Supporting Information

Design and Synthesis of Ultrasensitive Off-On Fluoride Detecting Fluorescence Probe via Autoinductive Signal Amplification

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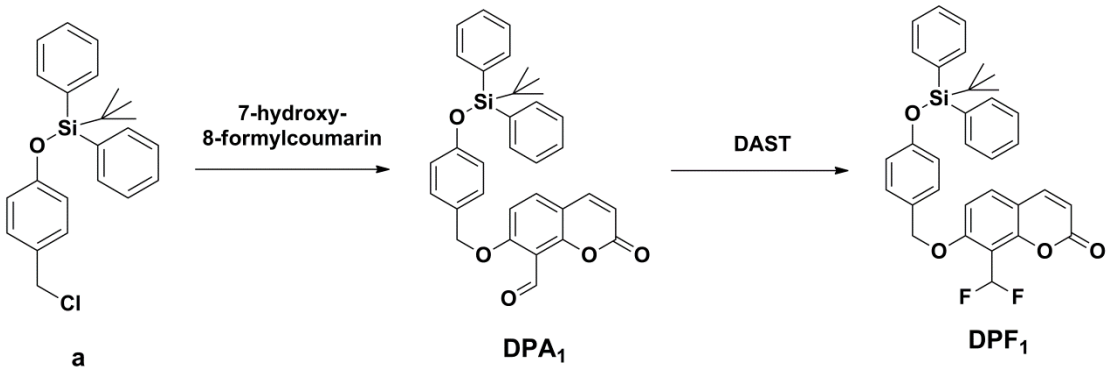
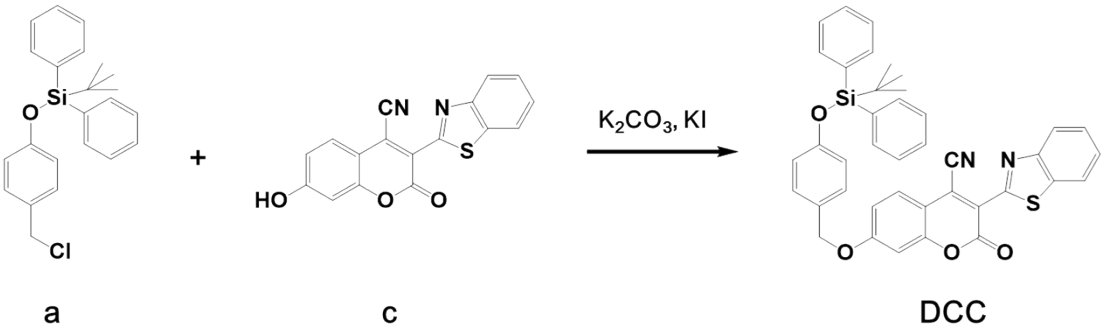
Materials and Instrumentation

All the chemicals were purchased from Acros Organics, Sigma-Aldrich, Showa Chemical Industry Co., or TCI America and were used without further purification. All reactions requiring anhydrous conditions were performed in oven-dried glassware under an Ar or a N_2 atmosphere. Chemicals and solvents were either puriss p.a. or purified by standard techniques. Analytical thin-layer chromatography (TLC) was performed on glass plate-mounted silica gel $60F_{254}$ (Merck) with a thickness of 0.2 mm. Flash column chromatography was performed using Silicycle silica gel 60. The synthesized compounds were characterized using ^{1}H NMR (Bruker Advance 300MHz) and ^{13}C NMR (Bruker Advance 75MHz). Mass spectra were recorded using a Finnigan TSQ 700 triple quadrupole mass spectrometer equipped with an electrospray ionization (ESI) ion source. Photoluminescence spectra were measured with HORIBA FluoroMax-4 spectrometer.



Scheme S1: Scheme for the synthesis of 7-((4-(tert-butyldiphenylsilyloxy)benzyl)oxy)-8-(difluoromethyl)-coumarin (DPF_1). DAST: Diethylaminosulfur trifluoride.



Scheme S2: Scheme for the synthesis of 3-(benzothiazol-2-yl)-4-carbonitrile-7-((4-(tert-butyldiphenylsilyloxy)benzyl)oxy)coumarin (DCC).

