Supplementary Information

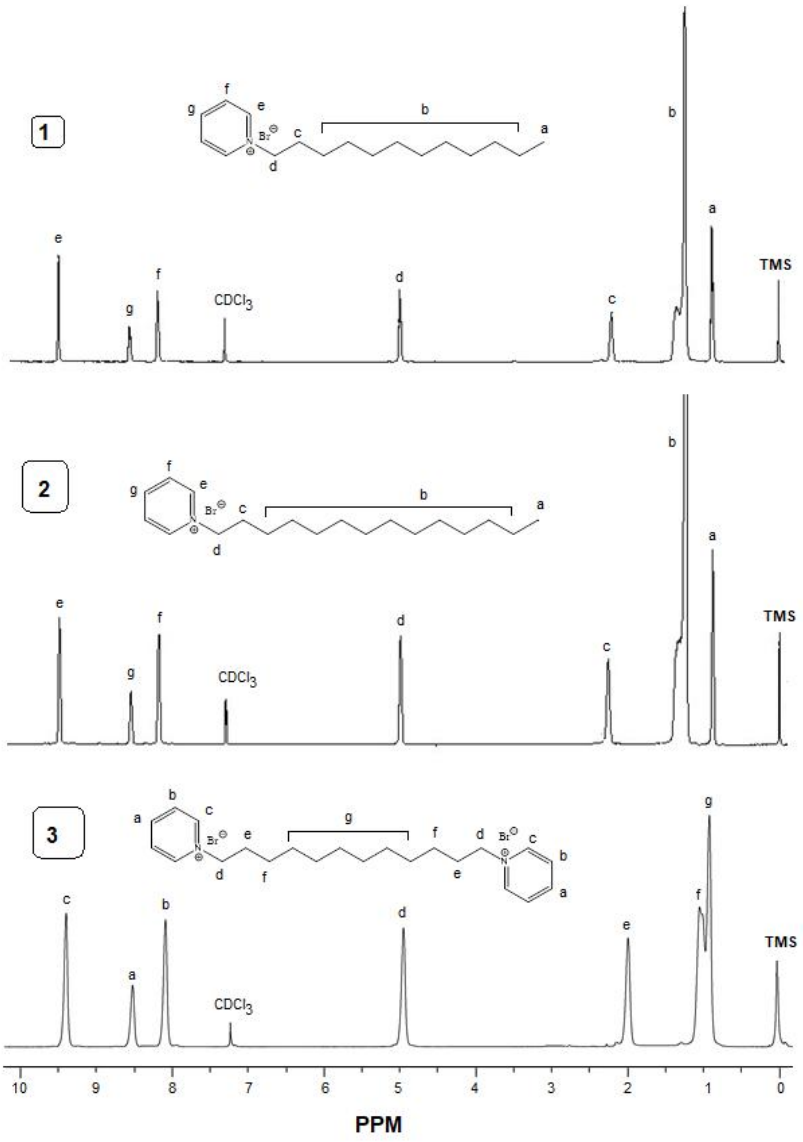

Figure S1: ^{1}H NMR spectra of synthesized DDPB (1), TDPB (2) and DDBPB (3) corrosion inhibitors.

