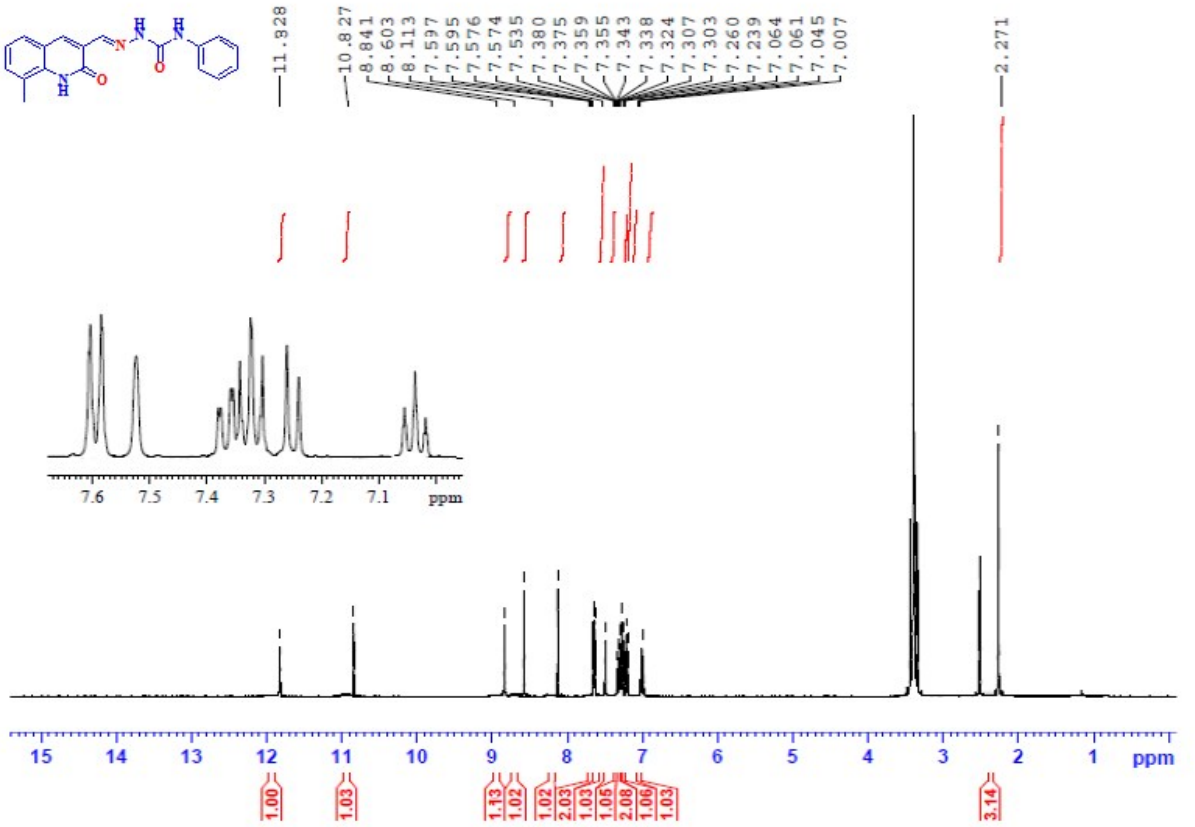

Fig. S1. ^{1}H NMR spectrum (DMSO-d^{6}) of **8MPS**.

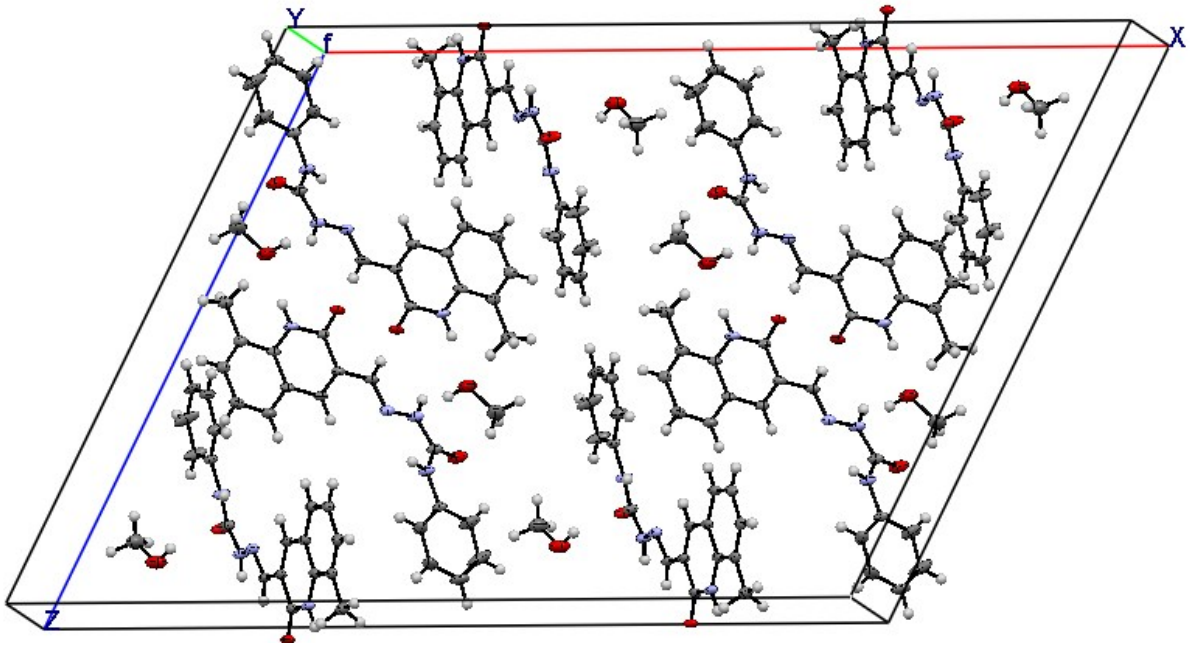

Fig. S2. Molecular packing diagram for **8MPS**.

