Evaluation of *Matricaria aurea* Extracts as Effective Anti-corrosive Agent for Mild Steel in 1.0 M HCl and Isolation of Their Active Ingredients

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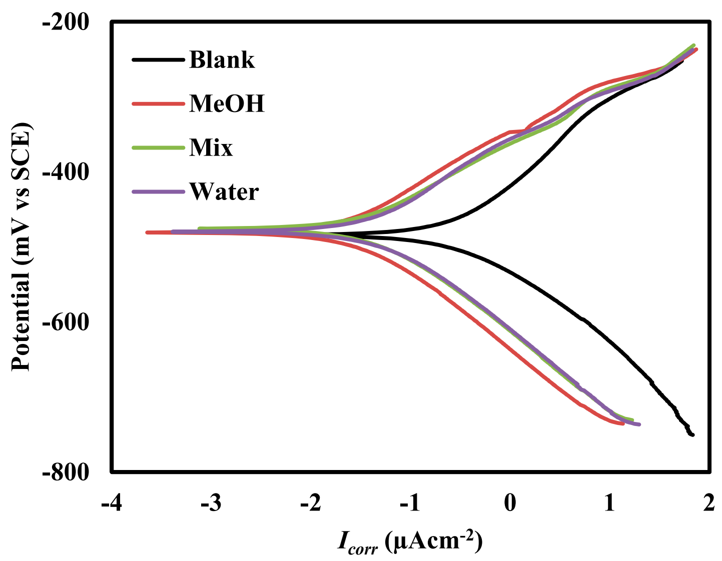

Fig. S1. Tafel plots in absence and presence of 600 ppm of MeOH, mixture and water extracts of *M. aurea* in 1.0 M HCl.

Table-S1: Potentiodynamic polarization parameters obtained from Tafel plots for the corrosion of mild steel in 1.0 M HCl with 600 ppm of various extracts of *M. aurea*

Inhibitors	E_{corr} (mV)	I_{corr} (µAcm^{-2})	β_a (mV/dec)	β_c (mV/dec)	R_p	IE % Tafel	IE % LPR
Blank	−486.6	213.0	99.85	−110.73	54.5	-	-
MeOH	-481.58	20.0	82.29	-73.57	401.69	90.61	86.43
Mixture MeOH: H_2O (85:15)	-474.32	26.0	80.31	-75.8	351.79	87.79	84.51
Water	-482.16	35.0	87.42	-74.12	271.26	83.57	79.91

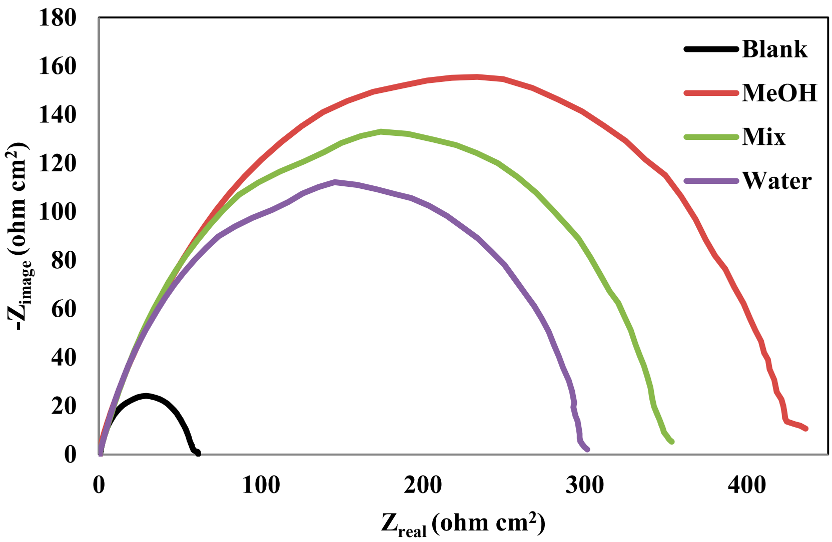

Fig. S2. Nyquist plots in absence and presence of 600 ppm of MeOH, mixture and water extracts of *M. aurea* in 1.0 M HCl.

Table-S2: Electrochemical impedance parameters obtained from Nyquist plots for mild steel in 1.0 M HCl with 600 ppm of various extracts of *M. aurea*

Inhibitors	R_{ct} (Ω cm^2)	C_{dl} (μF cm^{-2})	θ	IE %
Blank	57.1	533.0	-	-
MeOH	412.7	121.0	0.86	86.16
Mixture MeOH: H_2O (85:15)	372.25	170.0	0.85	84.66
Water	302.0	200.0	0.81	81.09

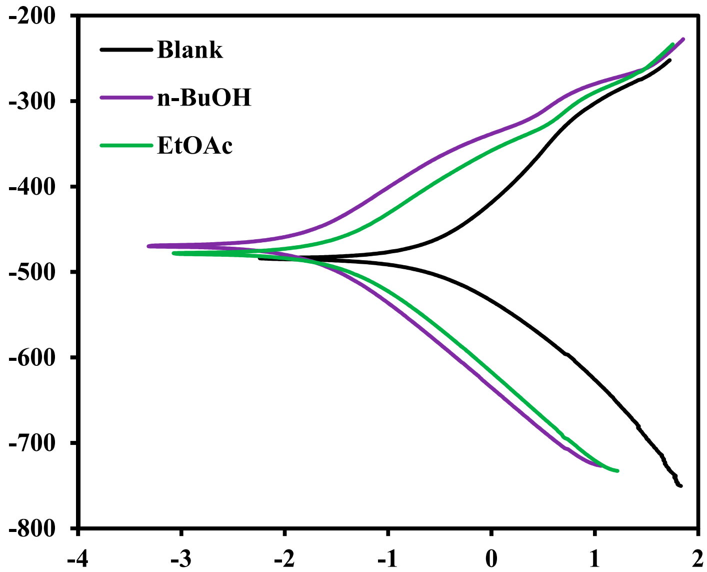

Fig. S3. Tafel plots in absence and presence of *n*-BuOH and EtOAc extracts of *M. aurea* in 1.0 M HCl.