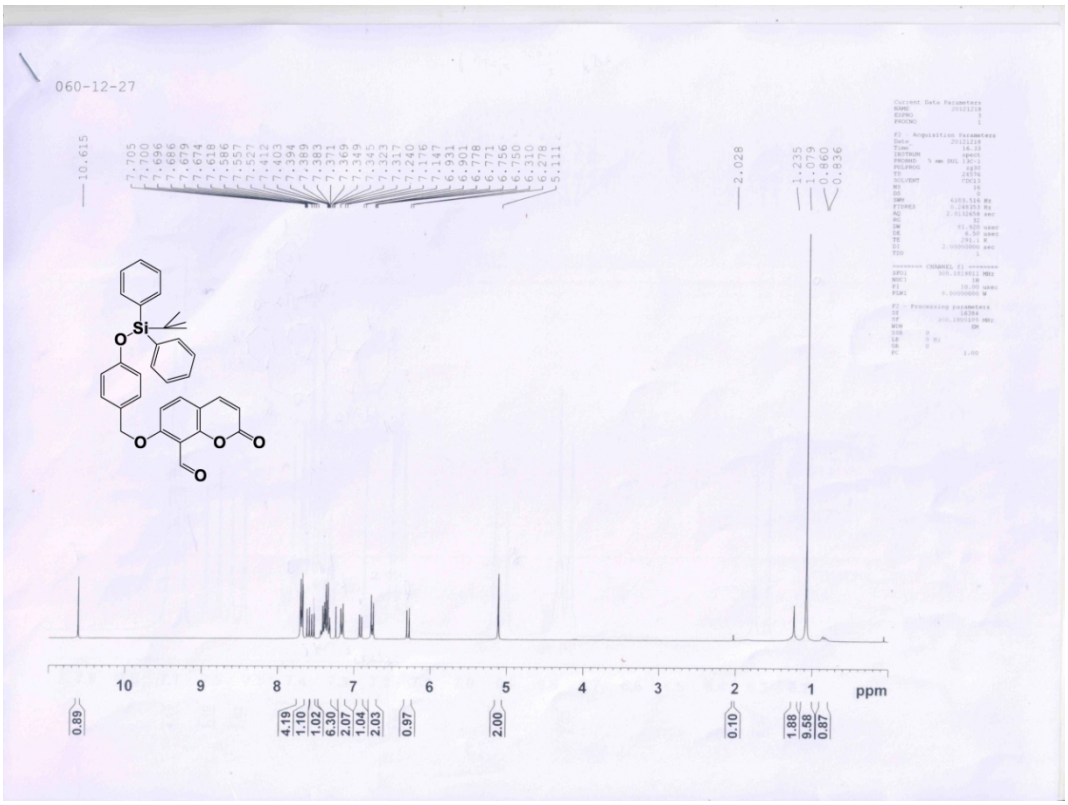


Fig. S1. ^{1}H NMR spectrum of DPA$_1$.