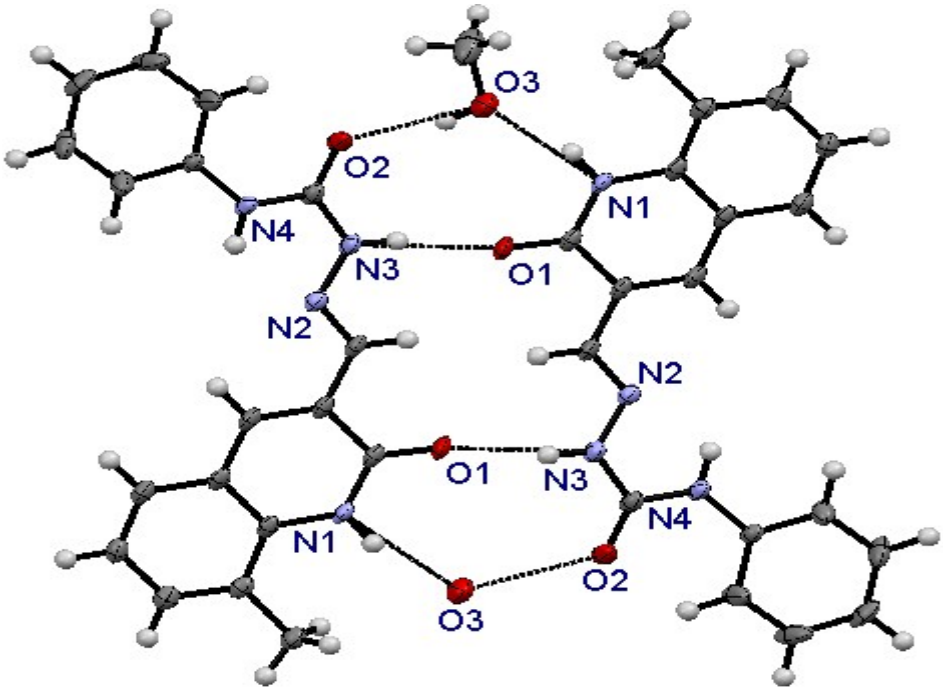

Fig. S3. Hydrogen bonding diagram for **8MPS**.

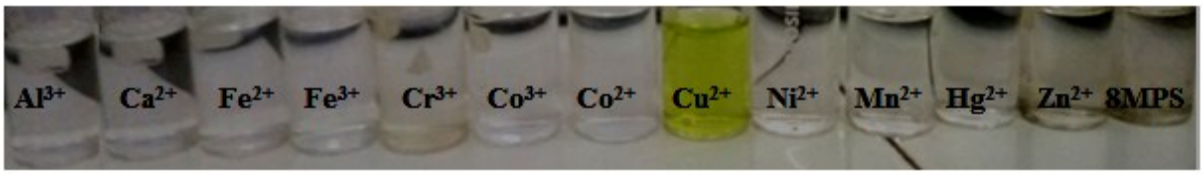

Fig. S4. Changes in colour under visual inspection of **8MPS** with chloride salts of different cations.

Fig. S5. Naked eye visual inspection of **8MPS** (20 mM in ethanol: water (1: 5)) towards different copper salts (10 μM) in aqueous solution. 1- Copper sulphate, 2- Copper acetate and 3- Copper nitrate.

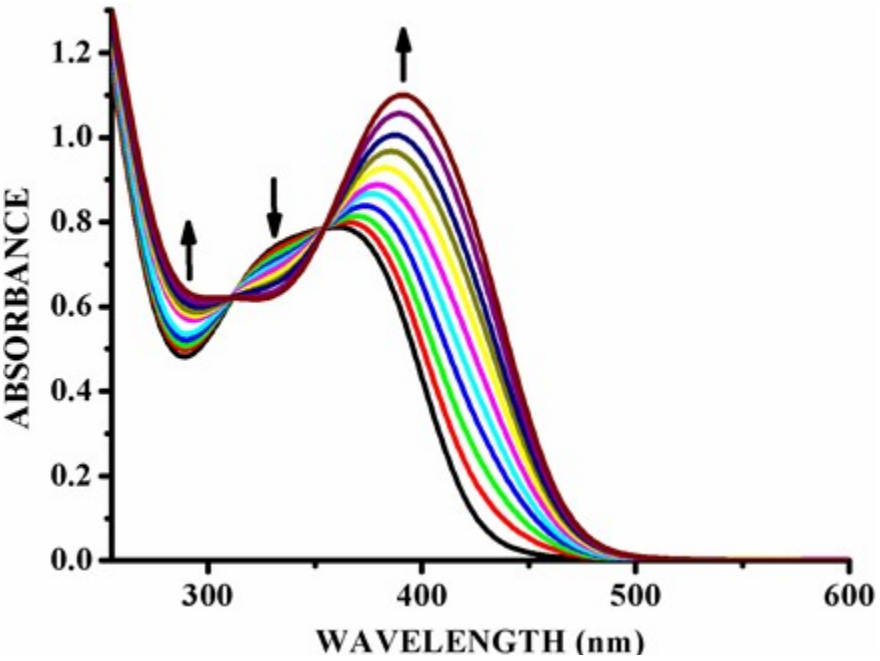

Fig. S6. Changes in the UV–vis spectrum of **8MPS** (20 mM; ethanol: H_2O (1:1 v/v)) upon gradual addition of Cu^{2+} (chloride; 10 μM) in aqueous solution at pH = 7.2.