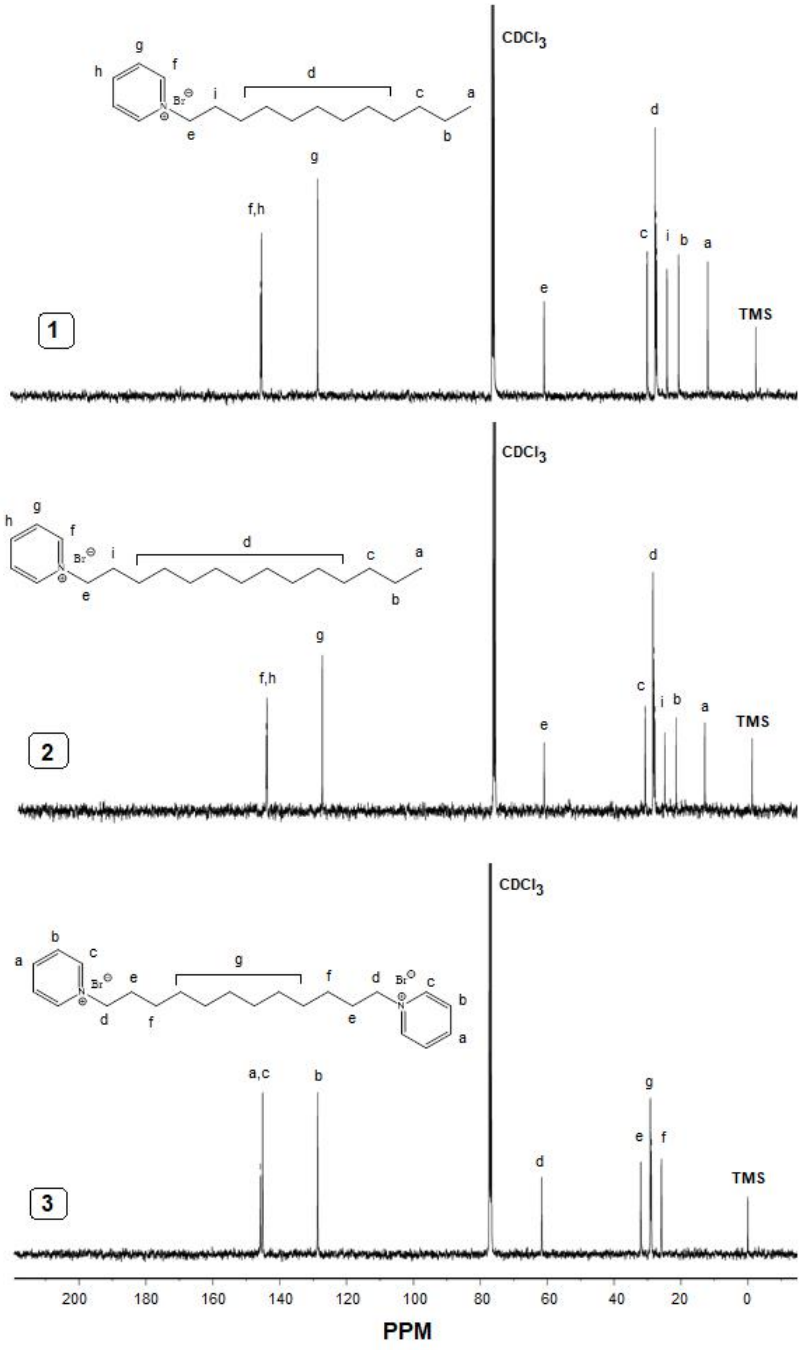

Figure S2: ^{13}C NMR spectra of synthesized DDPB (1), TDPB (2) and DDBPB (3) corrosion inhibitors.

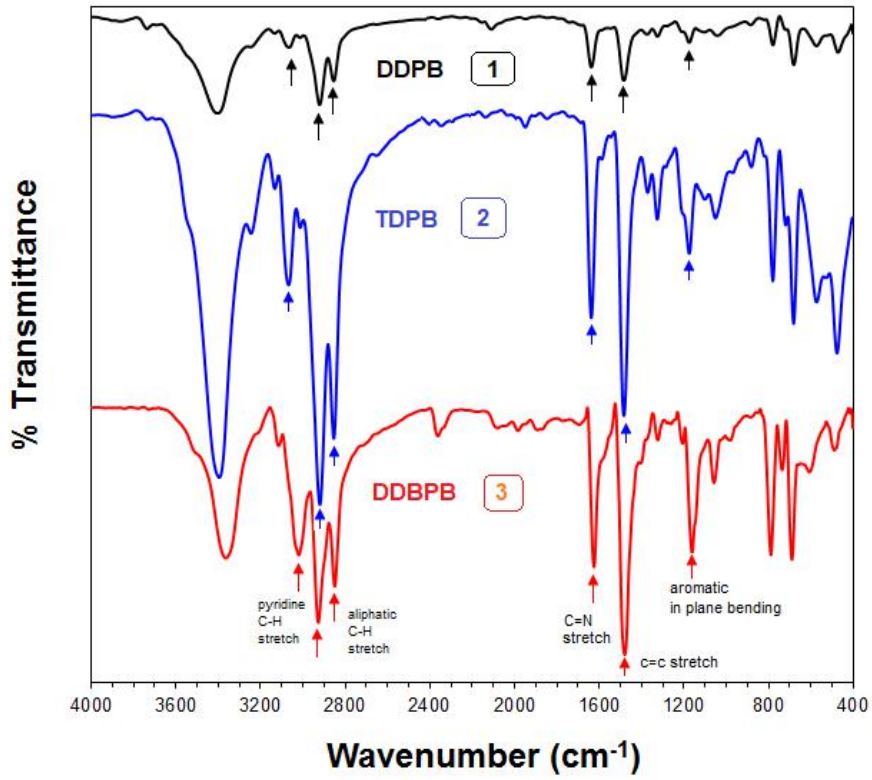

Figure 3. FTIR spectra of synthesized DDPB (1), TDPB (2) and DDBPB (3) corrosion inhibitors.

