Electronic Supplementary Material (ESI) for RSC Advances.

Synthesis, liquid crystal characterization and photo-switching studies on fluorine substituted azobenzene based esters

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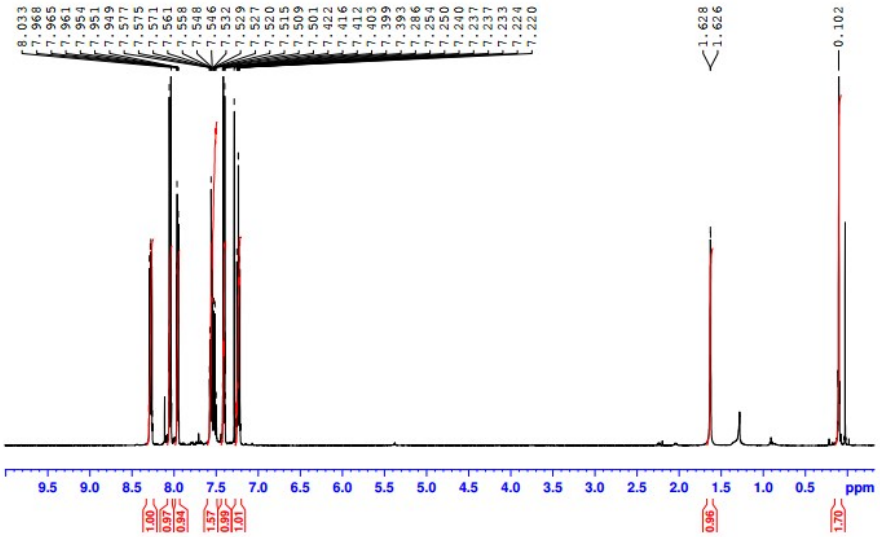
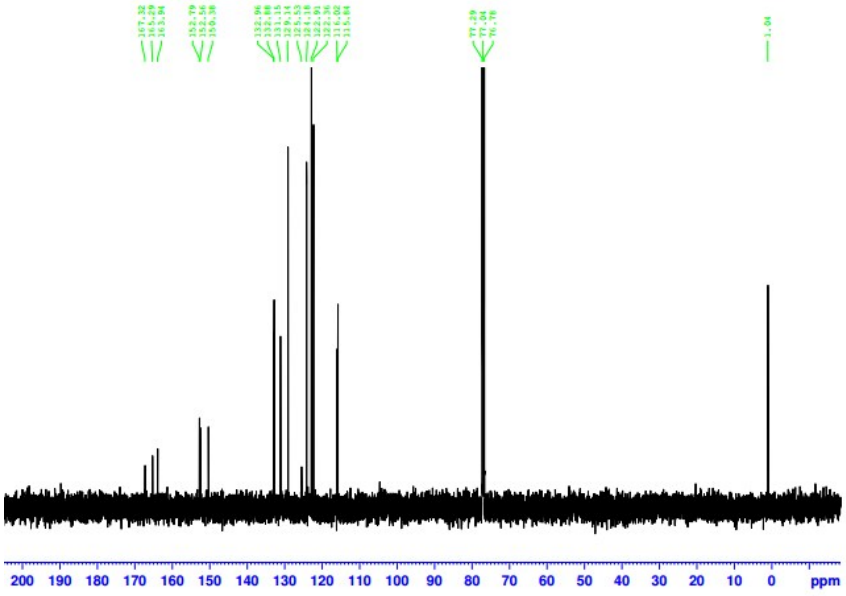
Supplementary information:

Compound D_1

1H-NMR

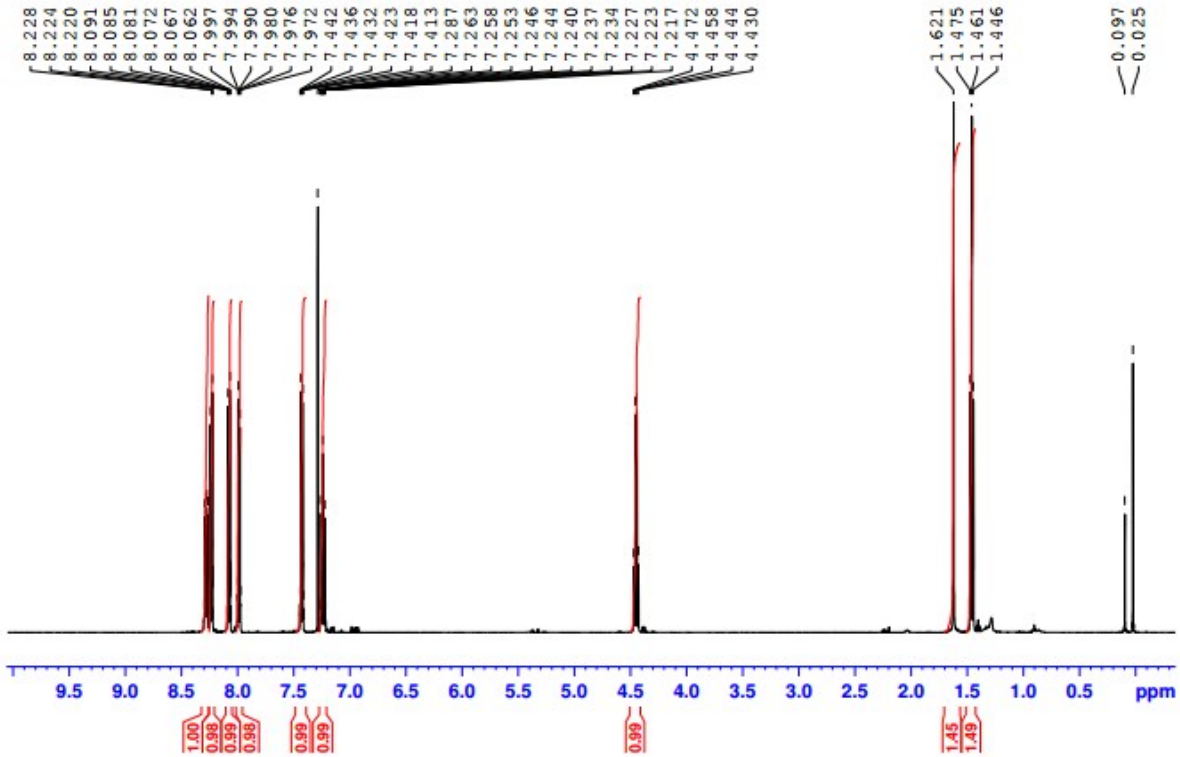


13C NMR

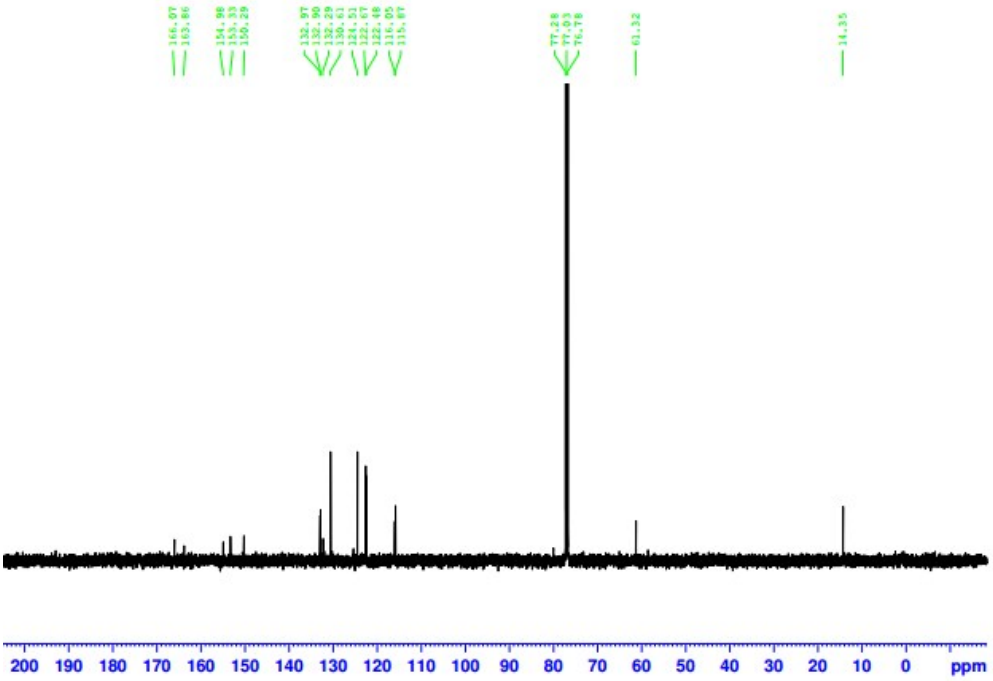


Compound D2

1H NMR

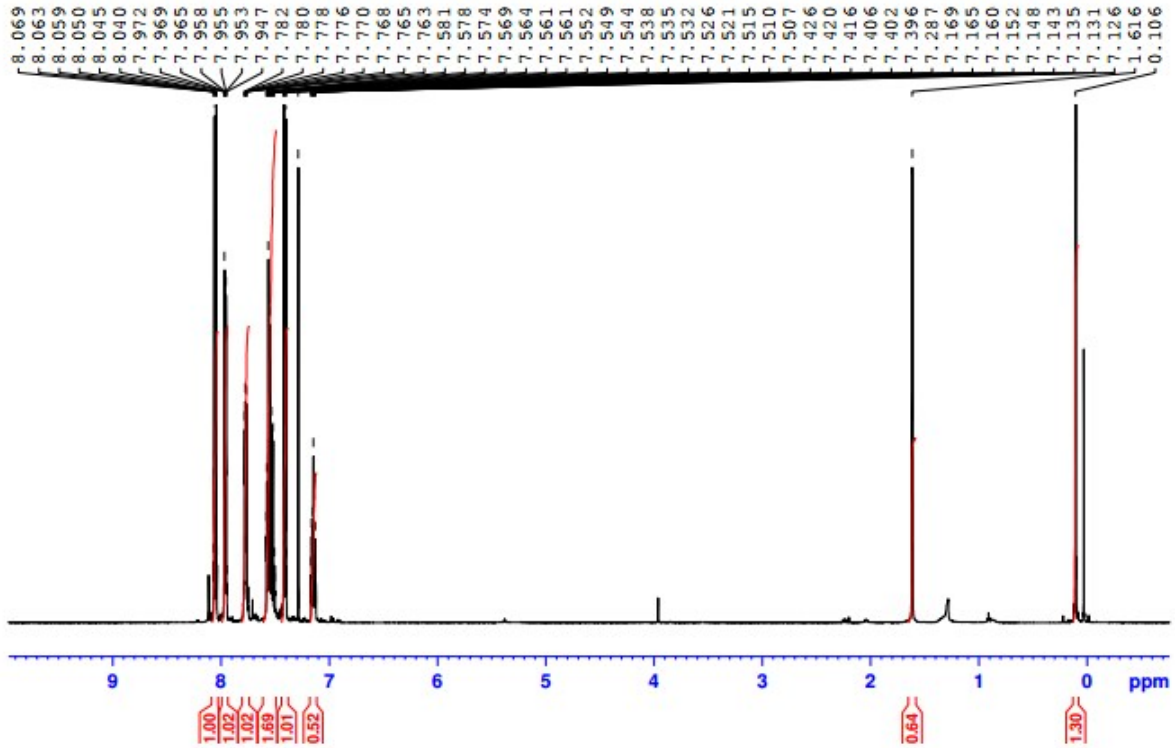


13C NMR

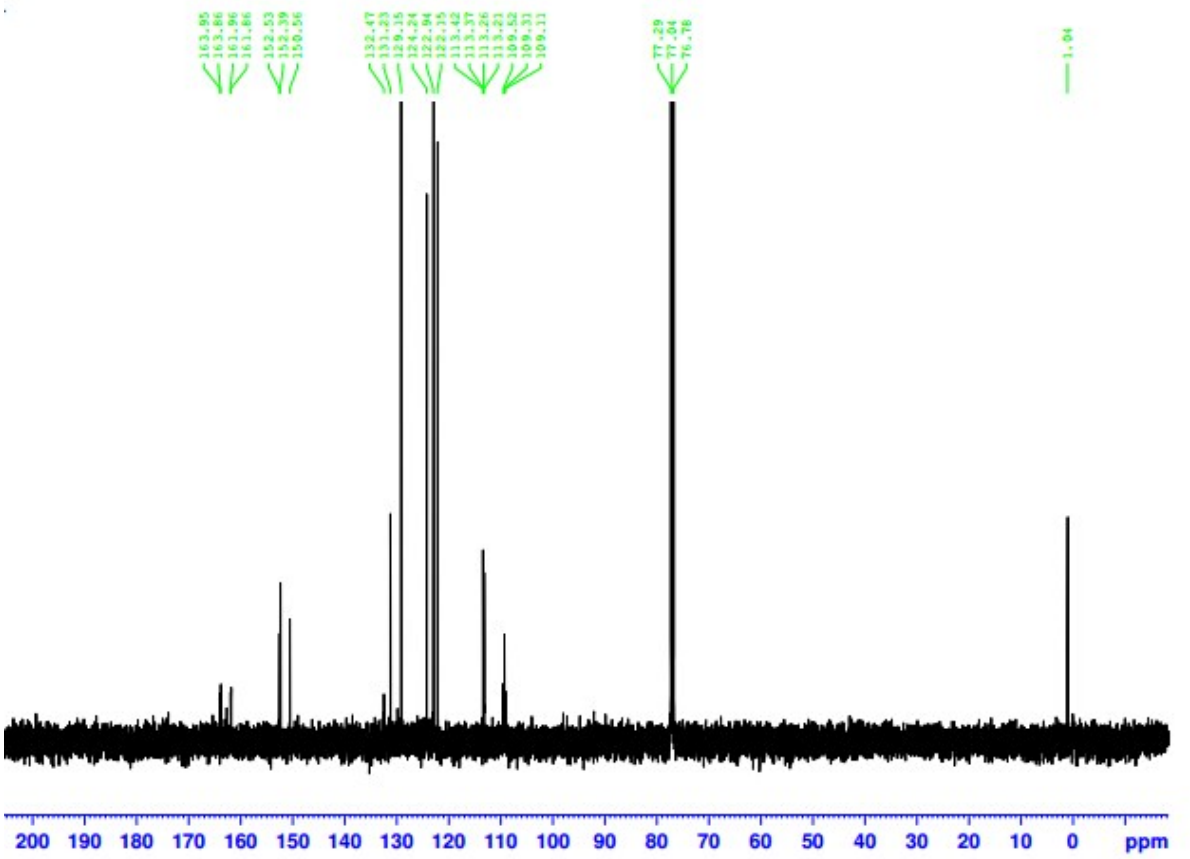


Compound E1

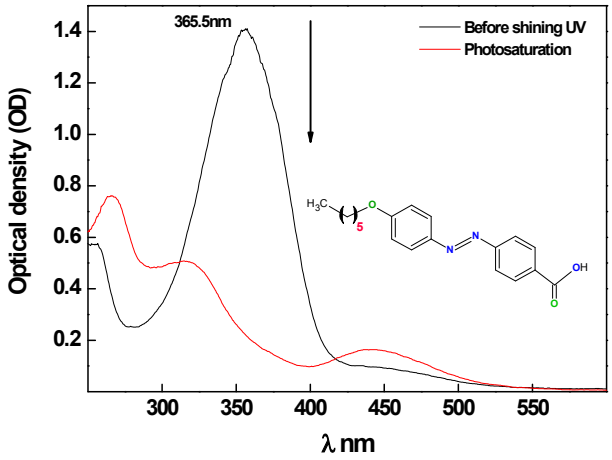
1H NMR



13C NMR



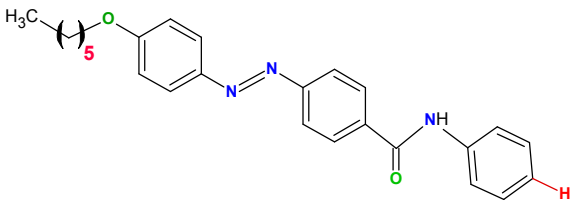