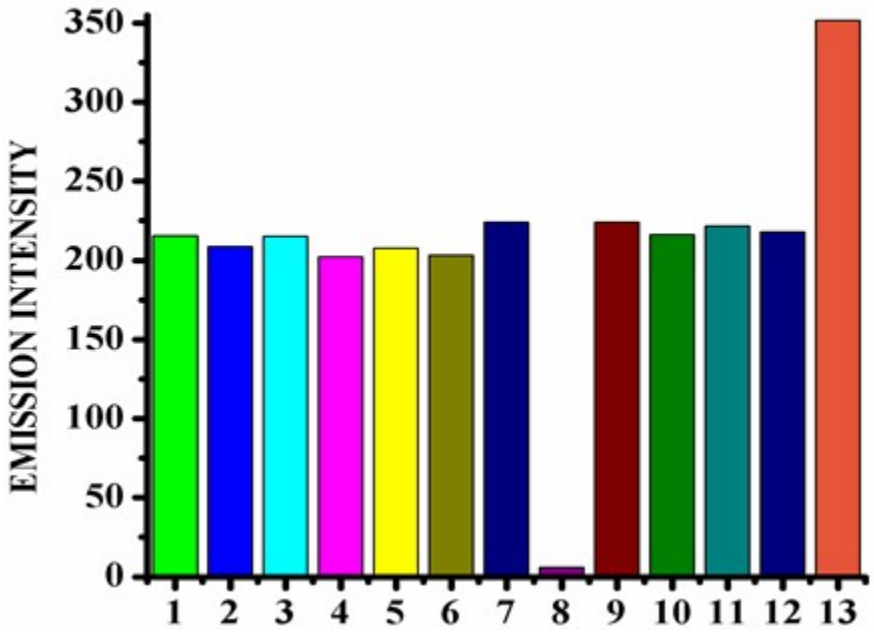

Fig. S7. Fluorescence emission spectra of **8MPS** (20 mM, ethanol: H_2O (1:5)) in the presence of chloride salts of different cations (10 μM), 1- Al^{3+}, 2- Ca^{2+}, 3- Co^{3+}, 4- Cr^{3+}, 5-Fe^{3+}, 6- Fe^{2+}, 7- Mn^{2+}, 8- Cu^{2+}, 9- Ni^{2+}, 10- Zn^{2+}, 11- Hg^{2+}, 12- Co^{2+} in aqueous solution and 13- blank (**8MPS**).

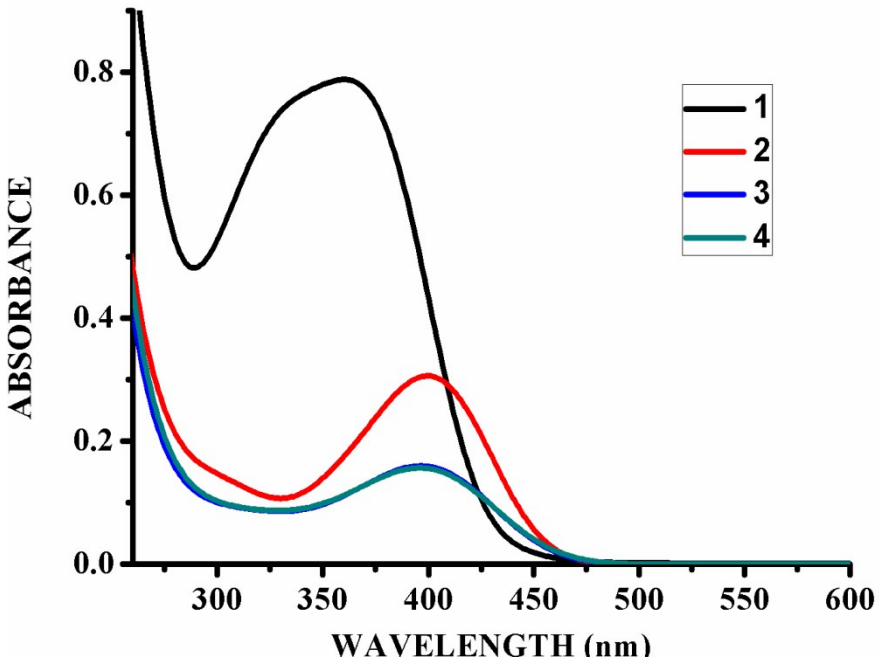

Fig. S8. Absorption spectra of **8MPS** (20 mM in ethanol: water (1:5)) with various copper salts (10 µM). 1-8MPS, 2-Copper nitrate, 3- Copper acetate and 4- Copper sulphate.

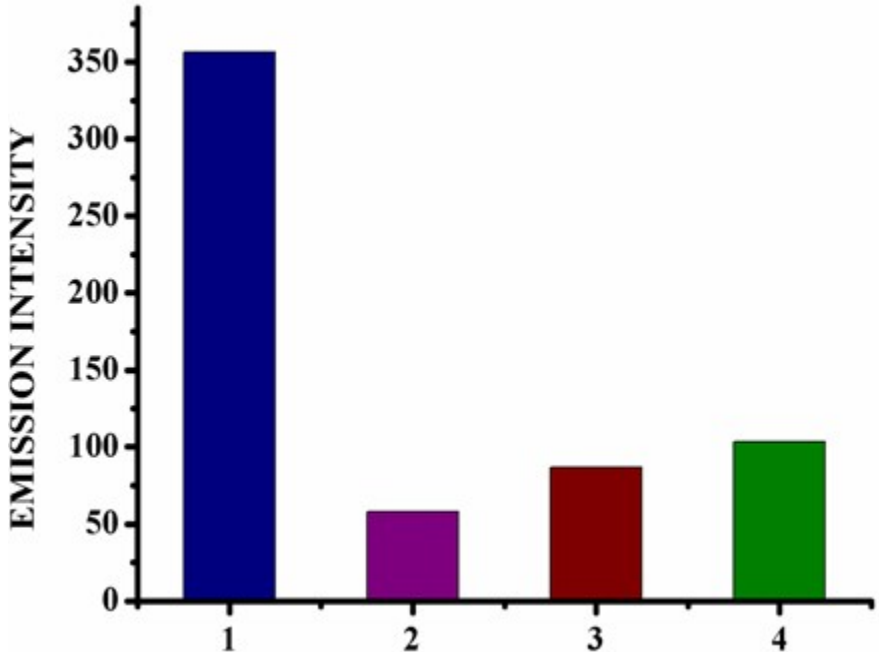

Fig. S9. Fluorescence spectra of **8MPS** (20 mM in ethanol: water (1:5)) with various copper salts (10 µM). 1-8MPS, 2-Copper nitrate, 3- Copper acetate and 4- Copper sulphate.