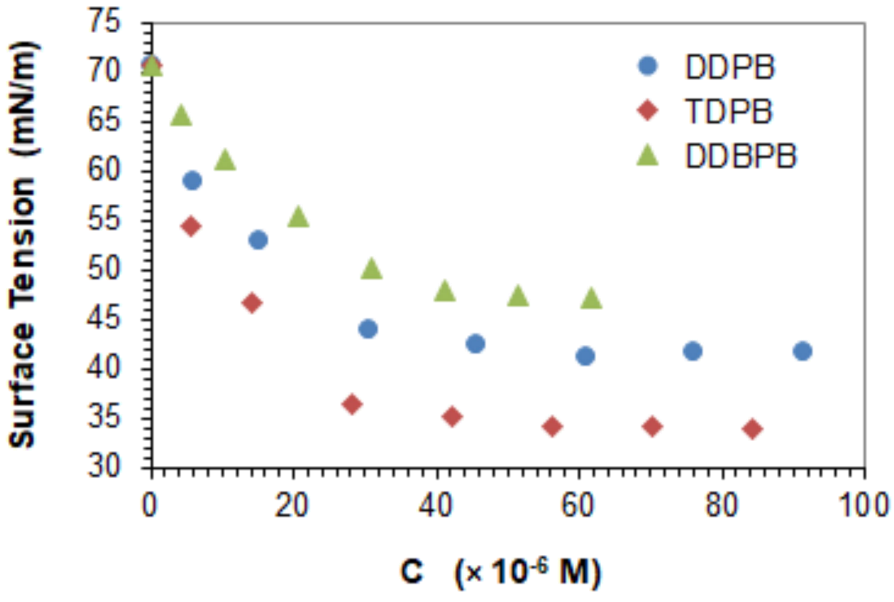

Figure S4: Surface tension versus concentration of DDPB, TDPB and DDBPB in 1 M HCl solution at 25 °C.

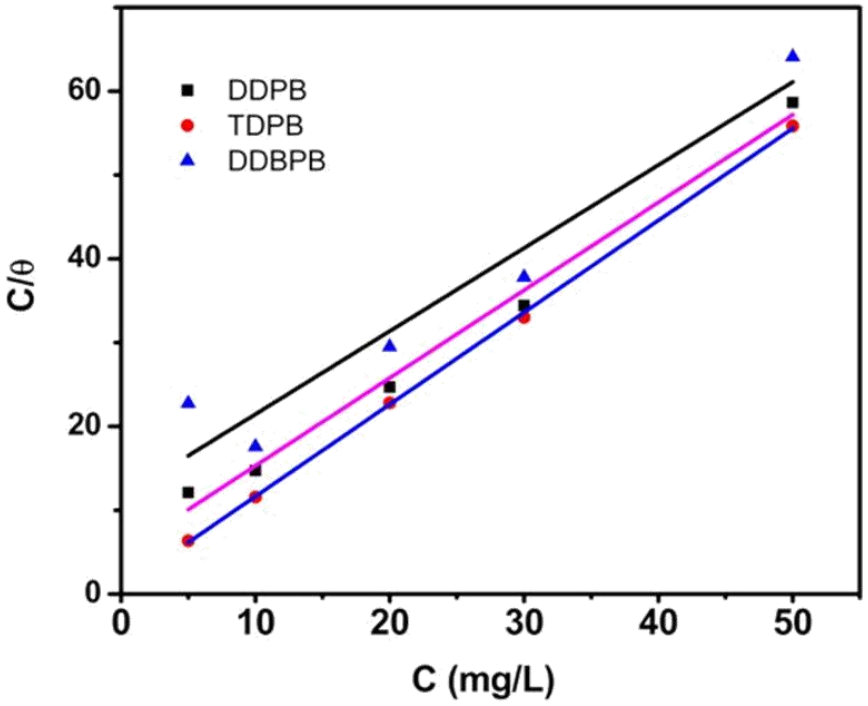

Figure S5: Langmuir adsorption isotherms for DDPB, TDPB and DDBPB on X–60 mild steel in 1 M HCl solution at 25 °C.

Table 1. Surface properties of compounds DDPB, TDPB and DDBPB in 1M HCl solutions at 25 ˚C.

