

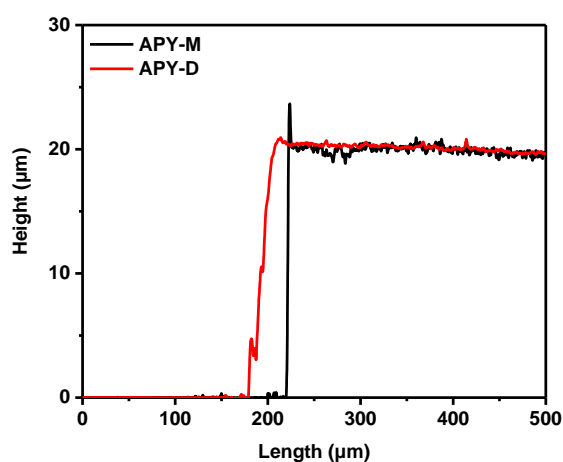
# New Yellow Azo Pyridone Derivatives with Enhanced Thermal Stability for Color Filters in Image Sensors

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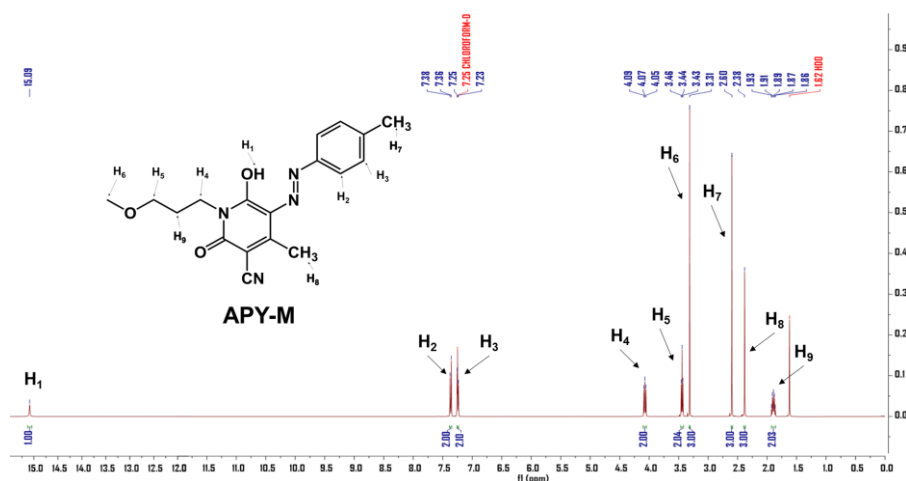
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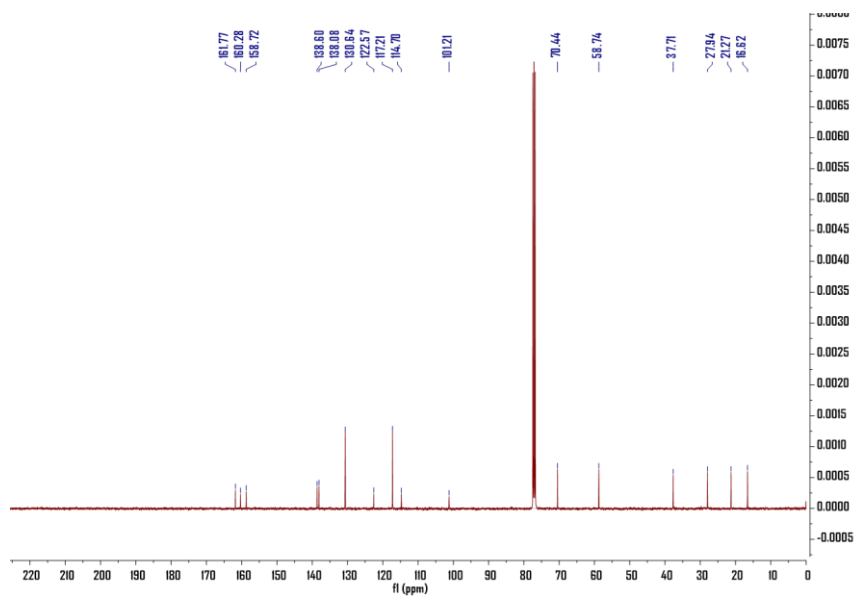
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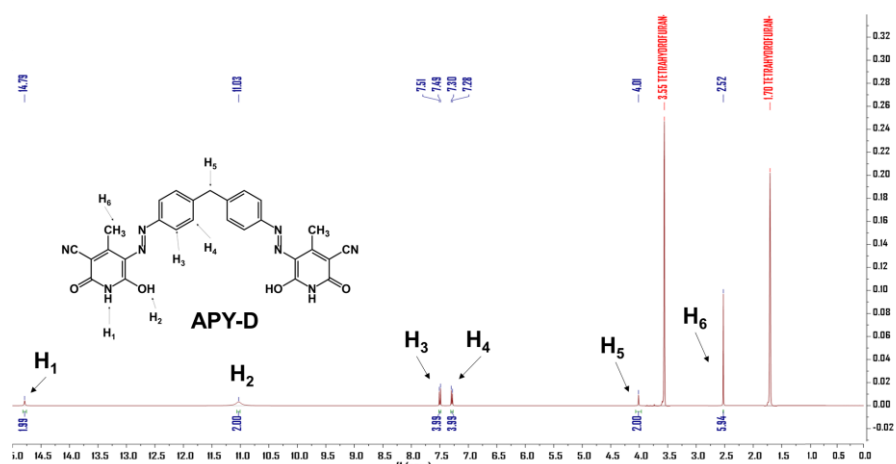
**Figure S1.** Thickness profiles of films using the synthesized materials.