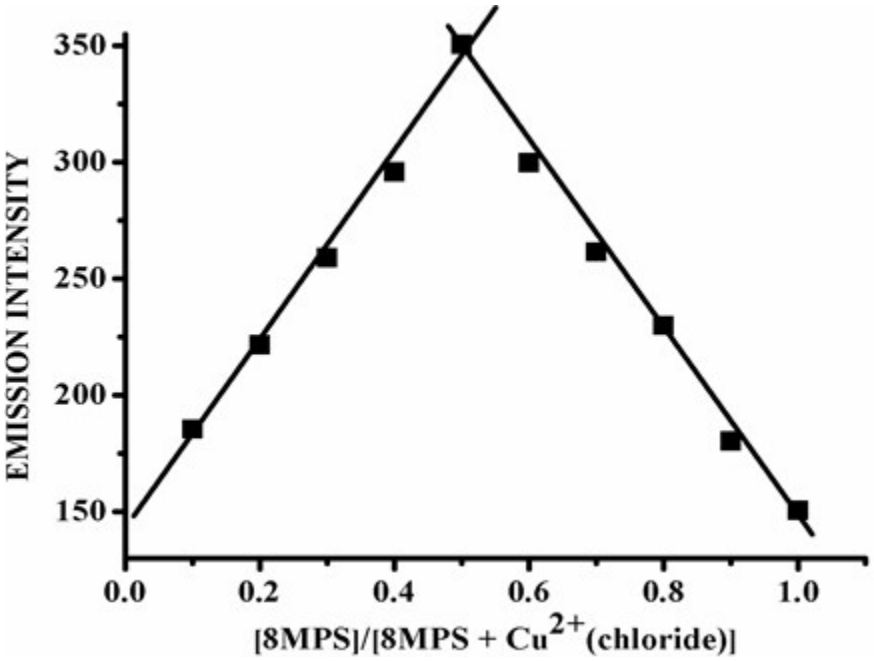

Fig. S10. Job's plot of **8MPS** and Cu^{2+} ([**8MPS**] + [Cu^{2+} (chloride)]) = 40 μM.

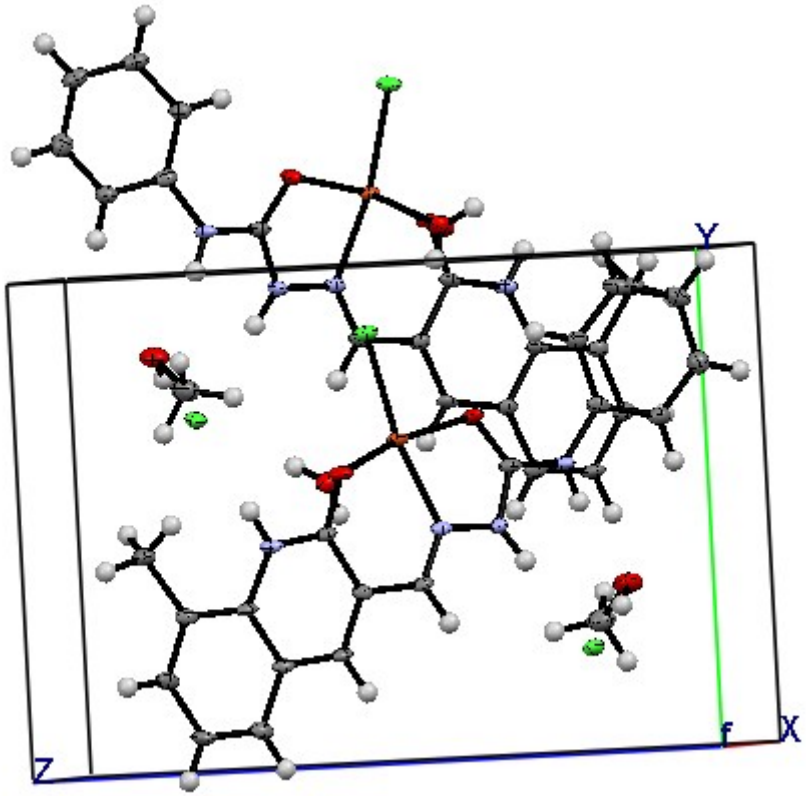

Fig. S11. Molecular packing diagram for **8MPSC**.

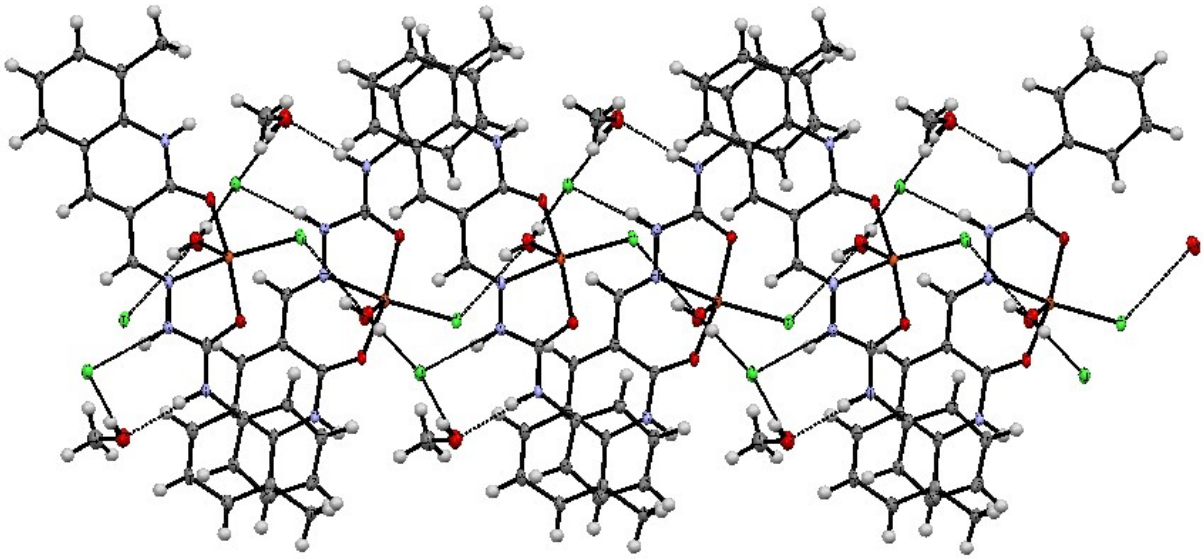

Fig. S12. Hydrogen bonding diagram for **8MPSC**.

