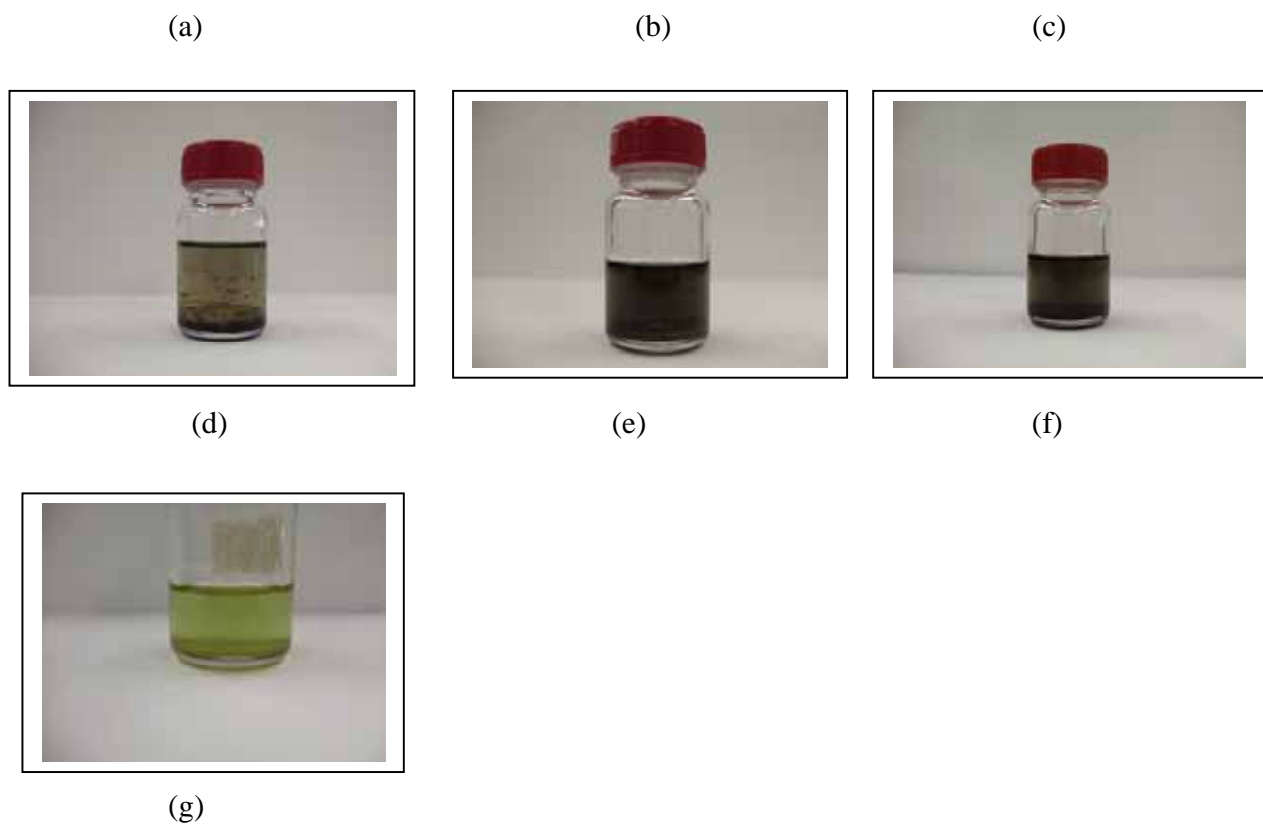


Supplementary Figure S2: XPS spectra (a) CuSCN and (b) chemically modified CuSCN by allowing to react with triethylammonium thiocyanate in propyl sulphide for 20 days.

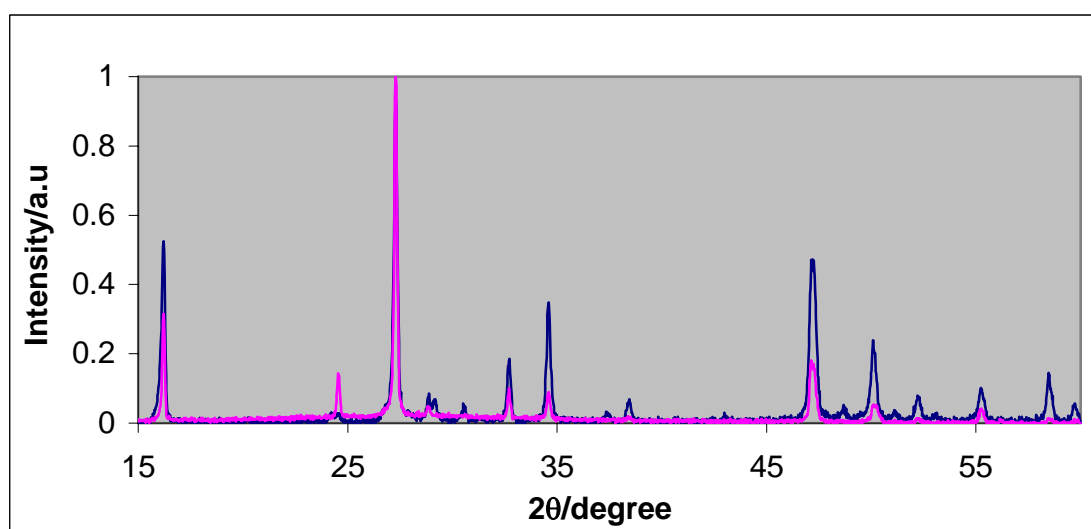


Supplementary Figure S3: Colour plates of (a) only CuSCN in propyl sulphide, and a reaction mixture containing CuSCN and triethylammonium thiocyanate in propyl sulphide allowed to react for (b) 1 day (c) 3 days (d) 5 days (e) 10 days and (f) 1 month. The colour plate (g) shows the colour produced after 1 day reaction mixture of CuSCN dissolved in propyl sulphide and triethylamine.

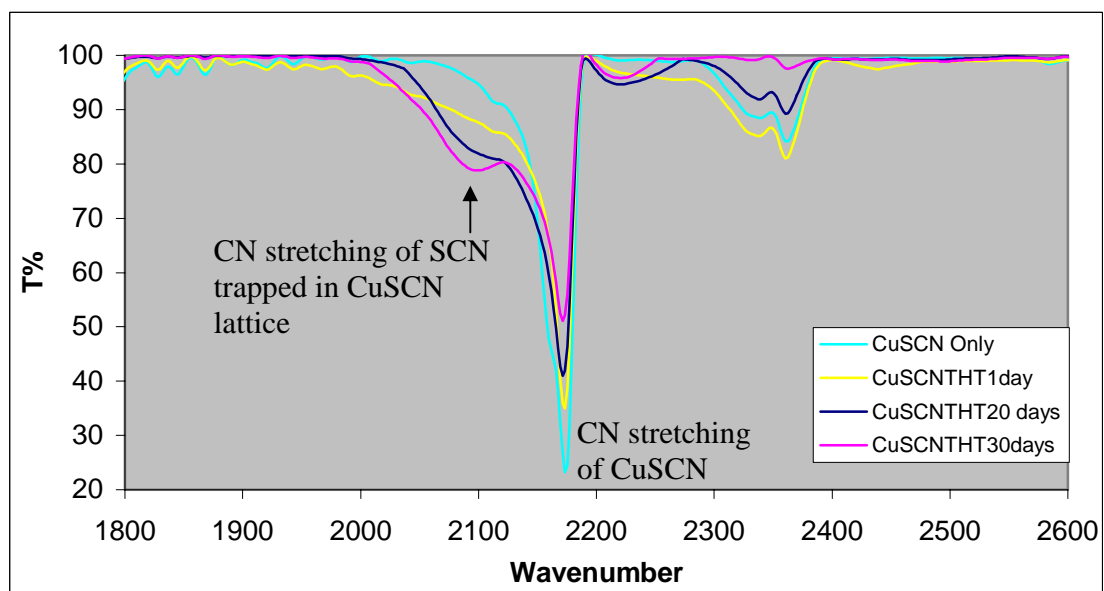
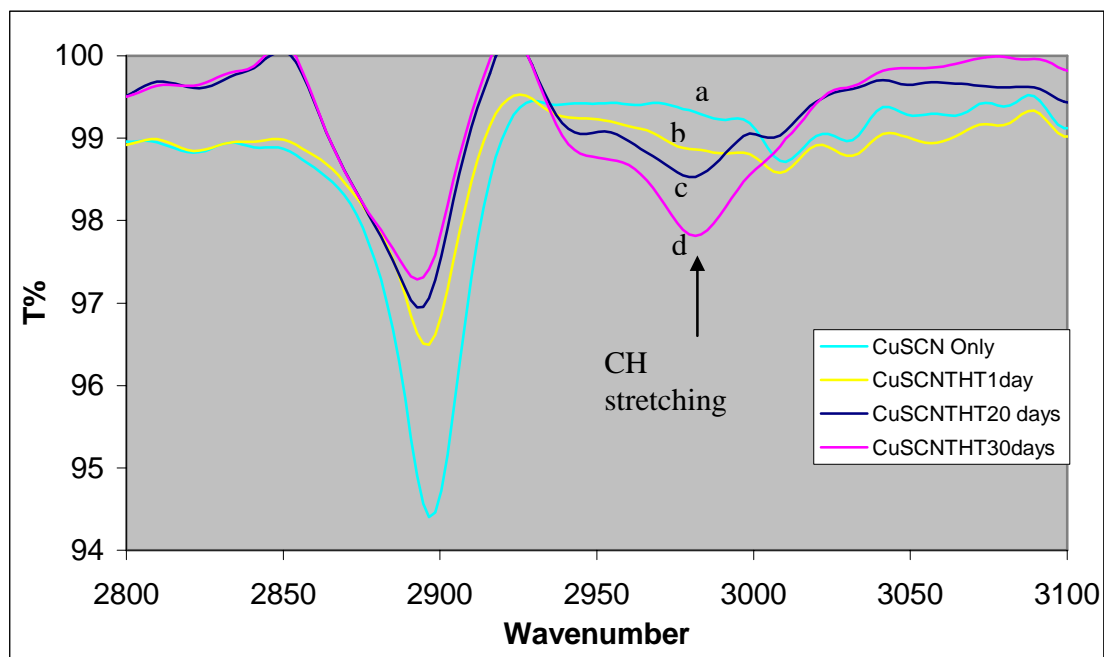




Supplementary Figure S4: Normalized XRD spectra of (a) CuSCN (—) and (b) chemically modified CuSCN by allowing to react with triethylammonium thiocyanate in propyl sulphide for 20 days (—).



Supplementary Figure S5: FT-IR spectra of (a) CuSCN and chemically modified CuSCN by (b) 1 day (c) 20 days (d) 30 days allowing to react with triethylammonium thiocyanate in propyl sulphide



Supplementary Figure S6: The scanning electron micrograph of CuSCN modified by allowing to react with triethylammonium thiocyanate in propyl sulphide for 20 days.