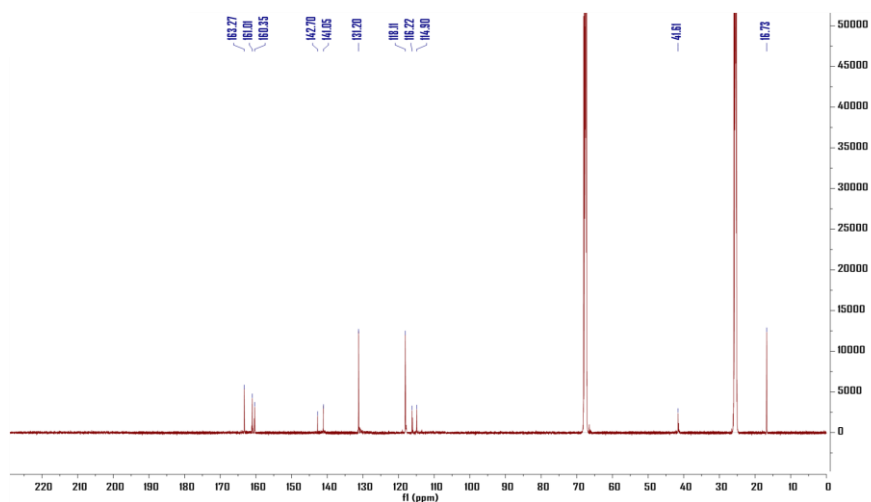
**Figure S2.** <sup>1</sup>H NMR spectrum of APY-M.



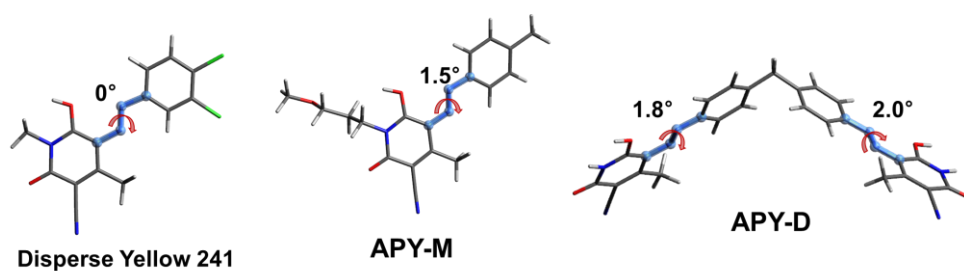
**Figure S3.**  $^{13}\text{C}$  NMR spectrum of APY-M.



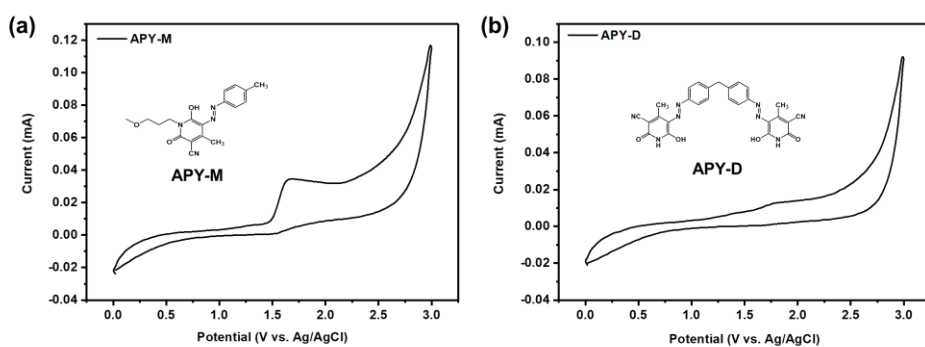
**Figure S4.**  $^1\text{H}$  NMR spectrum of APY-D.



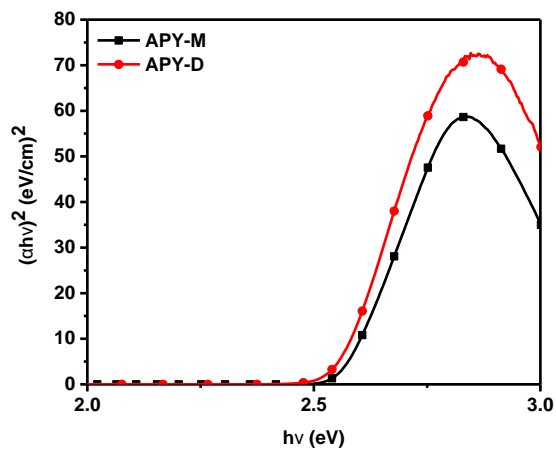
**Figure S5.**  $^{13}\text{C}$  NMR spectrum of APY-D.



**Figure S6.** The optimized molecular structures calculated using B3LYP-D3/def2-TZVPP of disperse yellow 241 and synthesized yellow materials.



**Figure S7.** Cyclic voltammetry curves of (a) APY-M and (b) APY-D (scan rate = 100 mV/sec).



**Figure S8.** Plots of  $(\alpha h\nu)^2$  versus  $(h\nu)$  for synthesized materials.

**Table S1.** HOMO-LUMO energy levels by DFT calculation.

	HOMO [eV]	LUMO [eV]	Band gap [eV]
APY-M	-5.95	-2.33	3.61
APY-D	-6.20	-2.67	3.52

**Table S2.** Solubility of the synthesized materials and disperse yellow 241.

Solvent	APY-M	APY-D
Hexane	x	x
Chloroform	○	△
Tetrahydrofuran	○	○
Methanol	○	○
Acetonitrile	○	○

○: soluble, △: partially soluble, x: insoluble.