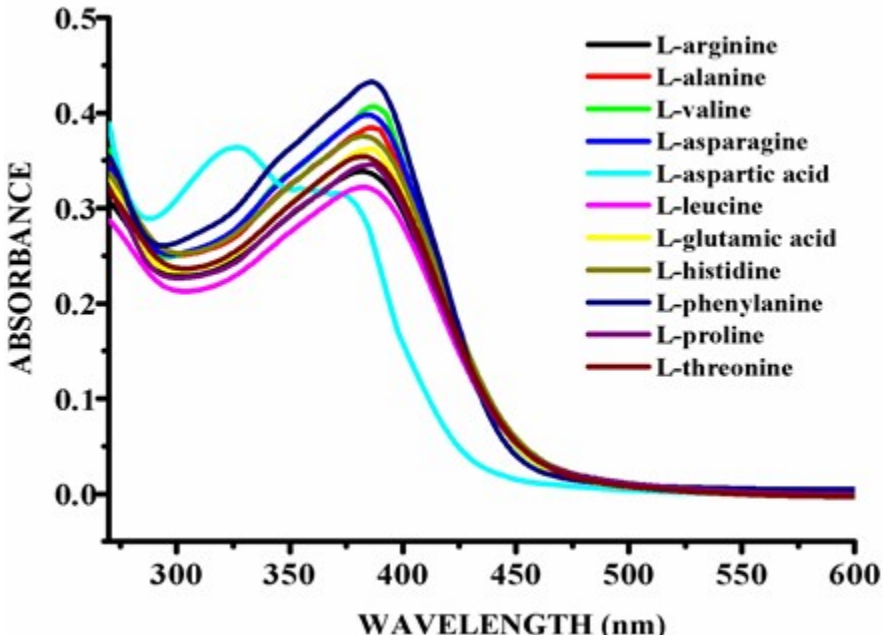

Fig. S13. Absorption spectra of **8MPSC** (the complex of 20 mM **8MPS** in ethanol: water (1: 5) and 10 μM Cu^{2+}) in presence of various amino acids (all amino acids in 10 μM) in aqueous solution. 1- ala; 2- arginine; 3- valine; 4- asparagine; 5- aspartic acid; 6- leucine; 7- glutamic acid; 8- histidine; 9- phenylanine; 10- proline; 11- threonine.

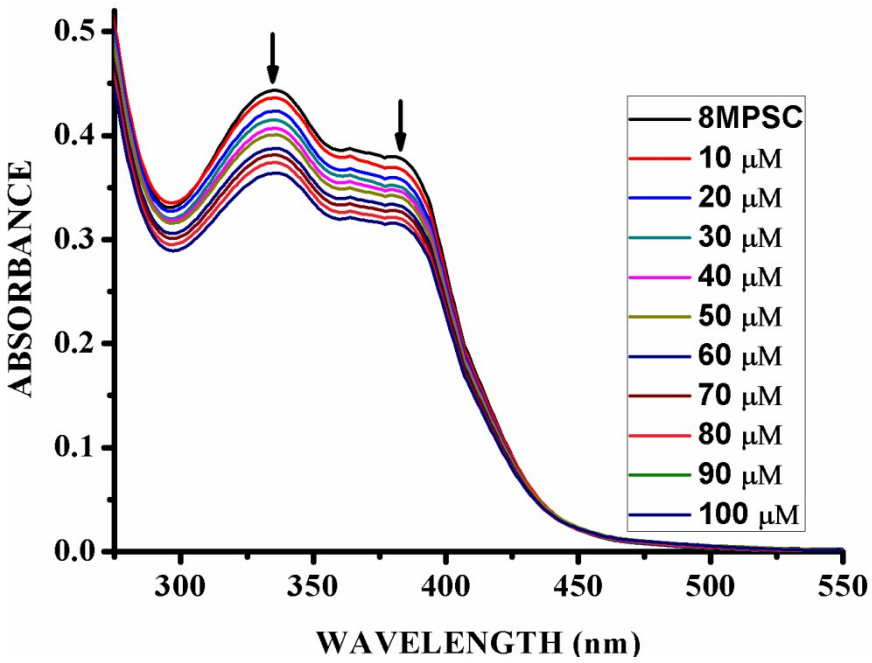

Fig. S14. Absorption titration spectra of **8MPSC** (10 μM) upon gradual addition of aqueous solution of in 10 μM concentration.

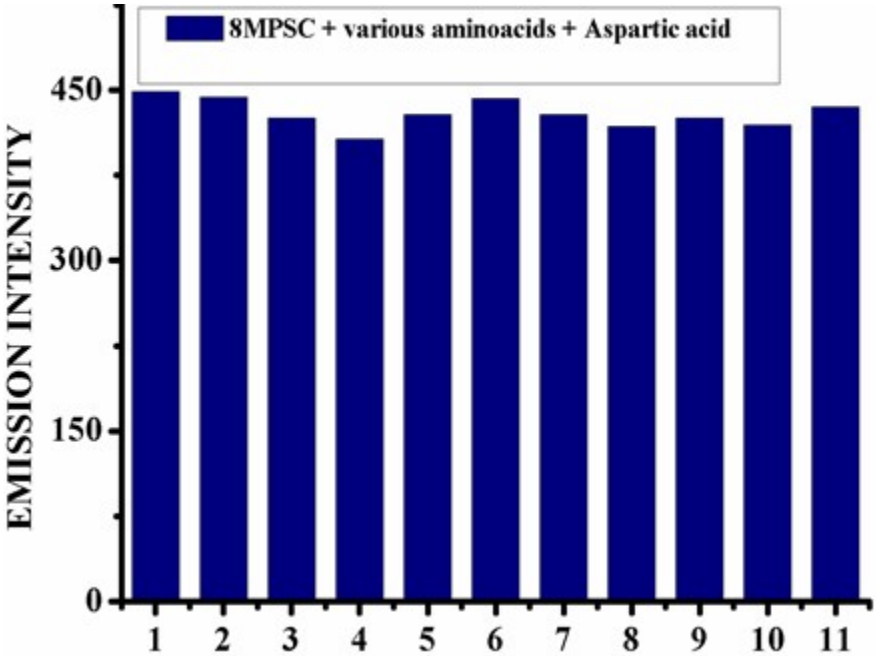

Fig. S15. Fluorescence spectra of **8MPSC** (the complex of 20 mM **8MPS** and 10 μM Cu^{2+}), various amino acids (10 μM) and Aspartic acid (Asp) (10 μM). 1- 8MPSC + alanine + Asp; 2- 8MPSC + arginine + Asp; 3- 8MPSC + valine + Asp; 4- 8MPSC + asparagine + Asp; 5- 8MPSC + leucine + Asp; 6- 8MPSC + glutamic acid + Asp; 7- 8MPSC + histidine + Asp; 8- 8MPSC + phenylanine + Asp; 9- 8MPSC + proline + Asp; 10- 8MPSC + threonine + Asp and 11- 8MPSC + Asp.

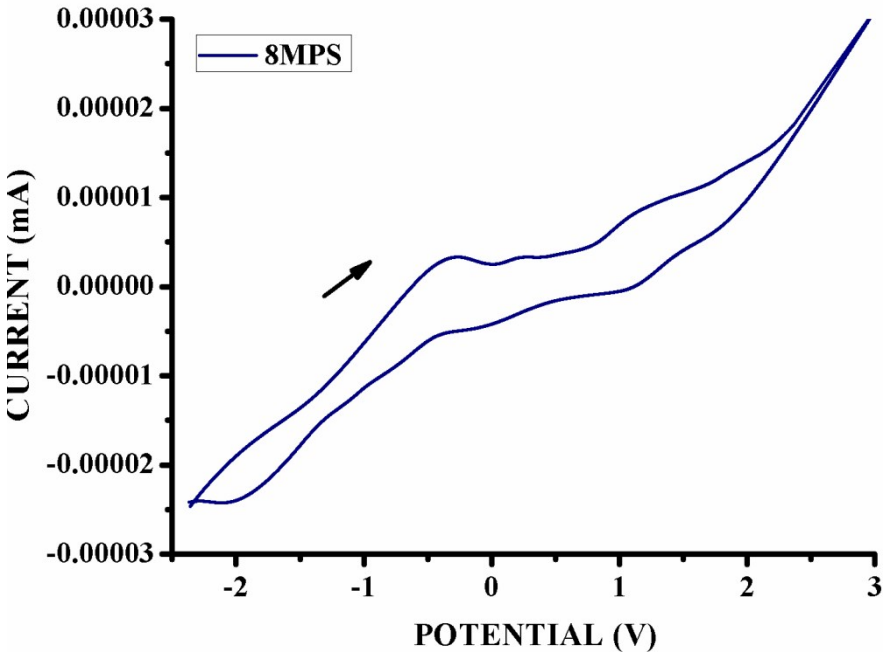

Fig. S16. Cyclic voltammogram study for 10 µM concentration of **8MPS** in DMF solvent using platinum wire counter electrode, platinum disc working electrode and non-aqueous Ag/AgCl reference electrode and tetrabutylammonium perchlorate as a supporting electrolyte.

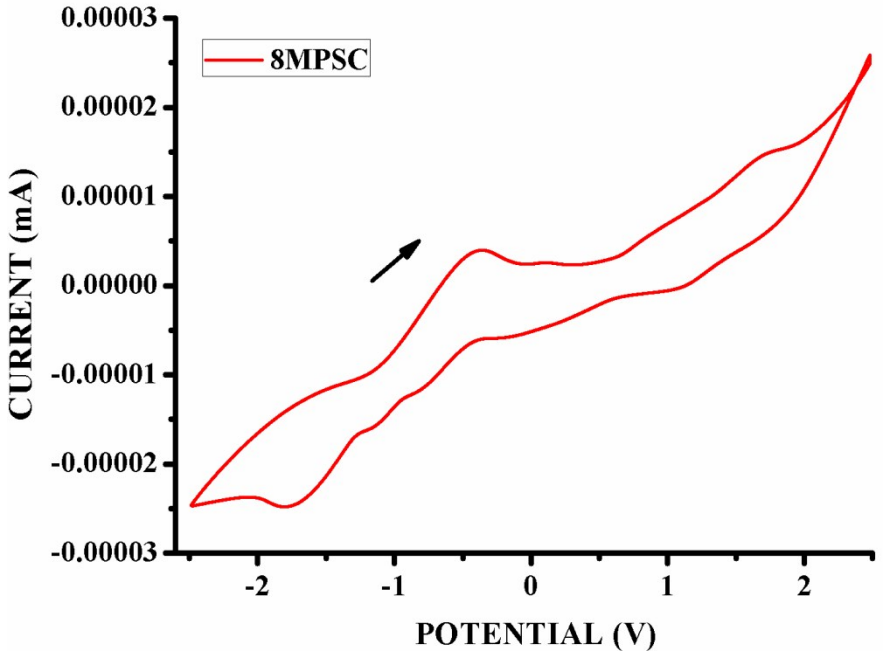

Fig. S17. Cyclic voltammogram study for 10 µM concentration of **8MPSC** in DMF solvent using platinum wire counter electrode, platinum disc working electrode and non-aqueous Ag/AgCl reference electrode and tetrabutylammonium perchlorate as a supporting electrolyte.

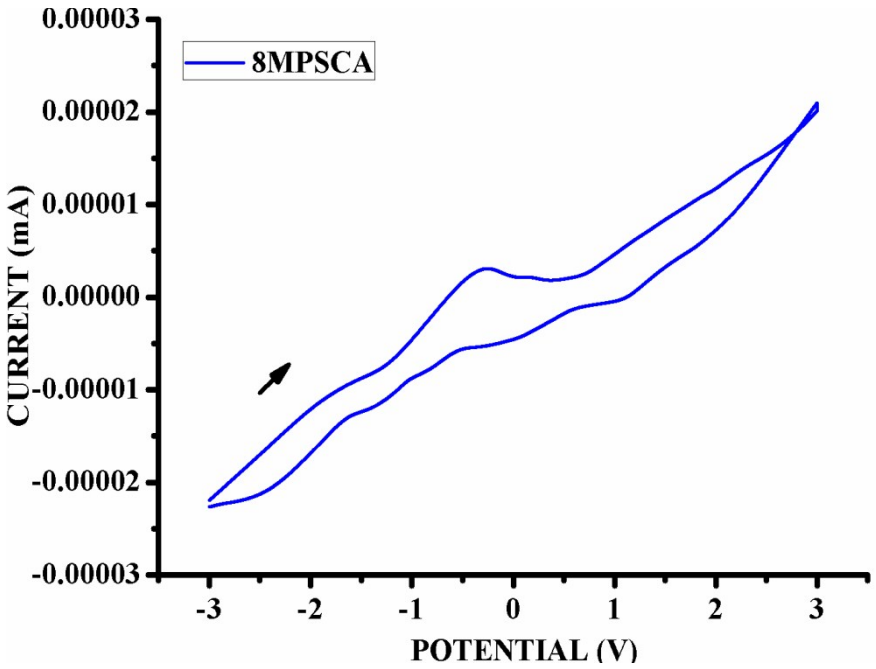

Fig. S18. Cyclic voltammogram study for 10 μM concentration of **8MPSCA** in DMF solvent using platinum wire counter electrode, platinum disc working electrode and non-aqueous Ag/AgCl reference electrode and tetrabutylammonium perchlorate as a supporting electrolyte.

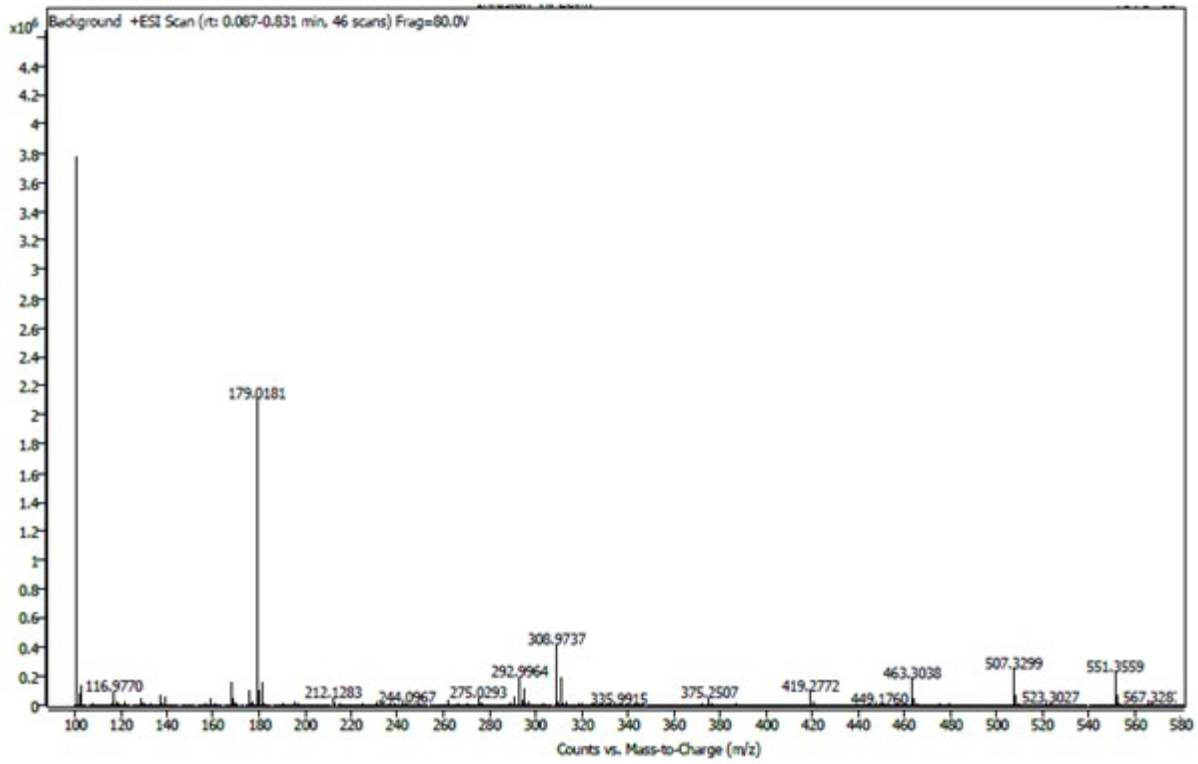

Fig. S19. Mass spectrum of **8MPSCA**.

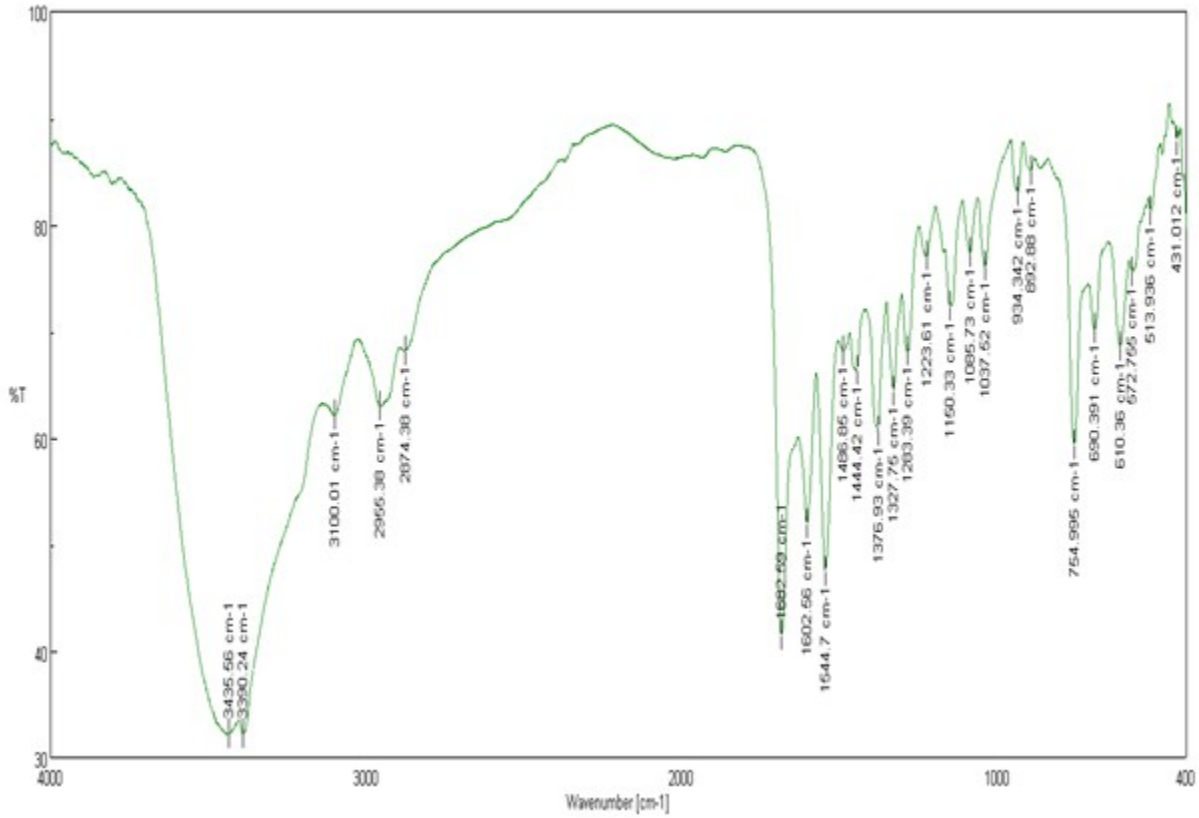

Fig. S20. FT-IR spectrum of **8MPS**.