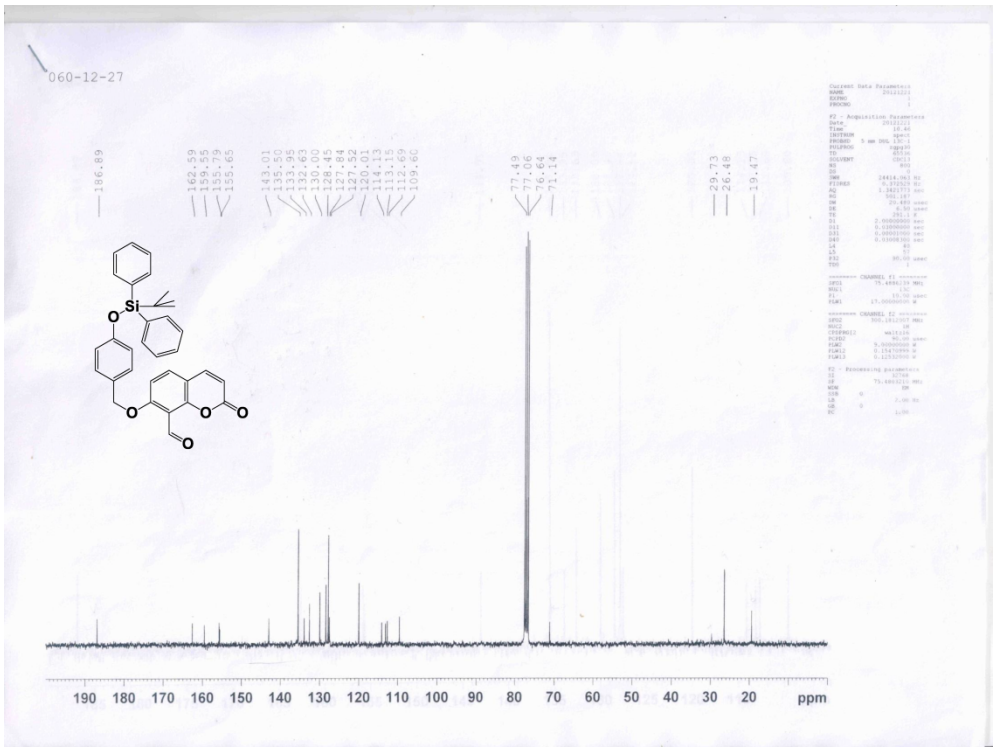


Fig. S2. ^{13}C NMR spectrum of DPA$_1$.

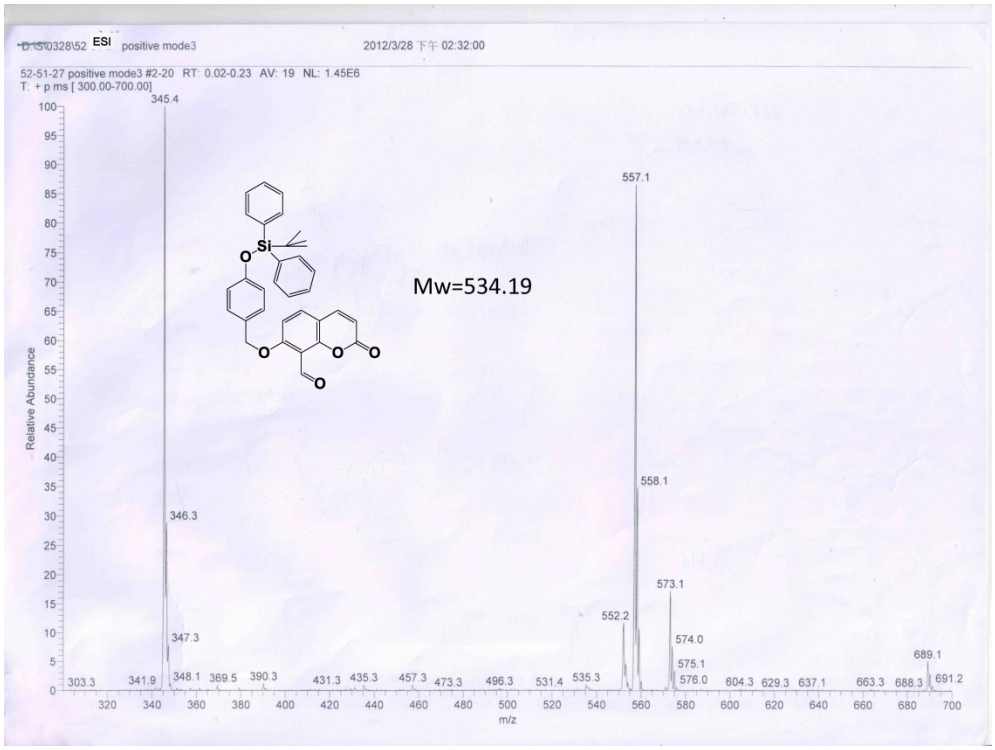


Fig. S3. Mass spectrum (ESI+) of DPA_1.