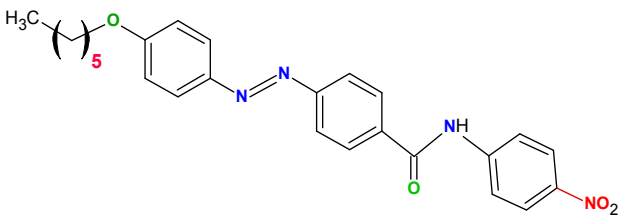
1. The below compound structure is similar to the synthesized compounds reported in the manuscript. This study is to justify the effect of “fluorine functional group”.



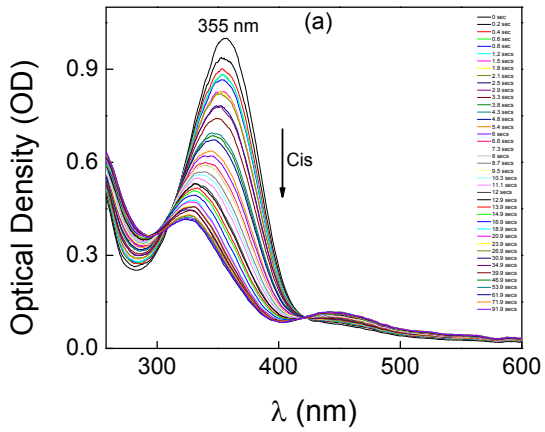
Photosaturation: 4min

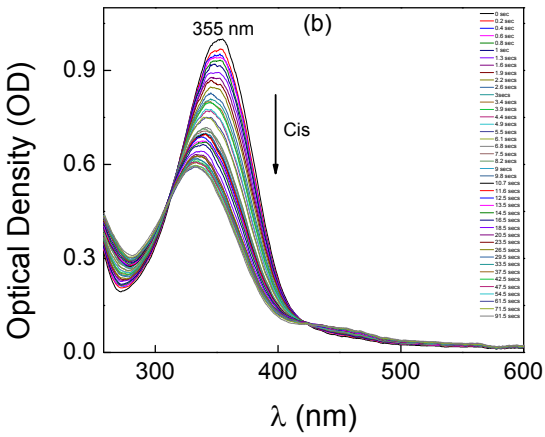
Thermal back relaxation: 3.4hours

2. In our earlier manuscript, we replaced the ester linkage by amide moiety. This study gives the justification to the effect of “ester group” discussed in the manuscript. Here, we have amide linkage instead of ester group.

Sl. No.	Compound name & structure.	Electronic properties with respect to the terminal functional groups.	Photo-isomerization	
			Photo-saturation	Thermal back relaxation
1	 **(E_1)**	**No substituent group at the para passion w.r.t. amide.**	**18 seconds**	**9.21 hours**
2	 **(E_2)**	**The strong electron withdrawing group $-NO_2$ causes more “+M effect”.**	**20 seconds**	**5.73 hours**

Photosaturation:





Thermal back relaxation: