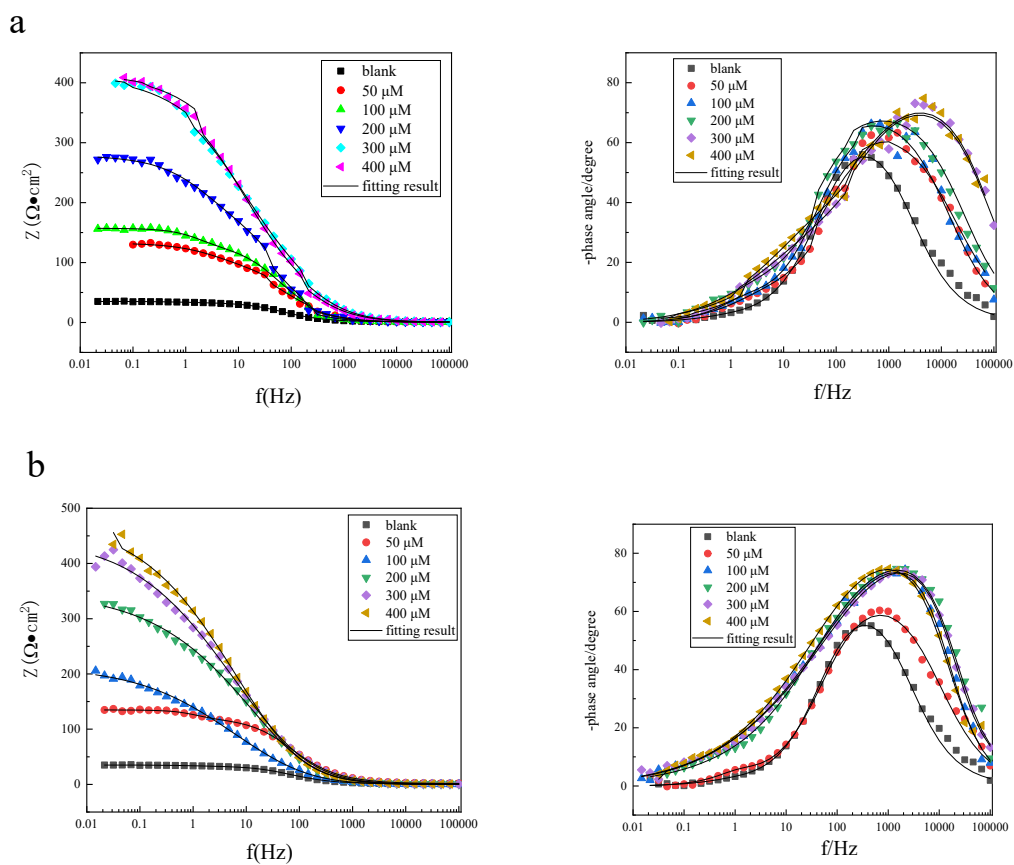
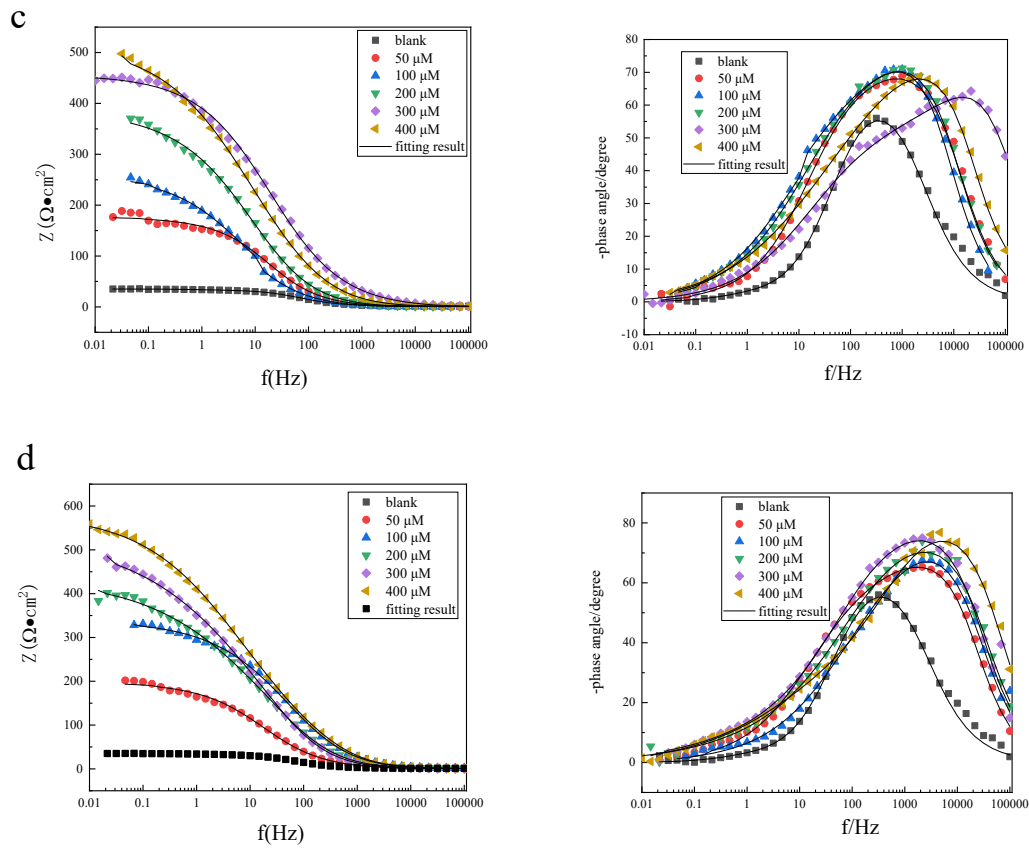
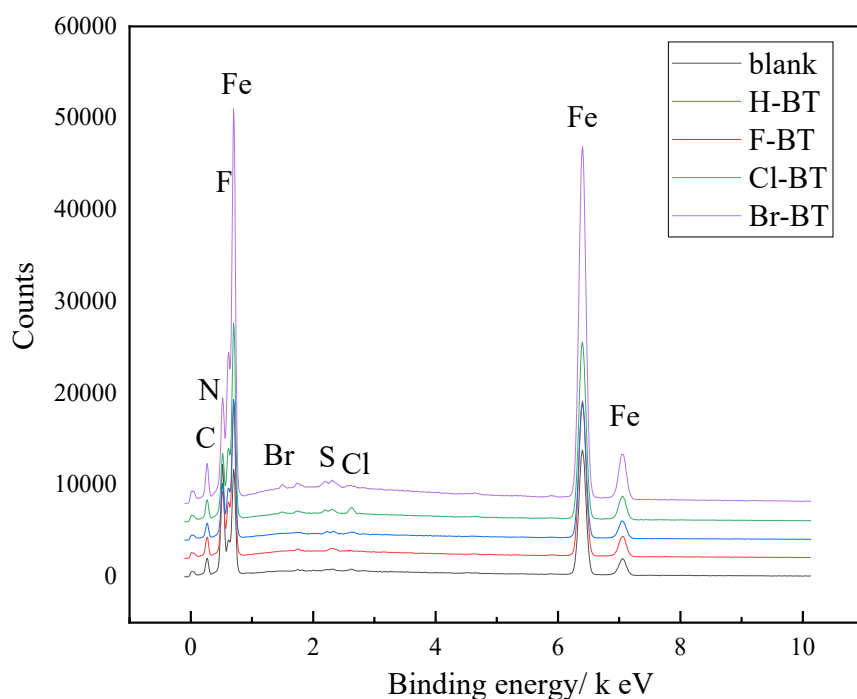


Fig.S1. FT-IR of the synthesized benzaldehyde thiosemicarbazone derivatives.





**Fig.S2.** Bode plots of mild steel in 1.0 M HCl solution without and with different concentrations of benzaldehyde thiosemicarbazone derivatives at 303 K. (a) H-BT, (b) F-BT, (c) Cl-BT, (d) Br-BT.



**Fig.S3.** EDX spectra of mild steel surface immersed in 1.0 M HCl solution for 8 h at 303 K

(a) without, with (b) 400  $\mu$ M H-BT, (c) 400  $\mu$ M F-BT, (d) 400  $\mu$ M Cl-BT, (e) 400  $\mu$ M Br-BT.

**Table S1.** EDX spectra results of Q235 mild steel surface immersed in 1.0 M HCl solution for 8 h at 303 K (a) without, with (b) 400  $\mu$ M H-BT, (c) 400  $\mu$ M F-BT, (d) 400  $\mu$ M Cl-BT, (e) 400  $\mu$ M Br-BT.

Inhibitor	Fe At%	C At%	N At%	S At%	F At%	Cl At%	Br At%
Blank	70.1	29.9	-	-	-	-	-
H-BT	68.1	26.5	3.3	2.1	-	-	-
F-BT	66.3	25.4	4.6	2.4	1.3		-
Cl-BT	64.8	25.9	4.3	2.3	-	2.7	-
Br-BT	65.5	25.7	4.7	2.6			1.5