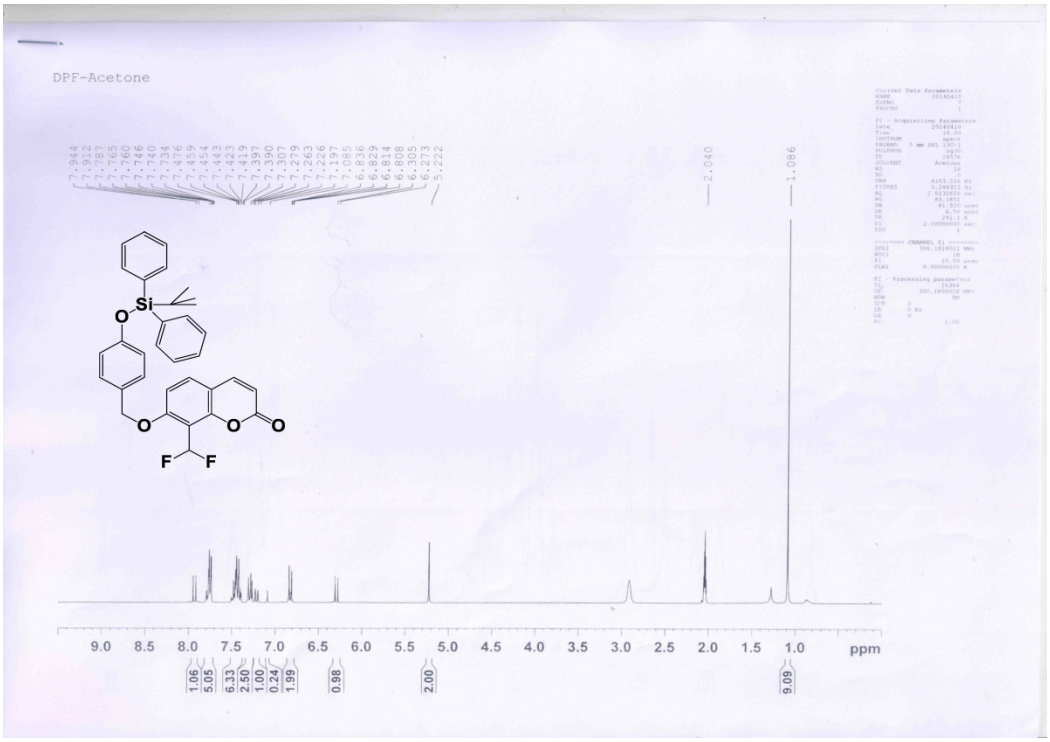


Fig. S4. ^1H NMR spectrum of DPF_1.

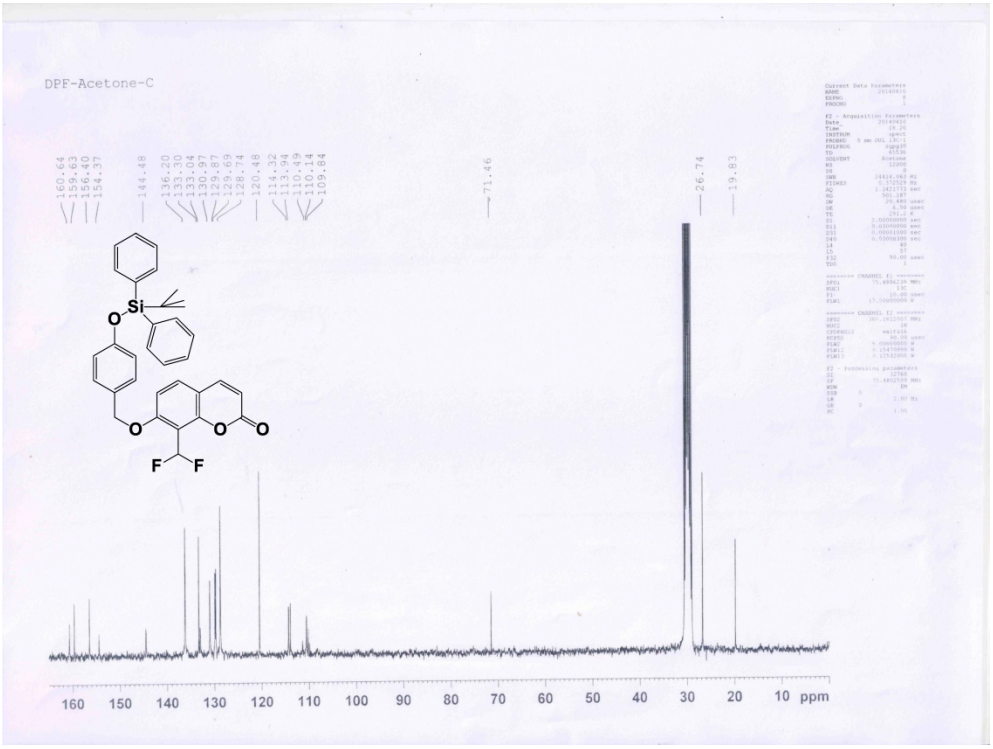


Fig. S5. ^{13}C NMR spectrum of DPF_1.

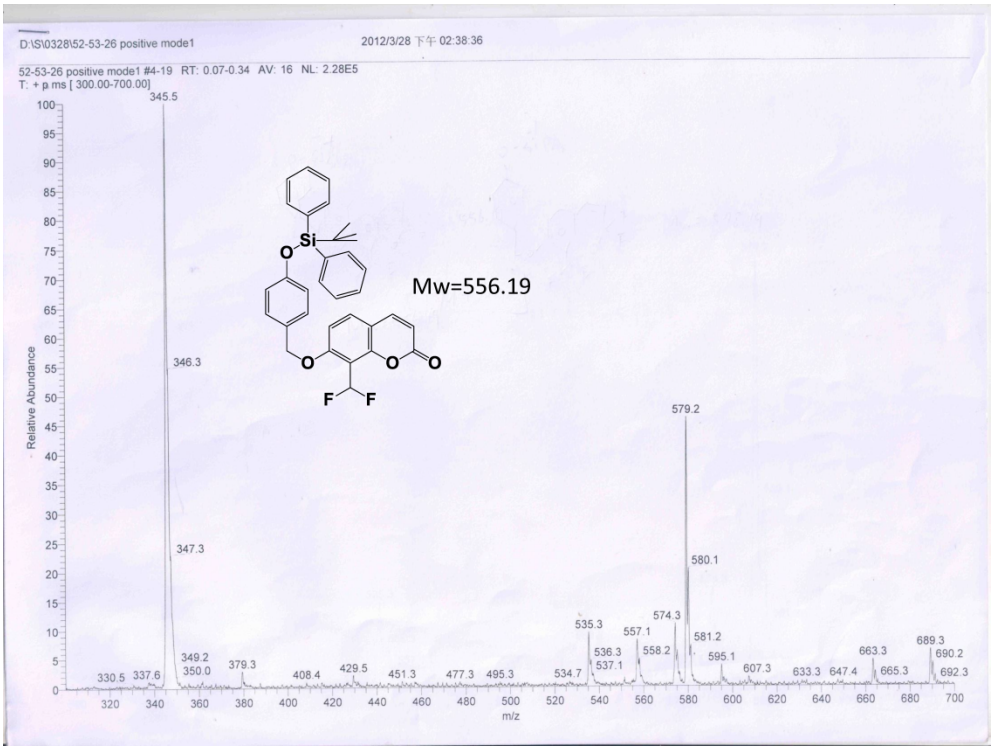


Fig. S6. Mass spectrum (ESI+) of DPF_1.

