Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary Information-

^{1}H NMR spectra of the PVC resins:

All proton nuclear magnetic resonance (^{1}H NMR) spectra were recorded on a JEOL AL300 FTNMR (300 MHz) at room temperature in deuterated DMSO and $CDCl_3$ as the solvents and references.

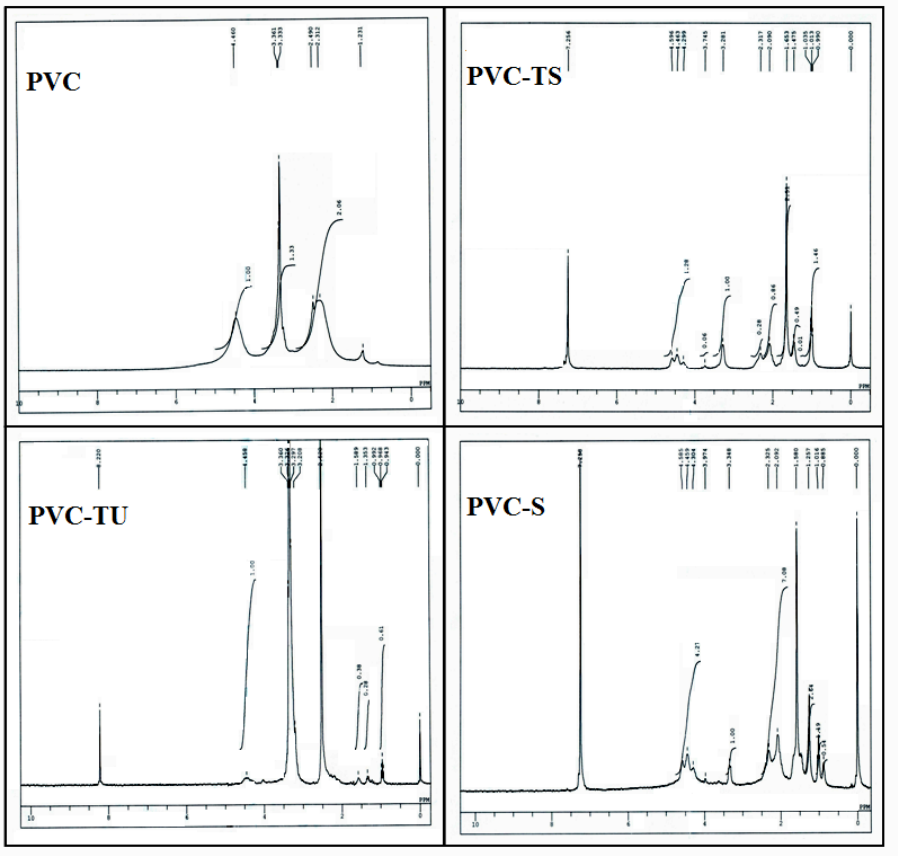

Figure-1: ^{1}H-NMR spectra of PVC and functionalized PVC with thiosulphate (PVC-TS), thiourea (PVC-TU) and sulphite (PVC-S).

(1) **PVC-** ^{1}H NMR (in DMSO): δ = 1.30 (s, 3H), δ = 3.34 (d, 2H), δ = 4.46 (s, H) [indicative of pure PVC]

(2) **PVC-TS-** ^{1}H NMR (in $CDCl_3$) : δ = 1.01 (t, 3H), δ = 1.65, 1.47 (d, H_2O present in $CDCl_3$), δ = 2.32 (symmetric), 2.09(anti- symmetric) (d, 2H, CH_2CCl), δ = 3.75, 3.28 (s, 1H, HCS), δ = 4.29, 4.59 (due to presence of hydrogen bonding), δ = 4.46 (s, H-C-Cl), δ = 7.25 (solvent) [indicative of PVC modified with $S_2O_3^{2-}$]

(3) **PVC-TU-** ^{1}H NMR (in DMSO) : δ = 0.96 (t, 3H, CH3), δ = 1.35, 1.58 (m, CH_2), δ = 3.21 (m, 2H, HC-SNH_2) δ = 4.46 (s, H-C-Cl), δ = 8.22 (s, NH_2) [indicative of PVC modified with $CSNH_2$]

(4) **PVC-S-** ^{1}H NMR (in $CDCl_3$) : δ = 1.01 (t, 3H), δ = 1.25 (m, CH_2CH_3), δ = 1.58 (s, H_2O present in $CDCl_3$), δ = 2.32 (symmetric), 2.09(anti- symmetric) (d, 2H, CH_2CCl), δ = 3.97 (s, 1H, HCS), δ = 4.30, 4.58 (due to presence of hydrogen bonding), δ = 4.459 (s, H-C-Cl), δ = 7.25 (solvent) [indicative of PVC modified with SO_3^{2-}]

The signal of the CH-Cl protons at 4.46 ppm decreases with conversion, while new one at 3.75, 3.28 and 3.97 ppm is formed due to CH-S protons in PVC-TS and PVC-S respectively.