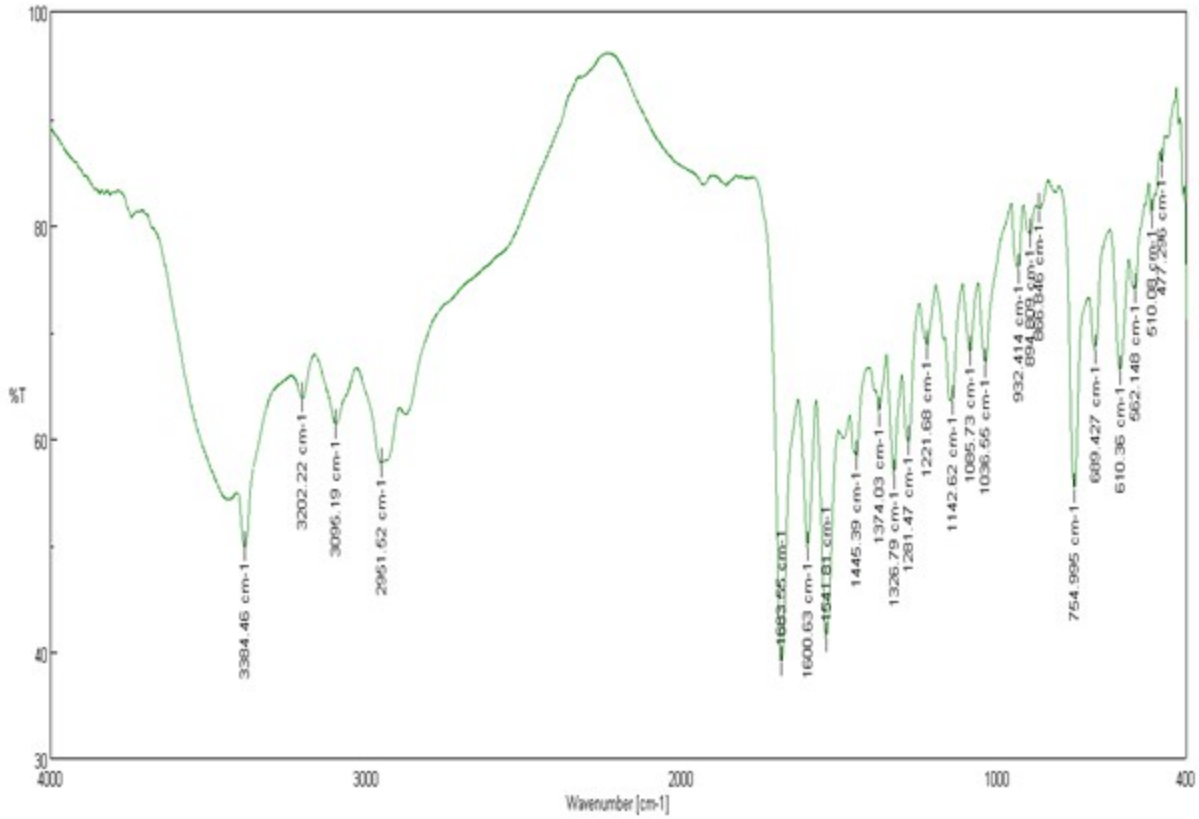

Fig. S21. FT-IR spectrum of **8MPSC**.

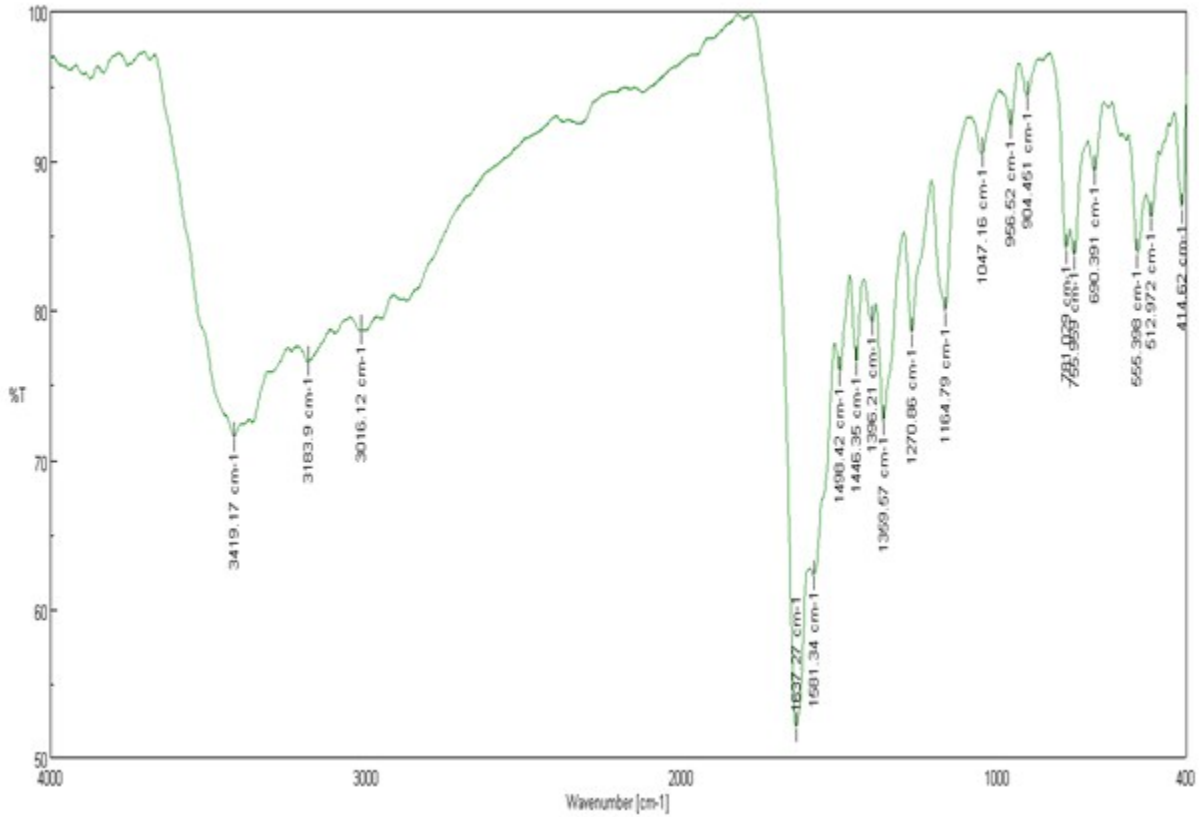

Fig. S22. FT-IR spectrum of **8MPSCA**.