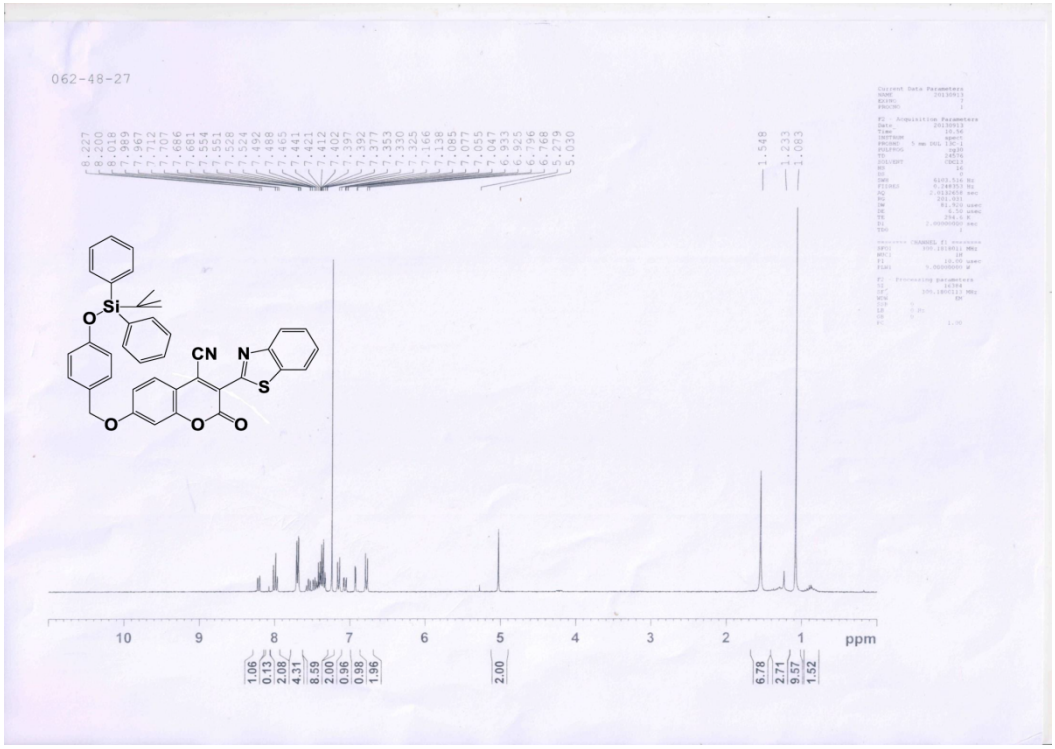


Fig. S7. ^{1}H NMR spectrum of DCC.

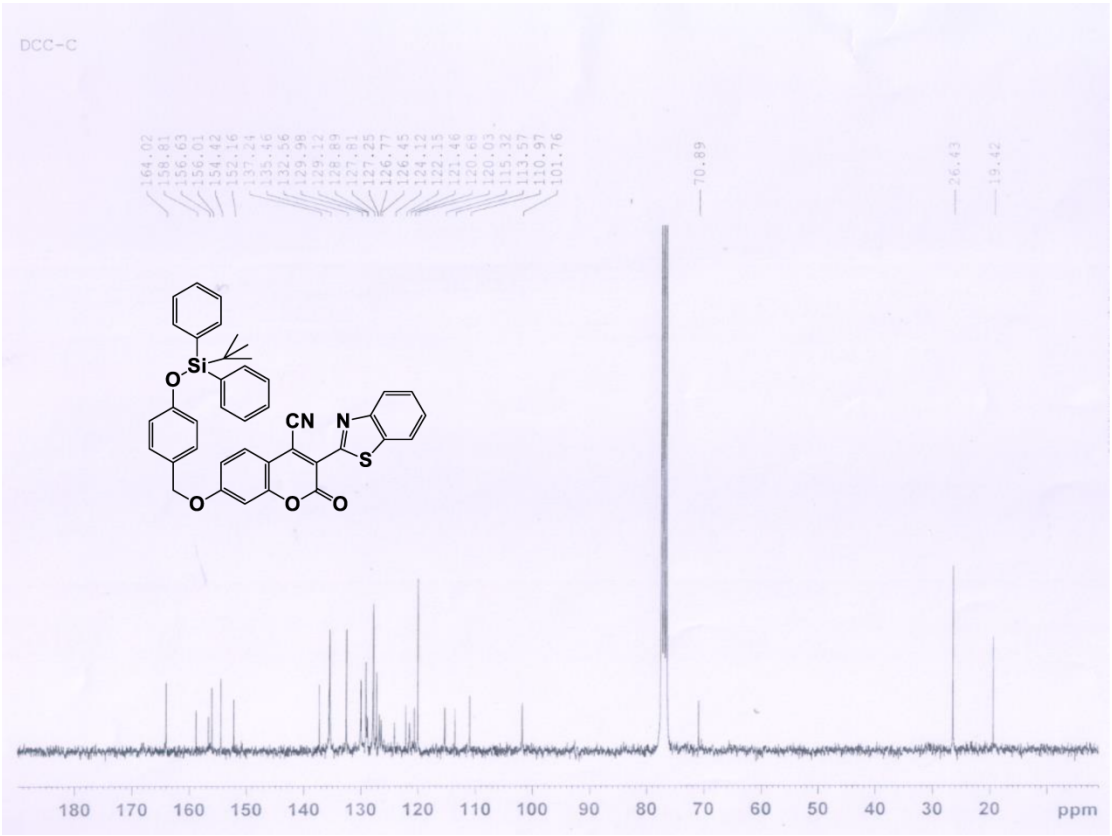


Fig. S8. ^{13}C NMR spectrum of DCC.

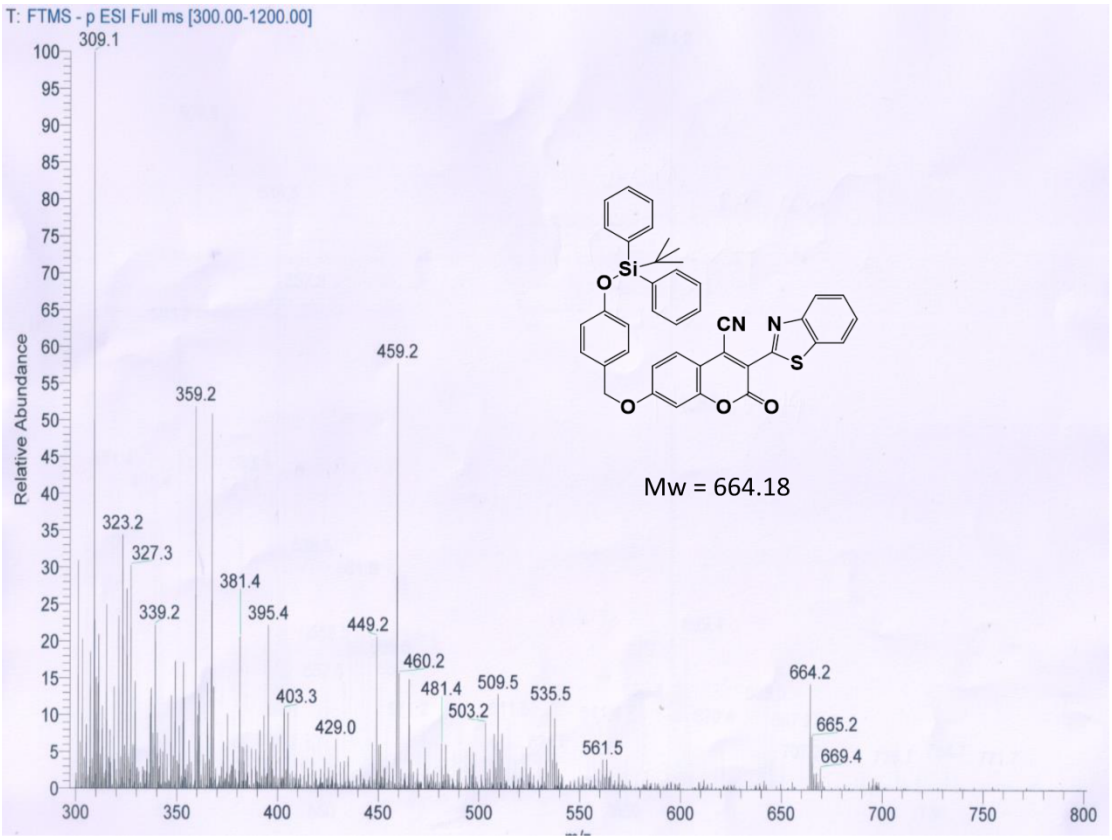


Fig. S9. Mass spectrum (ESI+) of DCC.