

Electronic Supplementary Material (ESI)

Photo-driven Near-IR Fluorescence Switch: Synthesis and Spectroscopic Investigation of Squarine-Spiropyran Dyad

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2. Absorption spectra of **SP (6)** and Absorption and fluorescence emission spectra of corresponding **MC** form of **SP (6)** in film.
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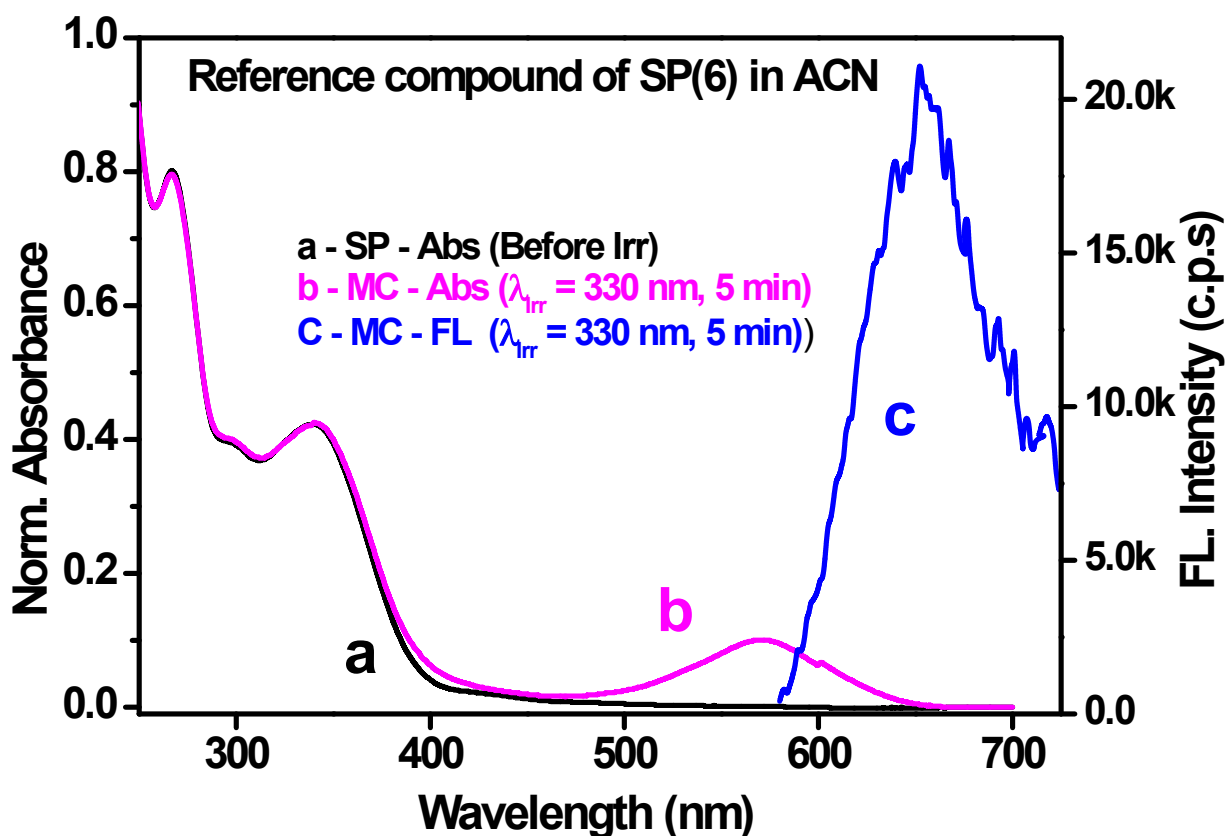


Figure 1S. (a) Black colour curve, absorption spectra of **SP(6)** in ACN, (b) magenta colour curve, absorption spectra of **SP** after UV irradiation ($\lambda_{irr} = 330$ nm) for 5 minutes, effectively shows the absorption spectra of MC form of **SP(6)** in ACN, (c) blue colour curve, fluorescence emission spectra of **SP** after UV irradiation ($\lambda_{irr} = 330$ nm) for 5 minutes in ACN, effectively shows the emission spectra of **MC** form of **SP** in ACN, Emission spectra was collected on excitation at 580 nm.

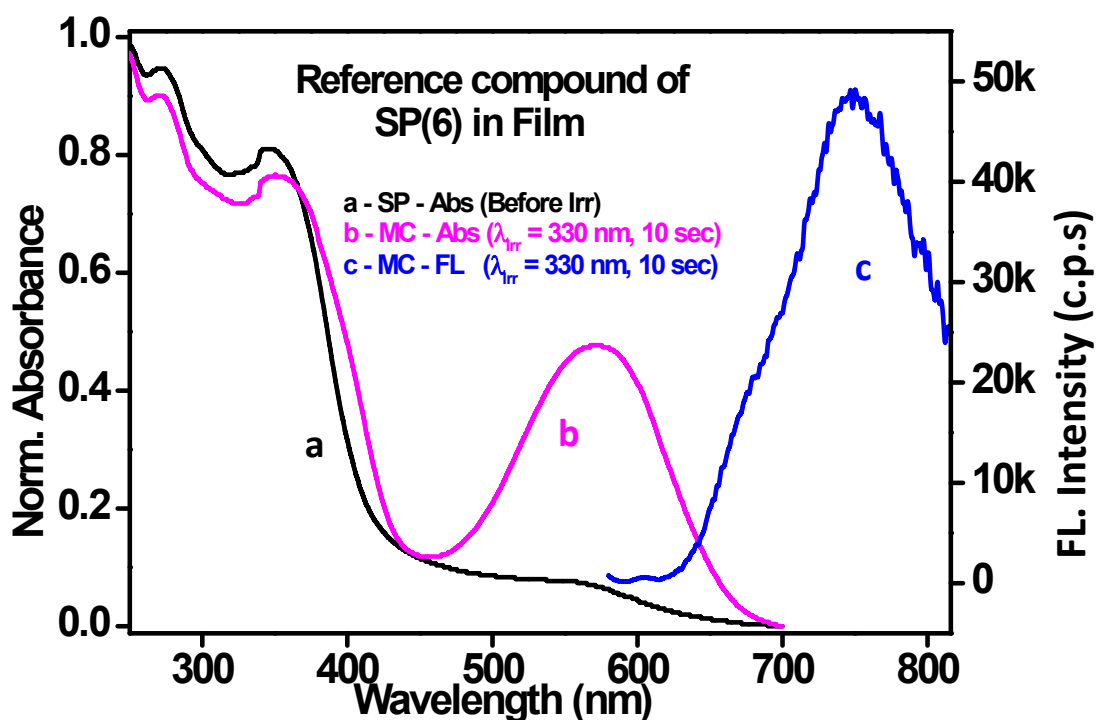


Figure 2S: (a) Black colour curve, absorption spectra of SP(6) in film, (b) magenta colour curve, absorption spectra of SP after UV irradiation ($\lambda_{irr} = 330$ nm) for 10 seconds, effectively shows the absorption spectra of MC form of SP film, (c) blue colour curve, fluorescence emission spectra of SP after UV irradiation ($\lambda_{irr} = 330$ nm) for 10 seconds in film, effectively shows the emission spectra of MC form of SP film, Emission spectra was collected on excitation at 600 nm.

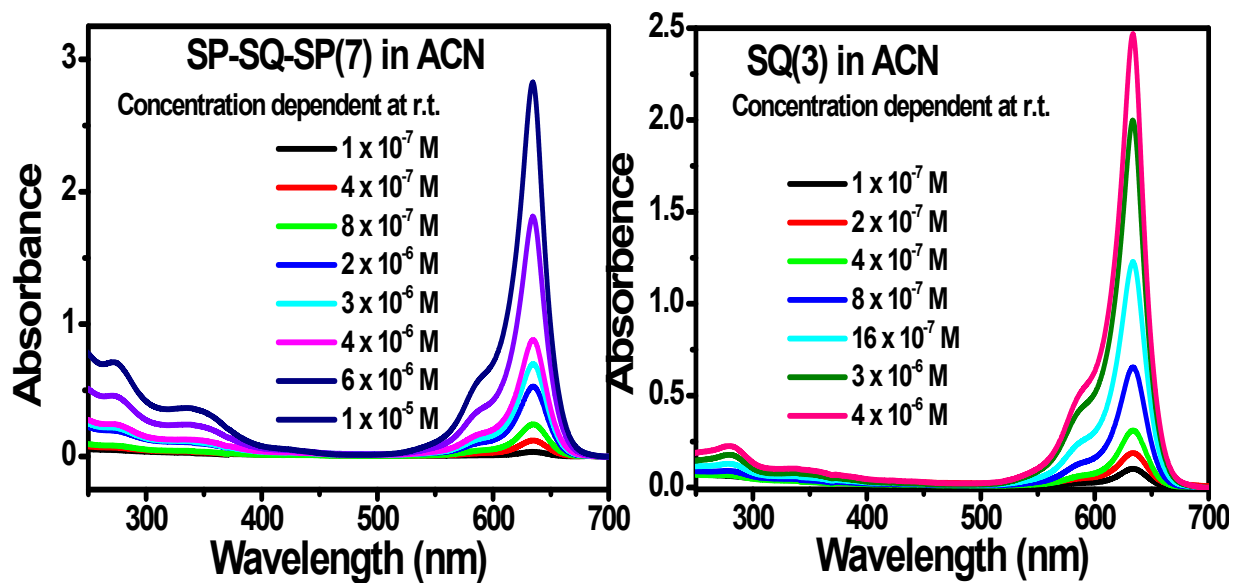


Figure 3S: Concentration dependent absorbance SP-SQ-SP(7) and SQ(3) in ACN solvent.

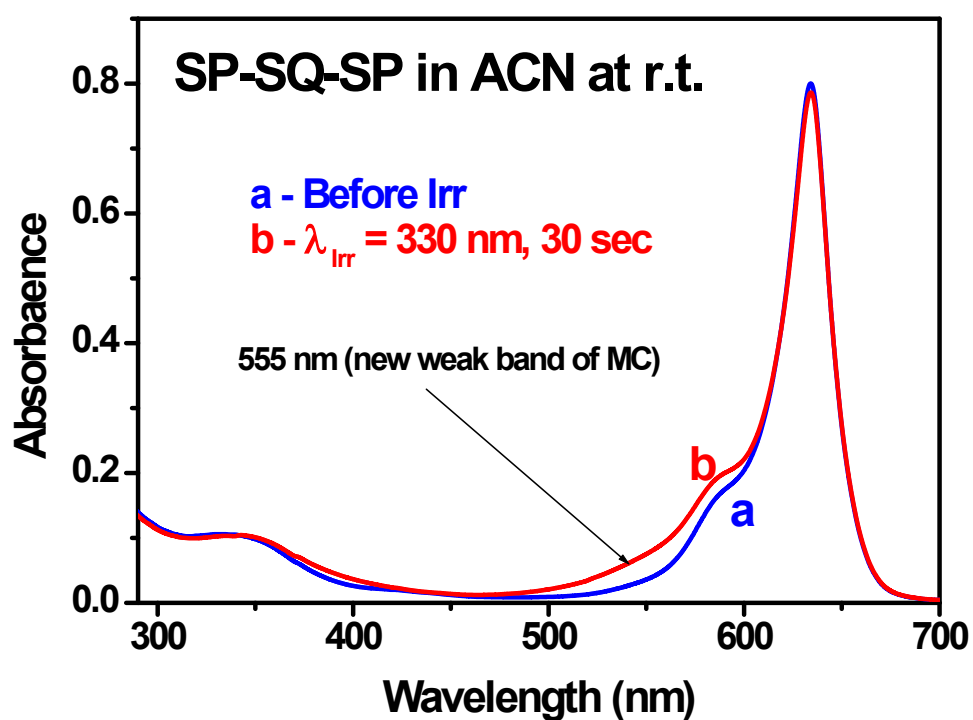


Figure 4S: Absorption spectra of SP-SQ-SP (7) in ACN solution before and after UV irradiation at room temperature (300K).