Compound	Surface tension (mN/ m)	C_{cmc} (μmol /L)	C_{cmc} (mg/L)	$\Delta G°_{mic}$ (kJ /mol)
DDPB	42.5	33.5	11.0	–25.5
TDPB	35.0	30.1	10.7	–25.8
DDBPB	47.9	35.2	17.2	–25.4

Table 2. Adsorption isotherm of DDPB, TDPB and DDBPB in 1 M HCl on X–60 mild steel at 25 ˚C.

Inhibitors	R^2	Slope	Intercept	K_{ads} (L/mg)	ΔG^o (kJ/mol)
DDPB	0.990	1.05	4.84	0.21	–38.1
TDPB	0.999	1.10	0.67	1.49	–33.3
DDBPB	0.922	0.99	11.6	0.09	–40.3

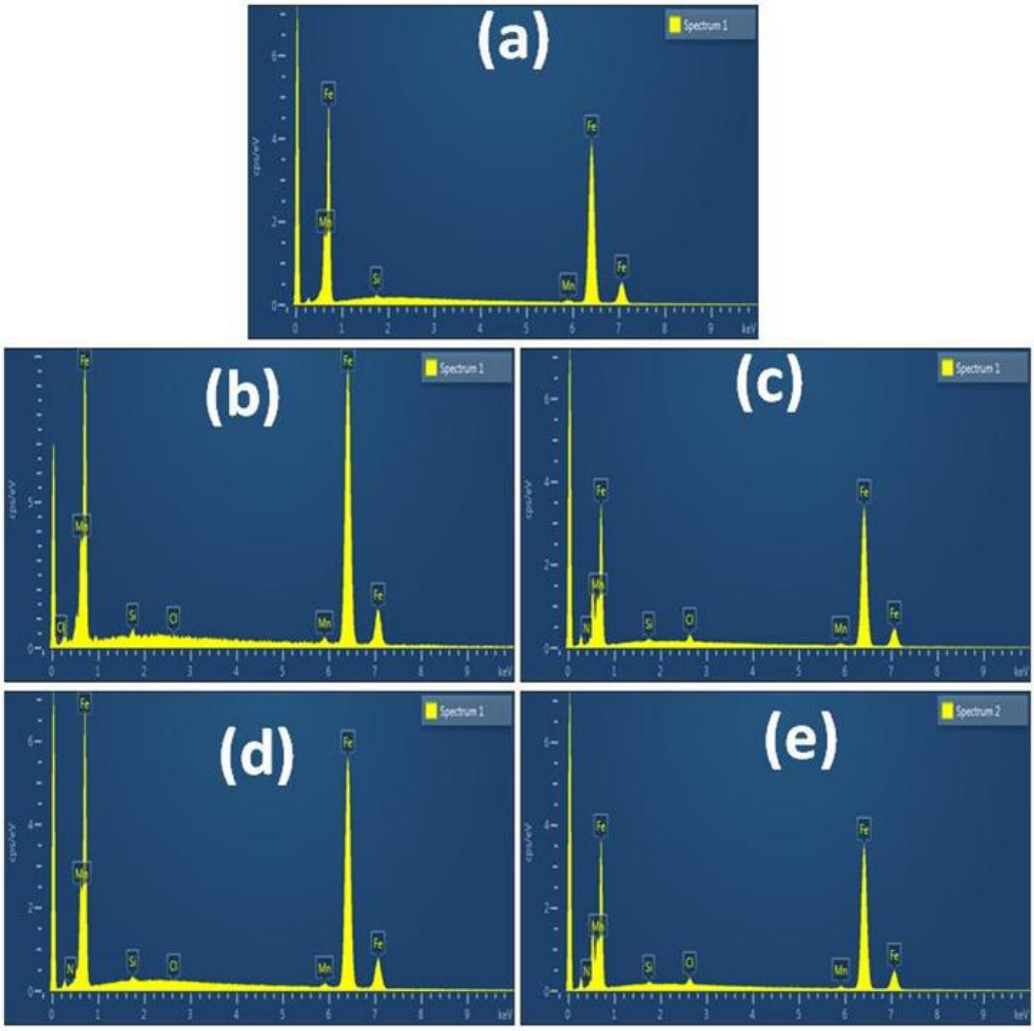

Figure 6. EDX spectra of X–60 mild steel in absence and presence of 30 mg/L corrosion inhibitors after complete immersion in 1 M HCl for 24 h at 25 °C; (a) Polished X–60 mild steel, (b) X–60 in 1 M HCl in the absence of inhibitor, and X–60 in 1 M HCl in the presence of (c) DDPB, (d) TDPB and (e) DDBPB.