

## Supplementary information

### **Organic dyes containing dithieno[2,3-d:2',3'-d']thieno[3,2-b:3',2'-b']dipyrrole core for efficient dye-sensitized solar cells**

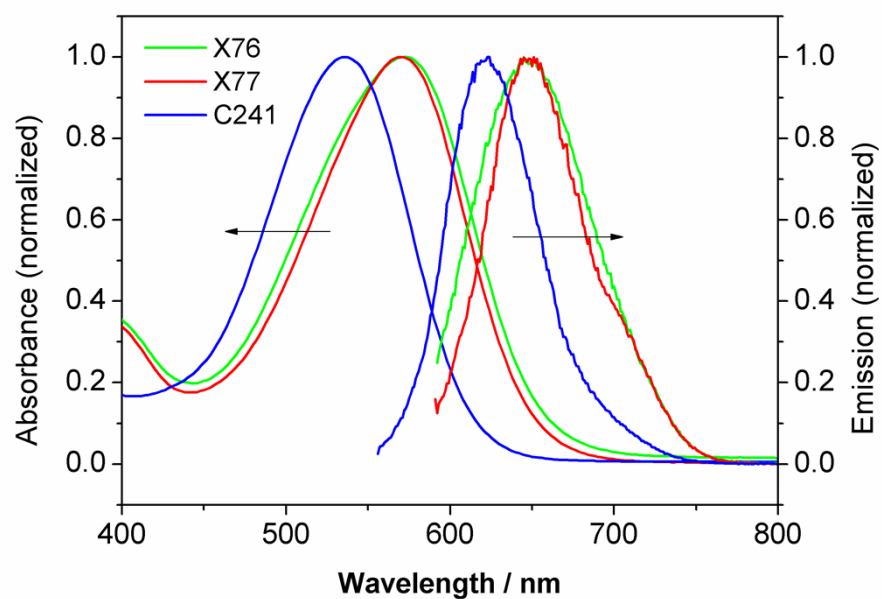
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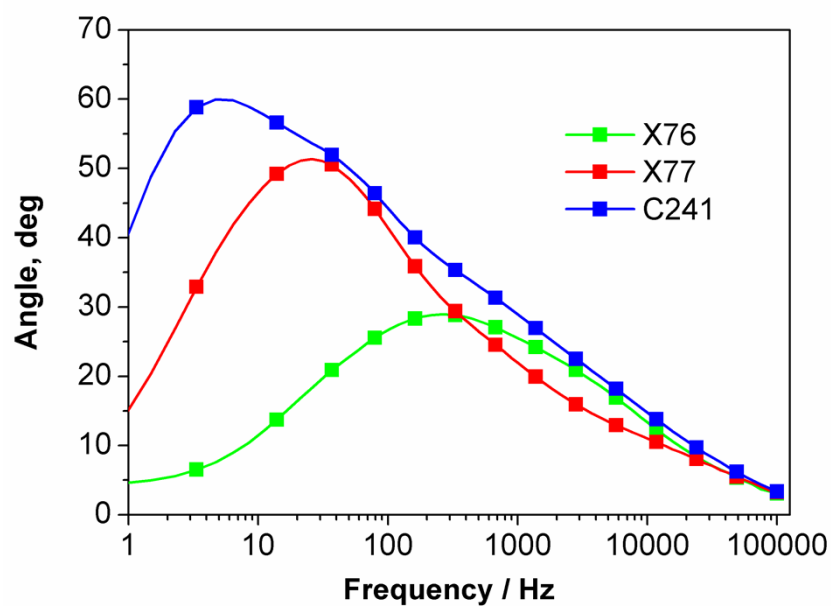
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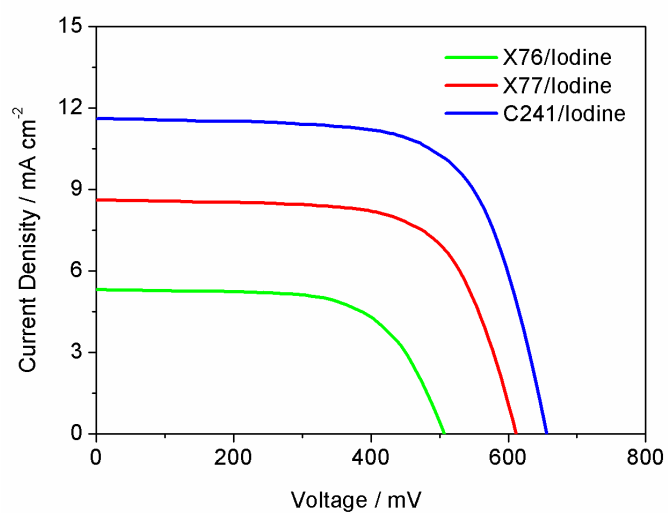
**Fig. S1** Absorption and emission spectra of the dyes in dichloromethane.



**Fig. S2** Bode phase plots for the cobalt cells.

**Table S1.** Photovoltaic performance of the iodine cells using a 9  $\mu\text{m}$  film.

dye	$J_{SC}$ ( $\text{mA cm}^{-2}$ )	$V_{OC}$ (mV)	$FF$	PCE (%)
X76	5.3	505	0.65	1.7
X77	8.5	613	0.67	3.5
C241	11.6	655	0.68	5.2



**Fig. S3**  $J$ – $V$  curves of studied DSC devices employing the iodine electrolyte under AM1.5G simulated solar light ( $100 \text{ mW cm}^{-2}$ ).