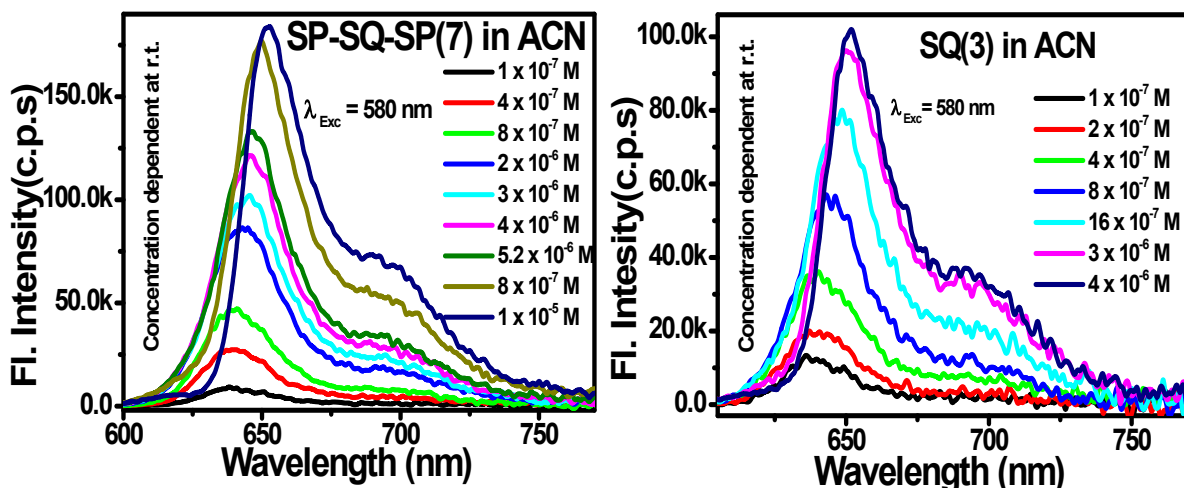


Figure 5S: Concentration dependent fluorescence **SP-SQ-SP (7)** and **SQ (3)** in ACN solvent.

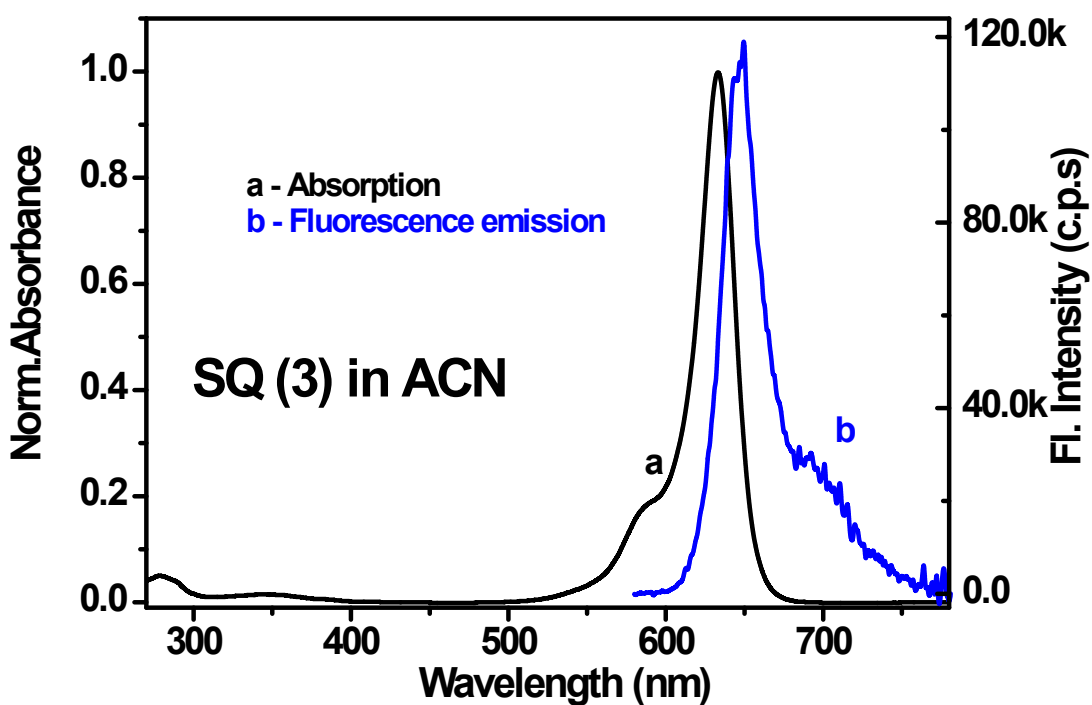


Figure 6SA: (a) Black colour curve, absorption spectra of **SQ(3)** in ACN. (b) Blue colour curve, fluorescence emission spectra of **SQ(3)** ($\lambda_{Ex} = 600\text{nm}$).

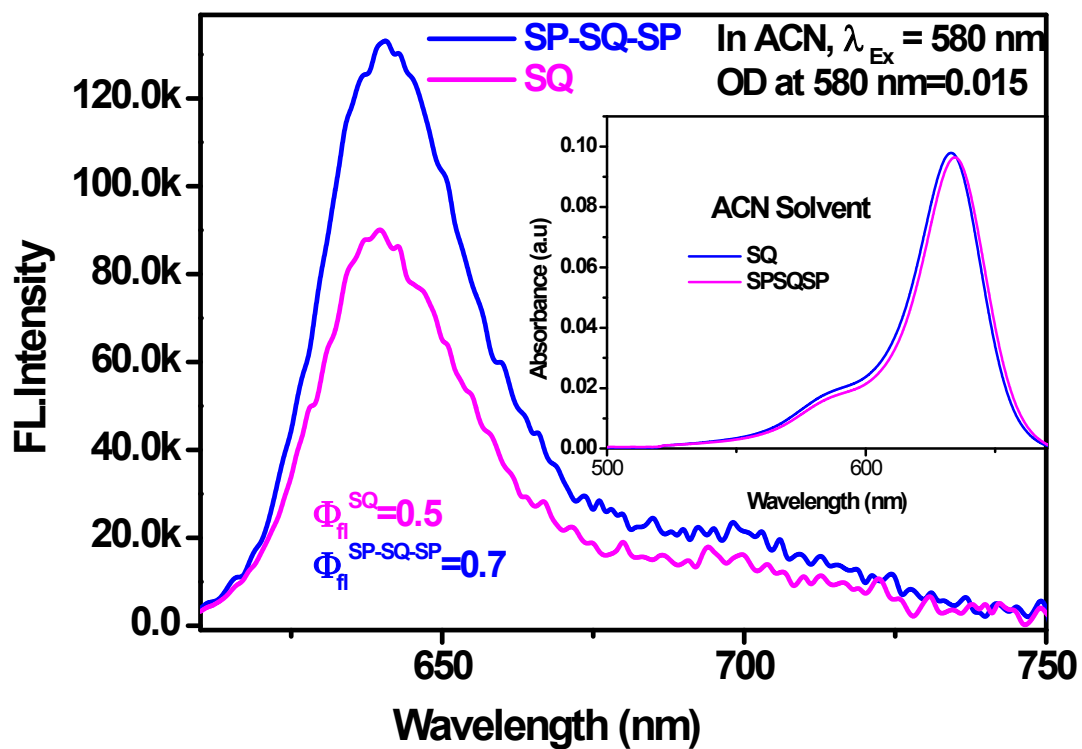


Figure 6SB: Relative fluorescence intensity of SQ and SP-SQ-SP when excited at 580 nm keeping nearly equal absorbance for both the compounds. Inset shows the absorption spectra of SQ and SP-SQ-SP of nearly equal absorbance.

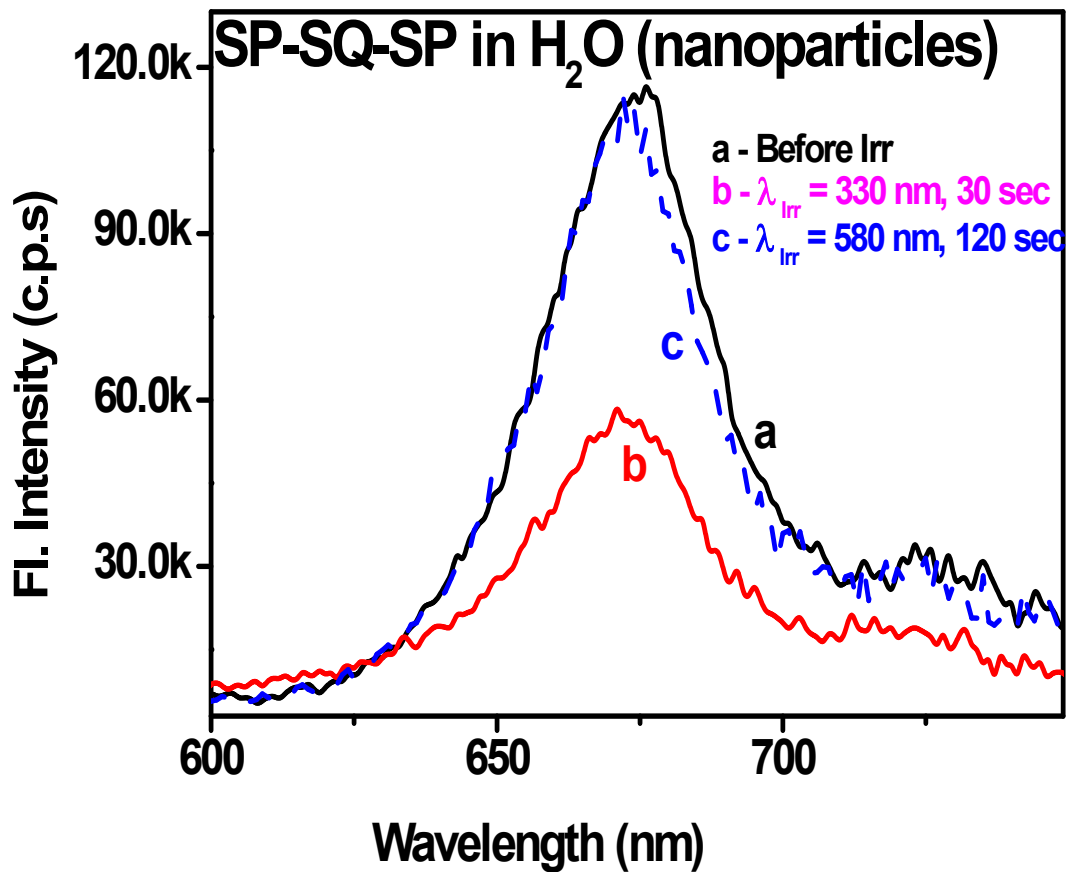


Figure 7S: Fluorescence switching behaviour of **SP-SQ-SP(7)** nanoparticles dispersed in aqueous medium.

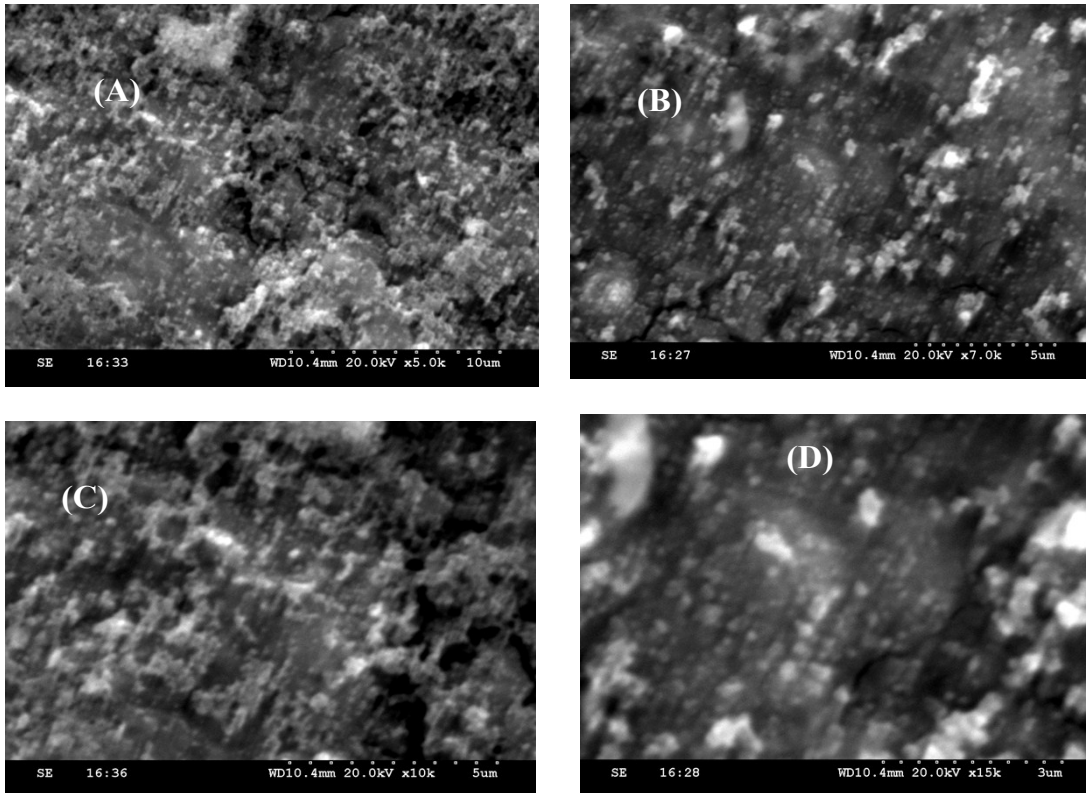


Figure 8SA: SEM image of as prepared nanoparticles of **SP-SQ-SP(7)** shown in different magnifications (A) 5K, (B) 7K, (C) 10 K and (D) 15 K. Estimated size of the nanoparticles is <100 nm.

	Size (r.nm):	% Number	Width
Z-Average (r.nm): 839.0	Peak 1: 61.54	99.6	11.81
Pdl: 1.000	Peak 2: 1195	0.4	323.2
Intercept: 0.693	Peak 3: 0.000	0.0	0.000
Result quality : Refer to quality report			

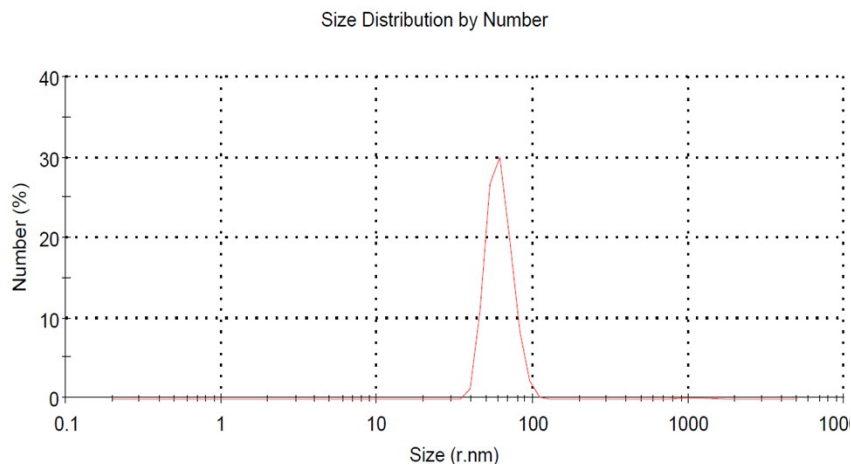


Figure 8SB: Size distribution of as prepared nanoparticles of **SP-SQ-SP(7)** dispersed in water observed in DLS

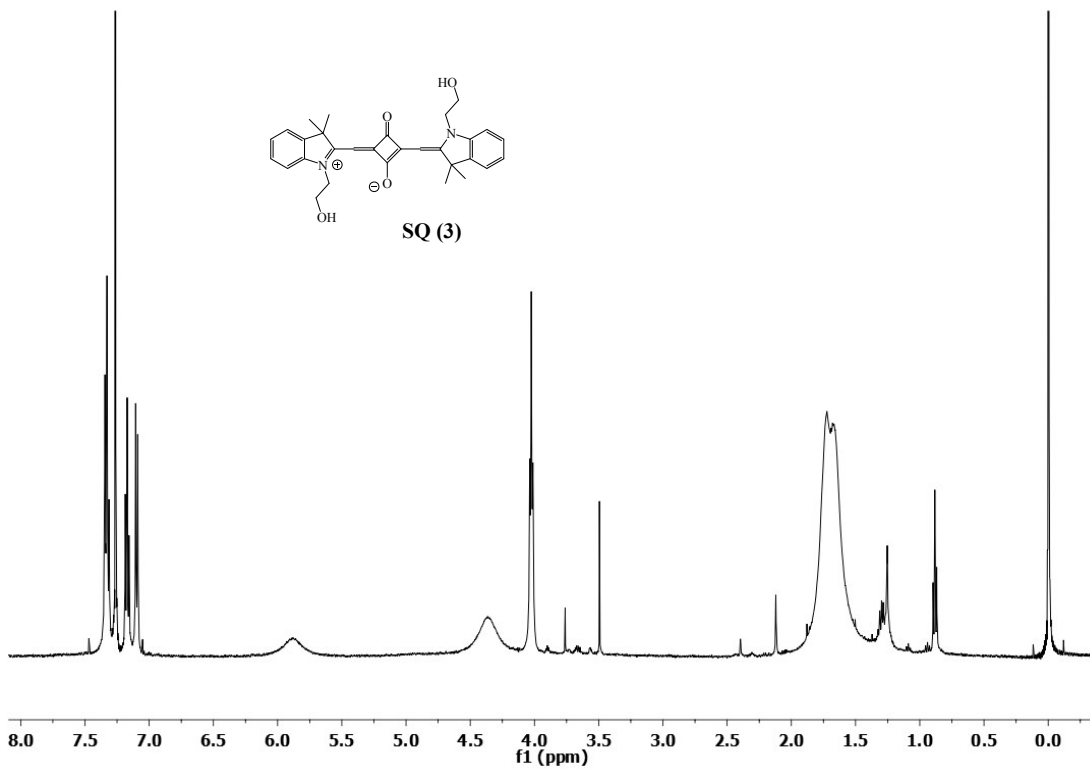


Figure 9S: S1: ^1H NMR spectra of SQ (3)

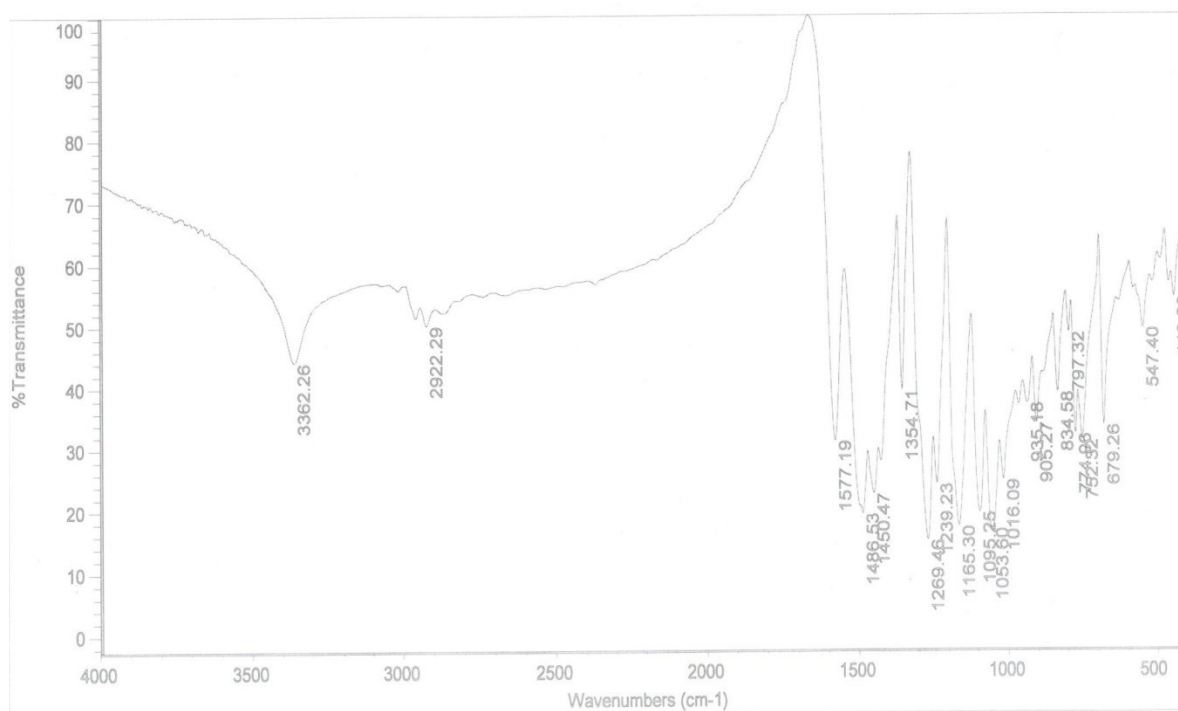


Figure 10S: FT-IR Spectra of SQ(3)

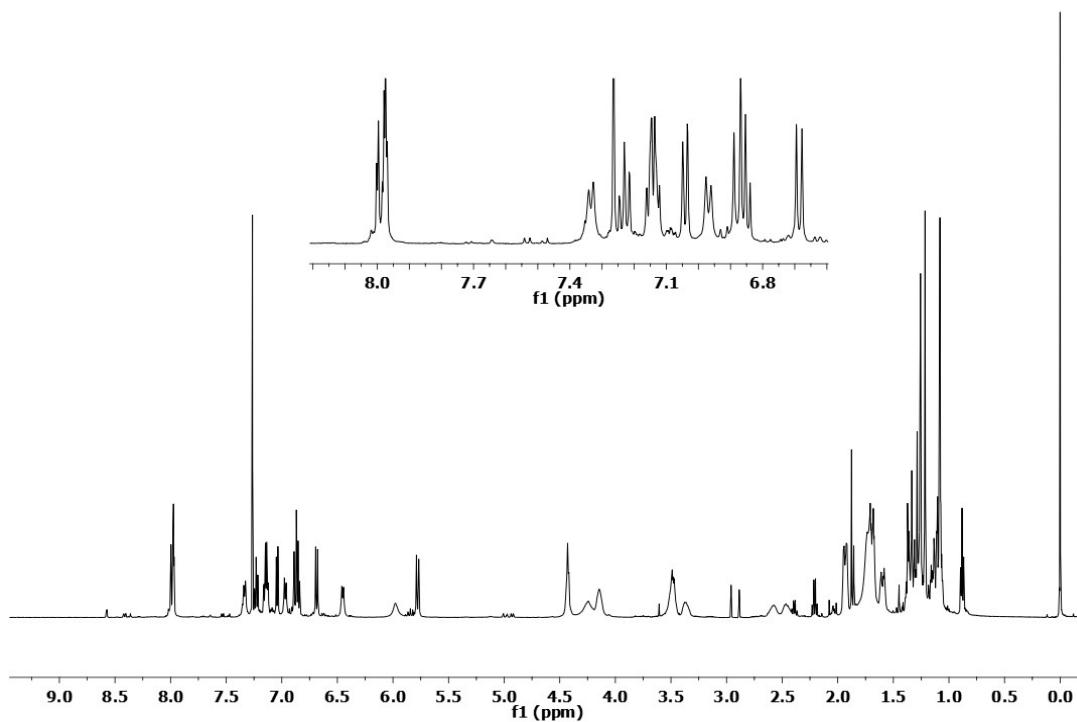


Figure 11S: ^1H NMR spectra of SP-SQ-SP (7)