Table-S3: Potentiodynamic polarization parameters obtained from Tafel plots for the corrosion of mild steel in 1.0 M HCl with 600 ppm of *M.aurea* various extracts.

Extracts	E_{corr} (mV)	I_{corr} (μAcm^{-2})	β_a (mV/dec)	β_c (mV/dec)	R_p	$E(\%)$ Tafel	$E(\%)$ LPR
1M HCl	-486.6	213.0	99.85	-110.73	54.5	-	-
n-BuOH extract	-468.62	14.7	80.61	-80.31	585.62	93.10	90.69
EtOAc extract	-478.65	27.8	82.45	-78.59	334.37	86.95	83.70

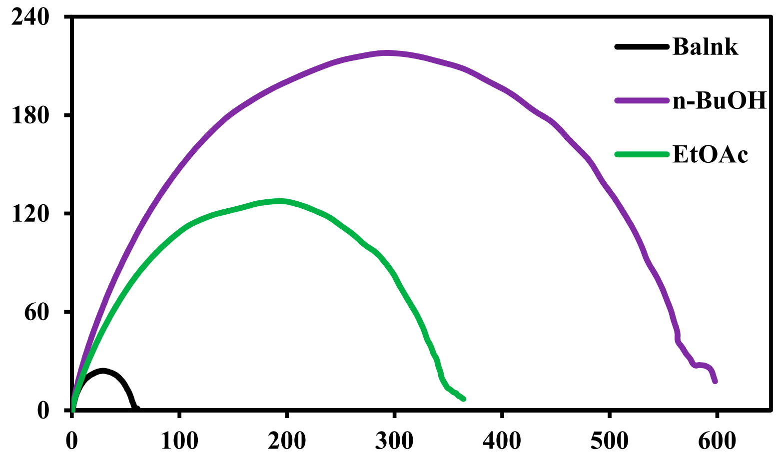

Fig. S4. Nyquist plots in absence and presence of *n*-BuOH and EtOAc extracts of *M.aurea* in 1.0 M HCl.

Table-S4: Electrochemical impedance parameters obtained from Nyquist plots for mild steel in 1.0 M HCl with 600 ppm of *M.aurea* various extracts.

Extract	R_{ct} (Ω cm^2)	C_{dl} (μF cm^{-2})	θ	E (%)
1M HCl	57.10	533.0	-	-
n-BuOH extract	580.6	98.0	0.91	90.17
EtOAc extract	364.0	158.0	0.84	84.31

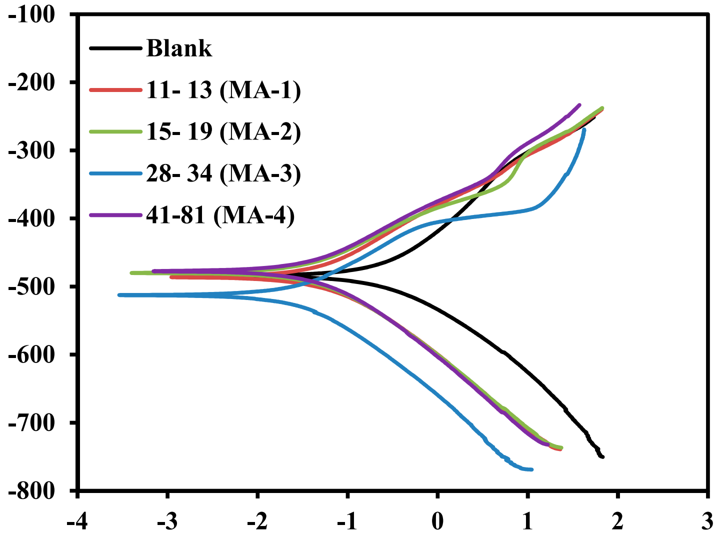

Fig. S5. Tafel plots in absence and presence of various fractions of *n*-BuOH extracts of *M. aurea* in 1.0 M HCl.

Table-S5: Potentiodynamic polarization parameters obtained from Tafel plots for the corrosion of mild steel in 1.0 M HCl with 600 ppm of various fractions of *M. aurea n*-BuOH extarcts.

Fractions	E_{corr} (mV)	I_{corr} (μAcm^{-2})	β_a (mV/dec)	β_c (mV/dec)	R_p	IE % Tafel	IE % LPR
Blank	−486.6	213.0	99.85	−110.73	54.5	-	-
11-13	−484.77	41.0	74.97	-67.91	251.99	80.75	78.37
15-19	−481.75	31.0	70.48	-68.19	274.41	85.45	80.14
28-34	−511.52	19.24	68.33	-68.32	395.29	90.97	86.21
41-81	−477.19	30.0	71.99	-69.26	294.31	85.92	81.48

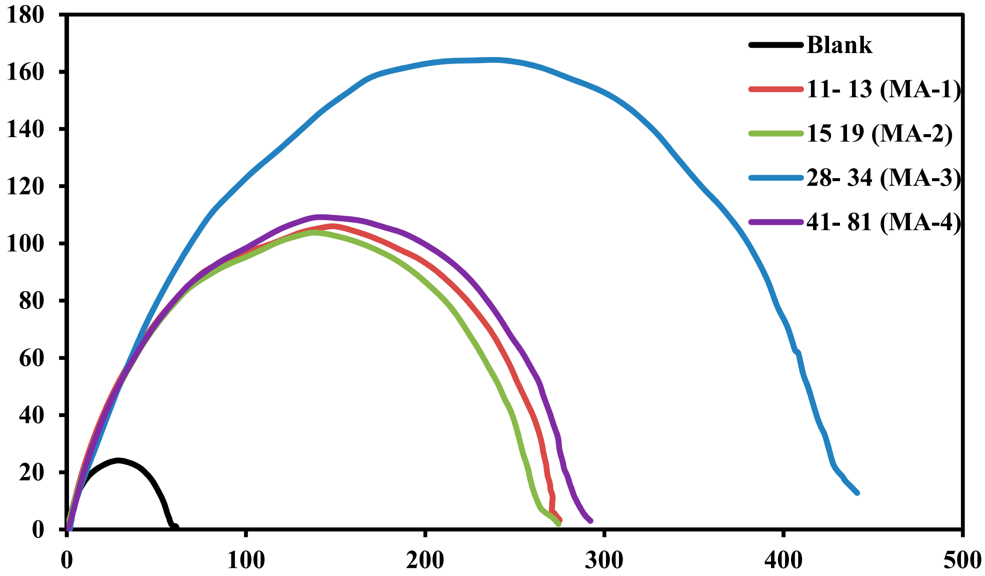

Fig. S6. Nyquist plots in absence and presence of various fractions of *n*-BuOH extracts of *M. aurea* in 1.0 M HCl.

Table-S6: Electrochemical impedance parameters obtained from Nyquist plots for mild steel in 1.0 M HCl with 600 ppm of various fractions of *M. aurea n*-BuOH extarcts.

Fractions	R_{ct} (Ω cm^2)	C_{dl} (μF cm^{-2})	θ	IE %
Blank	57.1	533.0	-	-
11-13	265.1	200	0.78	78.46
15-19	284.15	185	0.80	79.90
28-34	436	171.5	0.87	86.90
41-81	320.3	200.0	0.82	82.17

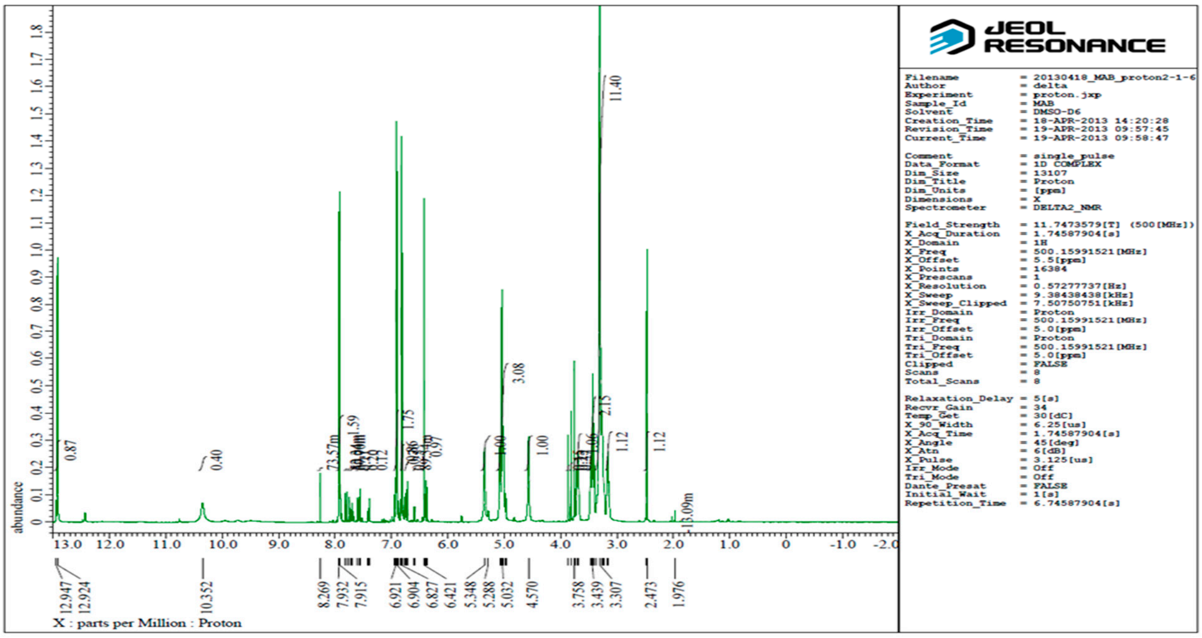

Fig. S7a. ^{1}H NMR spectrum of apigenin-7-O-β-D-glucoside (**MAB**) in DMSO-d_6.

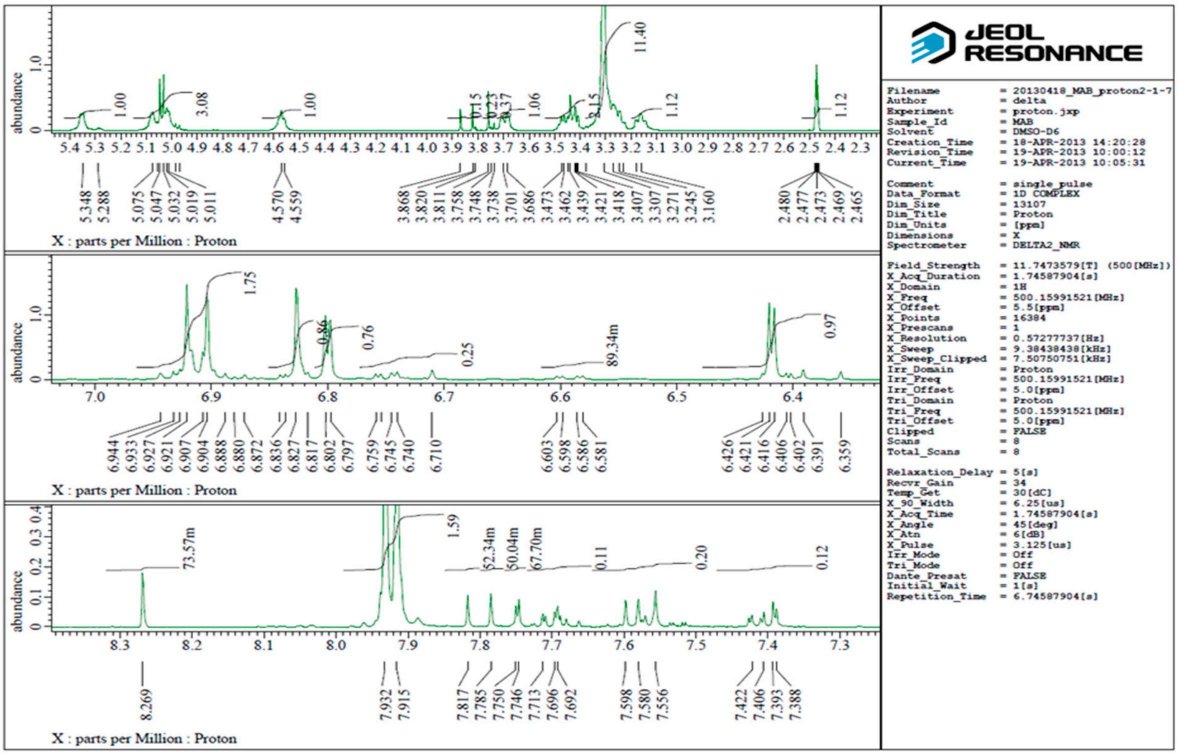

Fig. S7b. Expanded ^{1}H NMR spectrum of apigenin-7-O-β-D-glucoside (**MAB**) in DMSO-d_6.

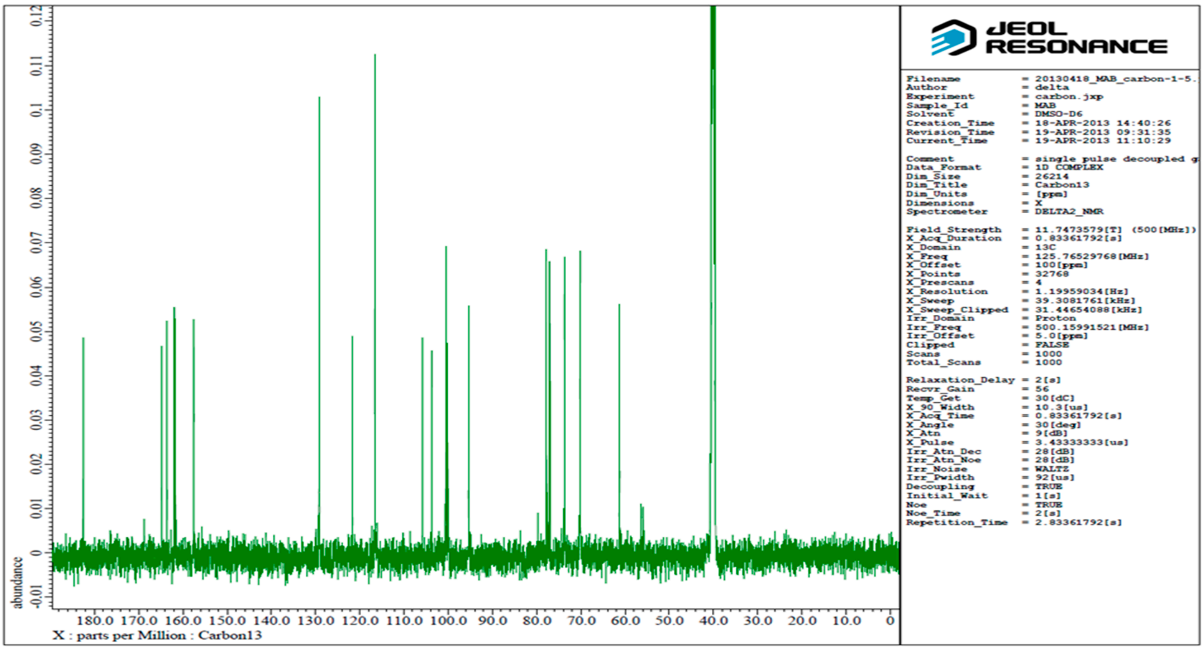

Fig. S8a. ^{13}C NMR spectrum of apigenin-7-O-β-D-glucoside (**MAB**) in DMSO-d_6.

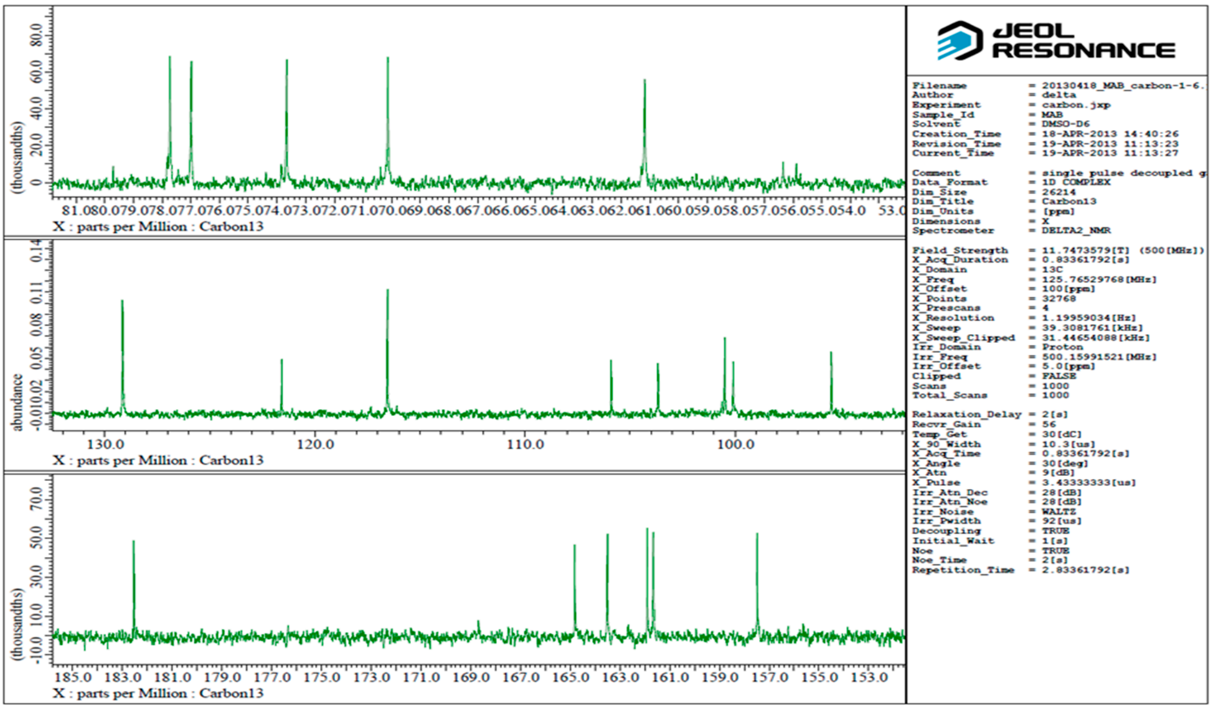

Fig. S8b. Expanded ^{13}C NMR spectrum of apigenin-7-O-β-D-glucoside (**MAB**) in DMSO-d_6.

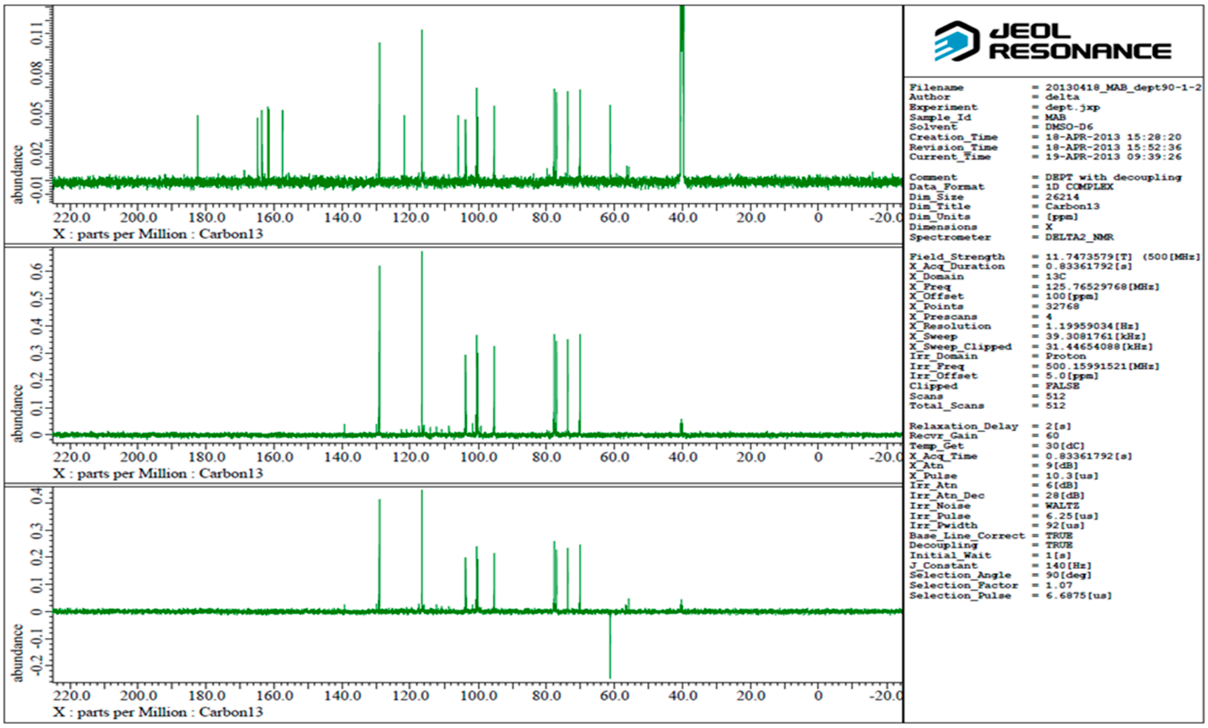

Fig. S9. DEPT spectrum of apigenin-7-O-β-D-glucoside (**MAB**) in DMSO-d_6.

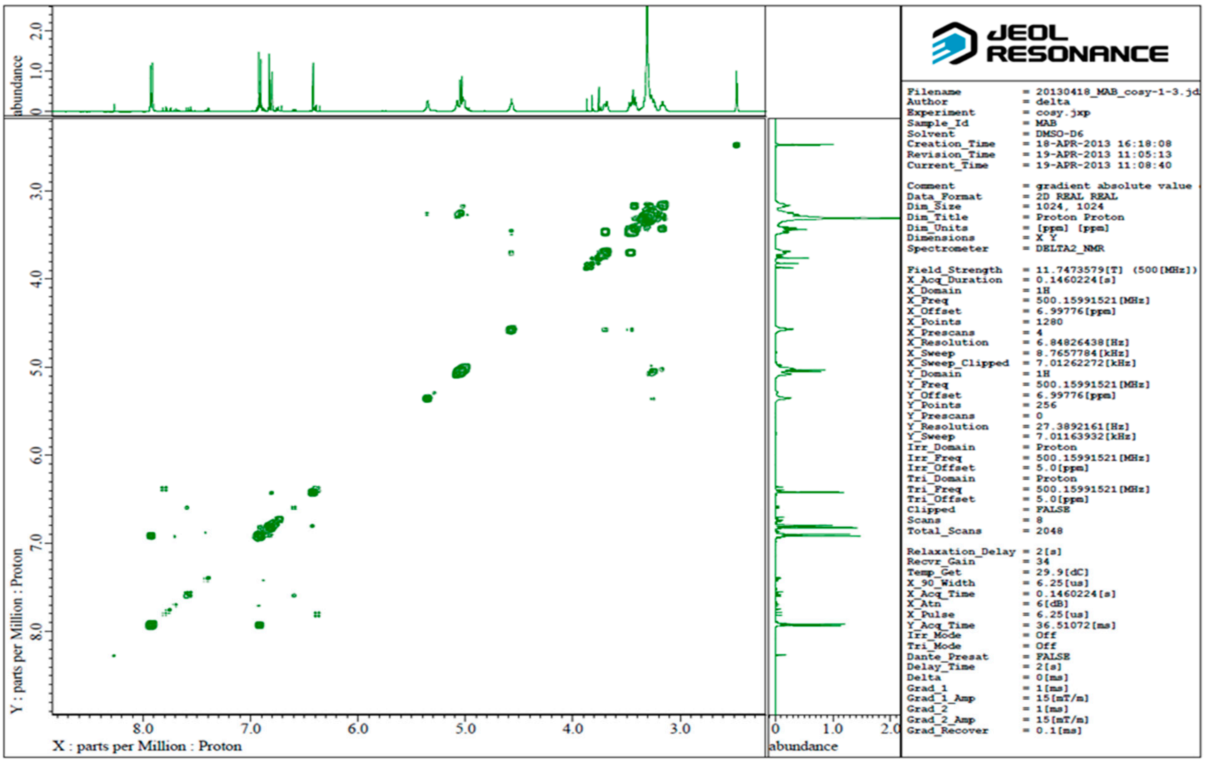

Fig. S10. COSY spectrum of apigenin-7-O-β-D-glucoside (**MAB**) in DMSO-d_6.

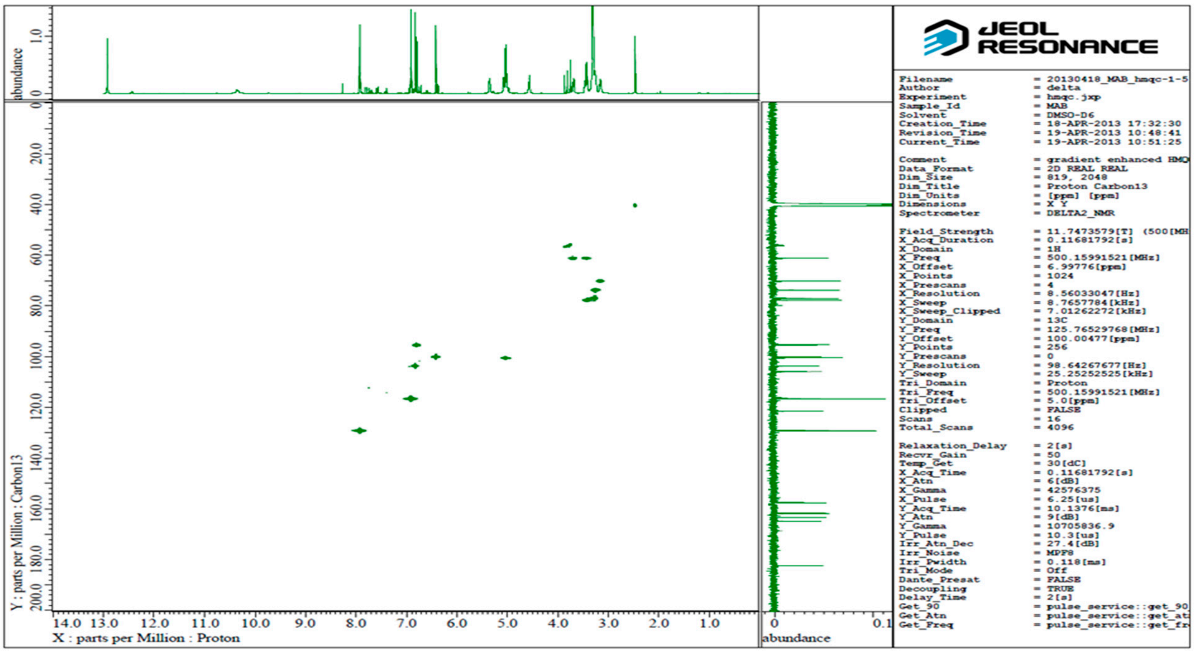

Fig. S11a. HMQC spectrum of apigenin-7-O-*β*-D-glucoside (**MAB**) in DMSO-*d*$_6$.

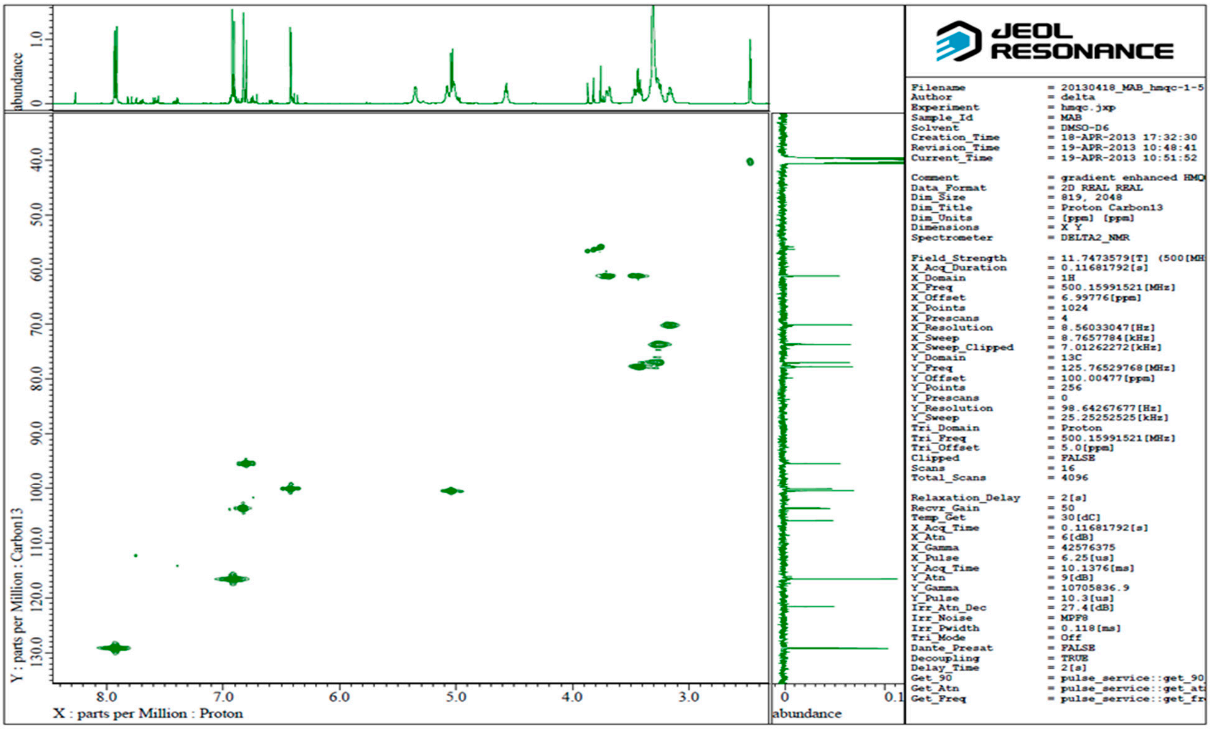

Fig. S11b. Expanded HMQC spectrum of apigenin-7-O-*β*-D-glucoside (**MAB**) in DMSO-*d*$_6$.

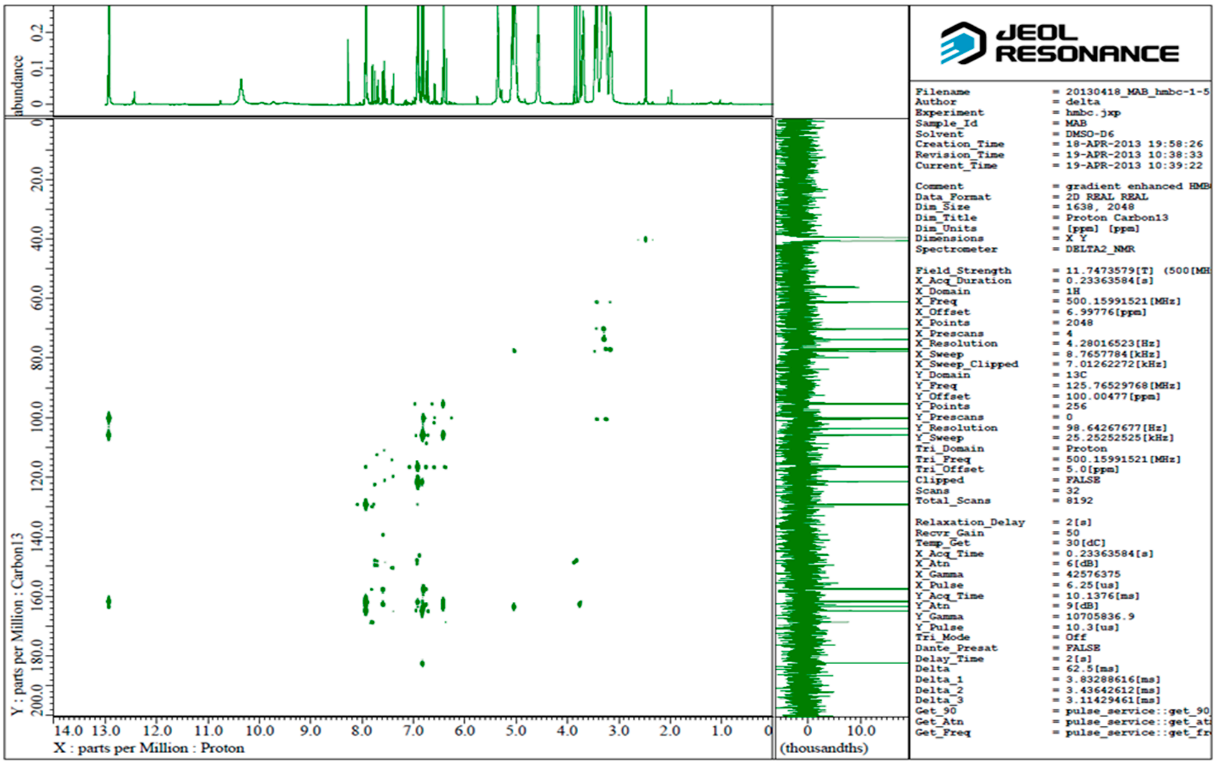

Fig. S12a. HMBC spectrum of apigenin-7-O-β-D-glucoside (**MAB**) in DMSO-d_6.

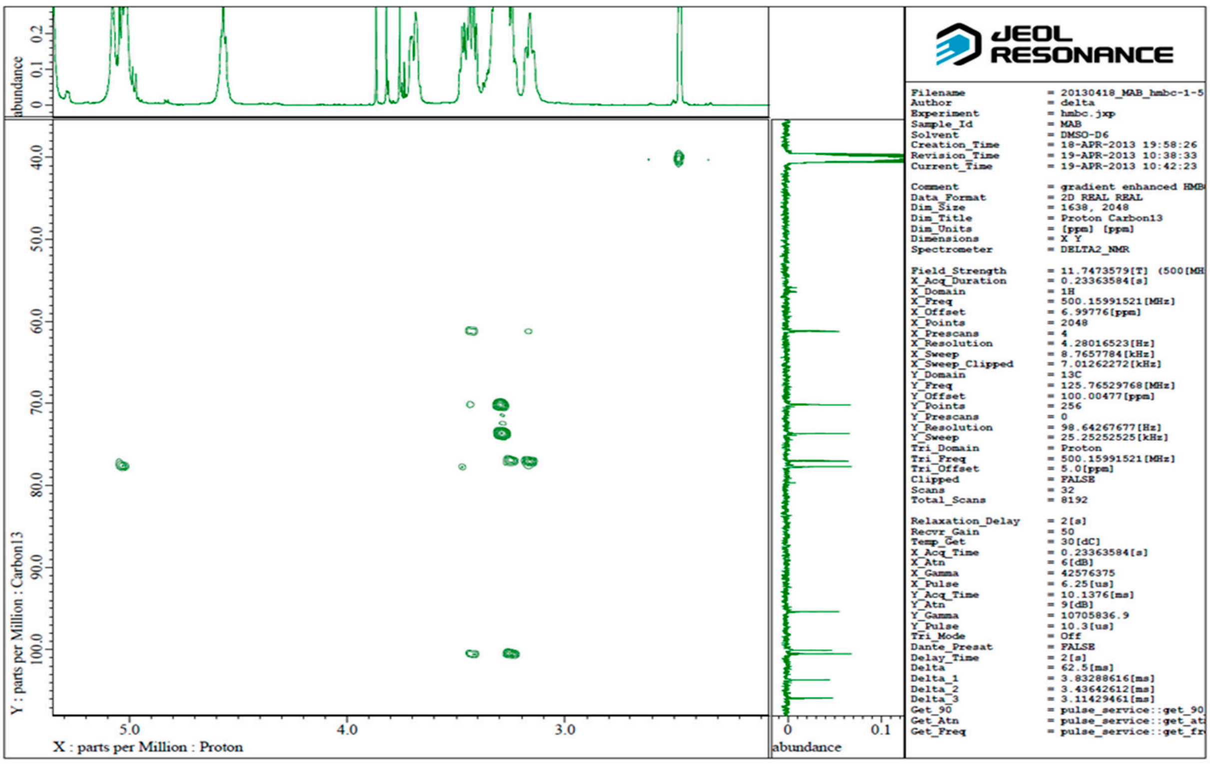

Fig. S12b. Expanded HMBC spectrum of apigenin-7-O-β-D-glucoside (**MAB**) in DMSO-d_6.

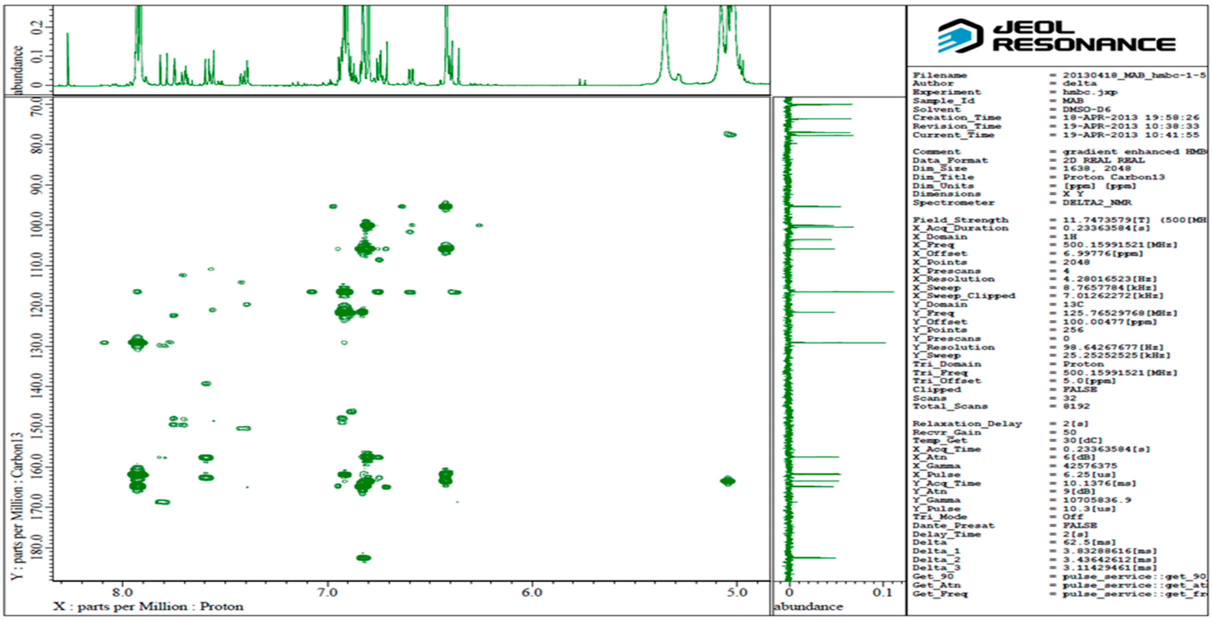

Fig. S12c. Expanded HMBC spectrum of apigenin-7-O-β-D-glucoside (**MAB**) in DMSO-d_6.