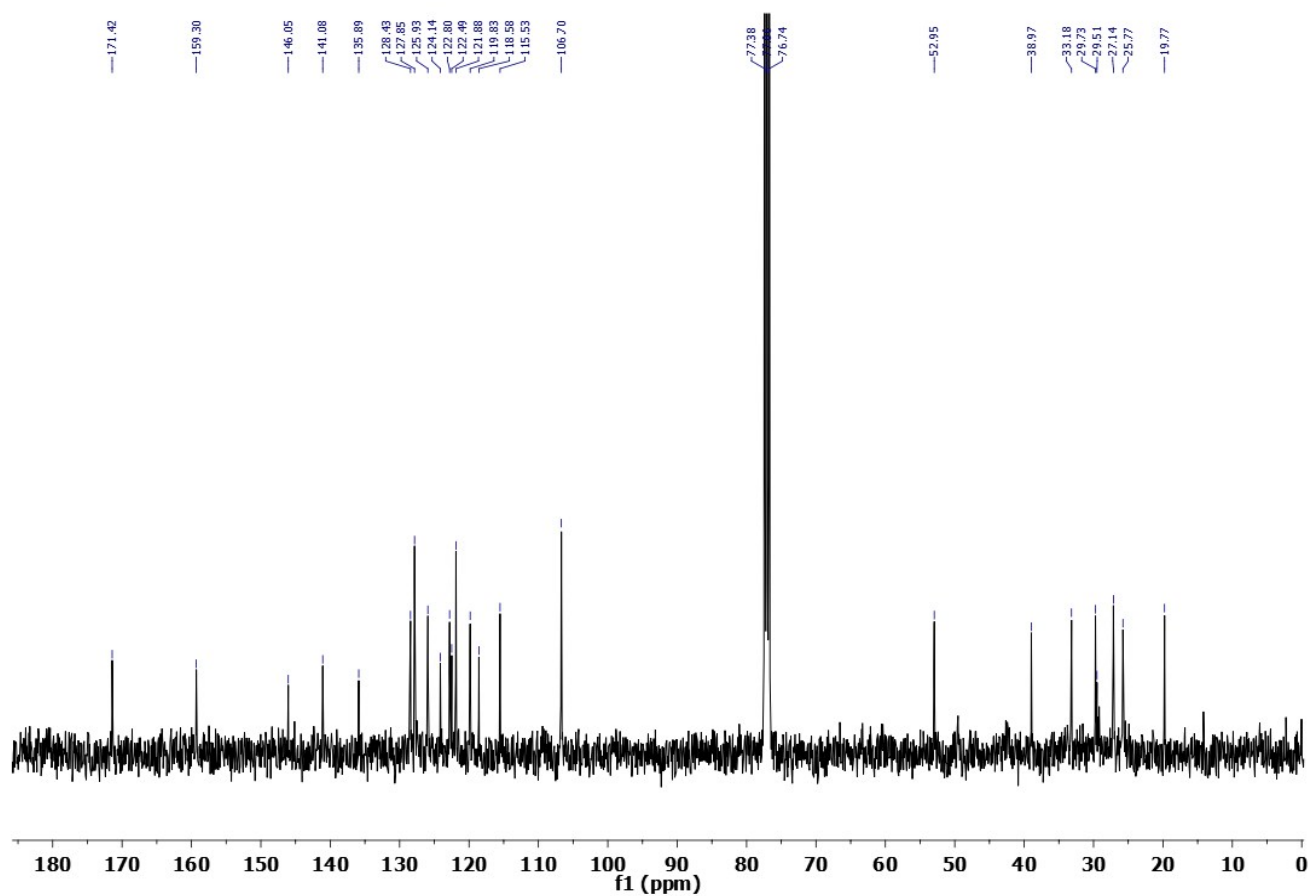


Figure 12S: ^{13}C NMR spectra of SP-SQ-SP (7)

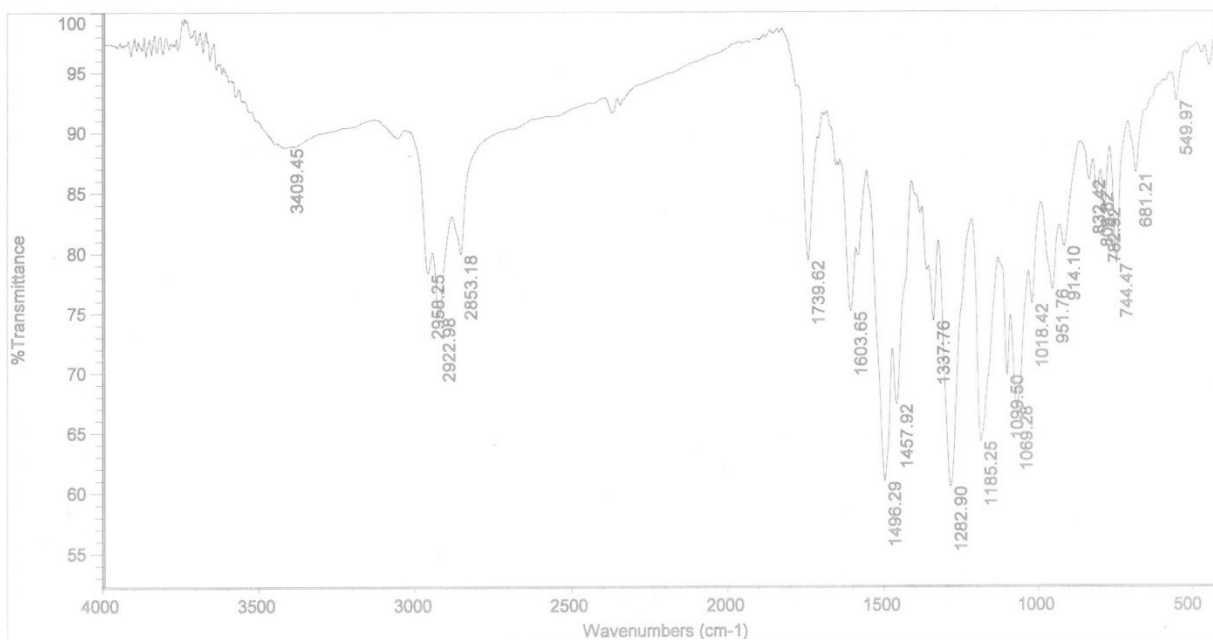


Figure 13S: FT-IR spectra of SP-SQ-SP (7)

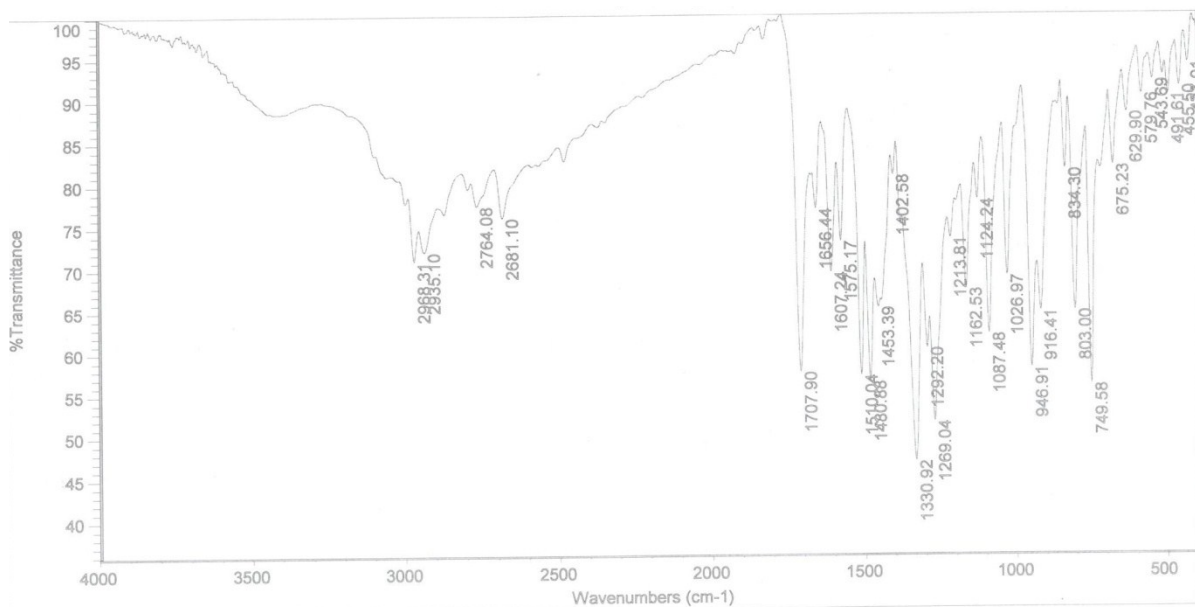


Figure 14S: FT-IR spectra of SP-COOH

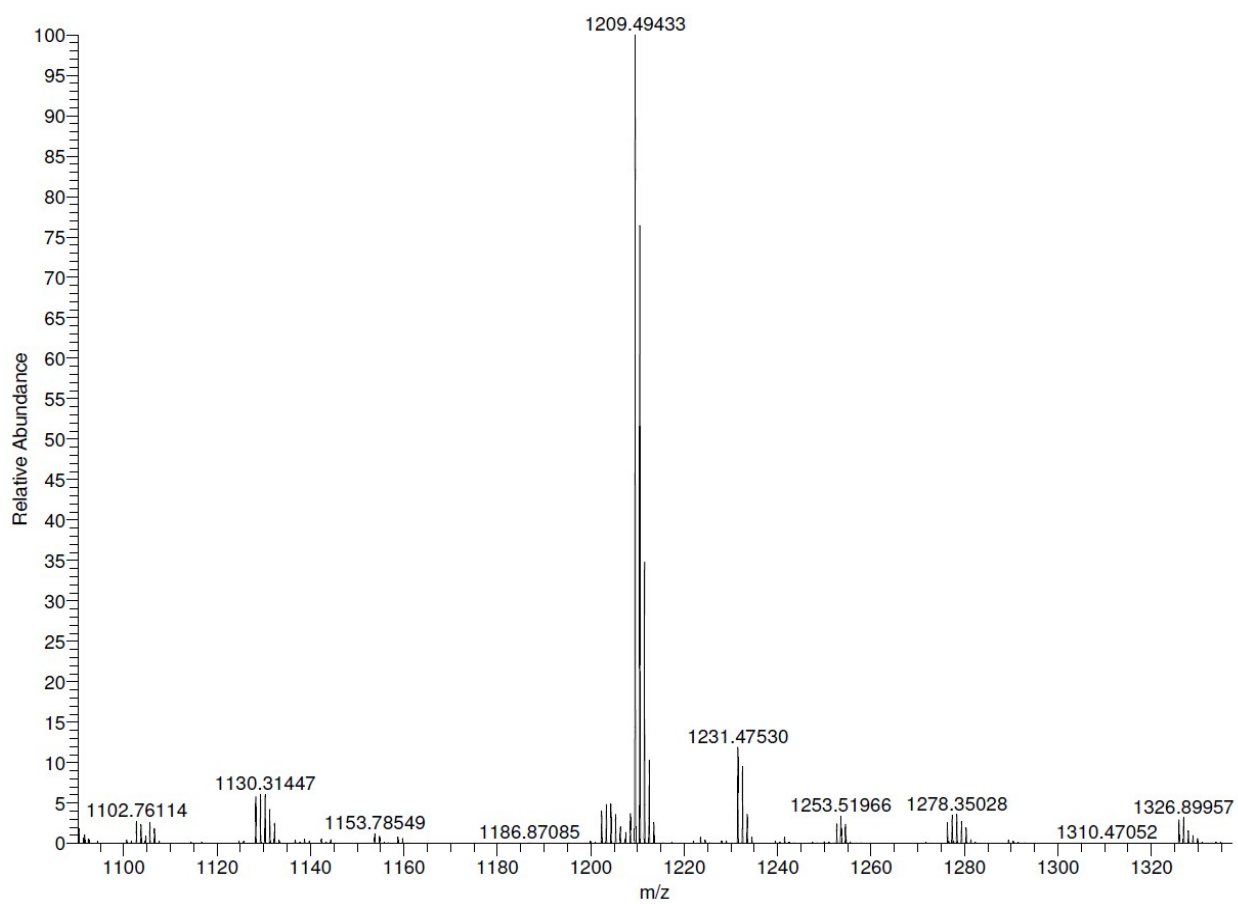


Figure 15S: HRMS spectra of SP-SQ-SP (7)