

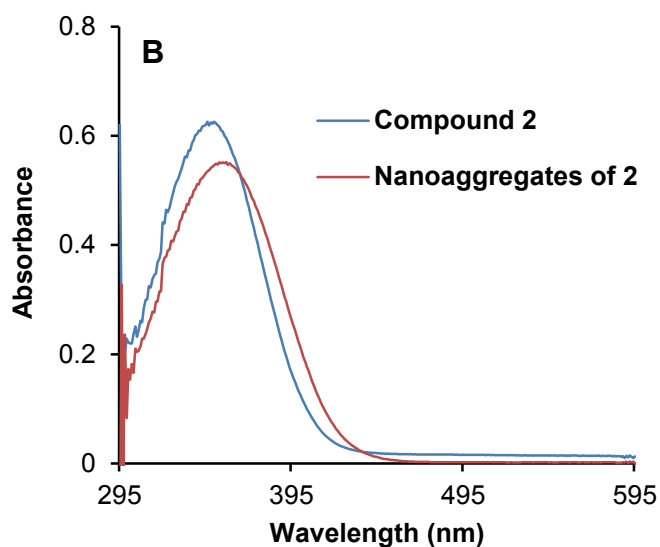
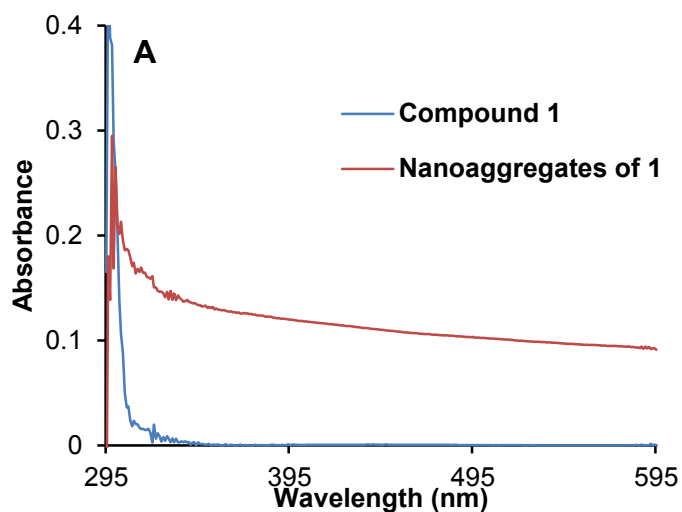
# Nanoaggregates of Benzothiazole-Based Amidine-Coupled Chemosensors: A Chemosensor for Ag<sup>+</sup> and the Resultant Complex as a Secondary Sensor for Cl<sup>-</sup>

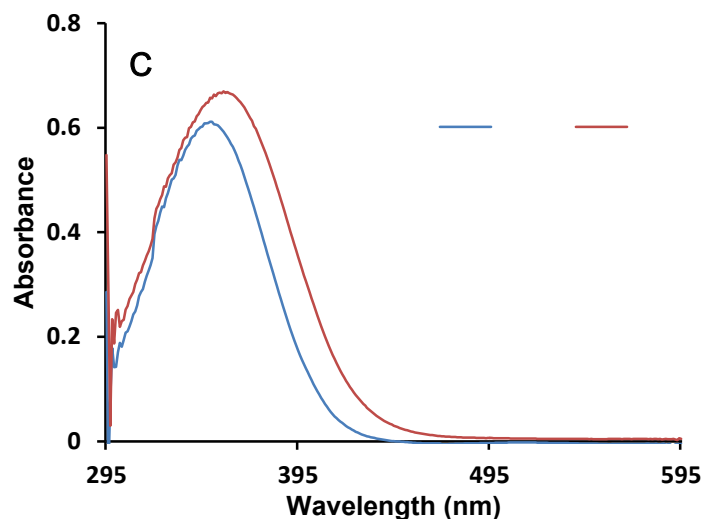
Tilak Raj,<sup>a</sup> Preeti Saluja,<sup>a</sup> Narinder Singh,<sup>a,\*</sup> Doo Ok Jang<sup>b,\*</sup>

<sup>a</sup>Department of Chemistry, Indian Institute of Technology Ropar, Rupnagar, Punjab 141001, India

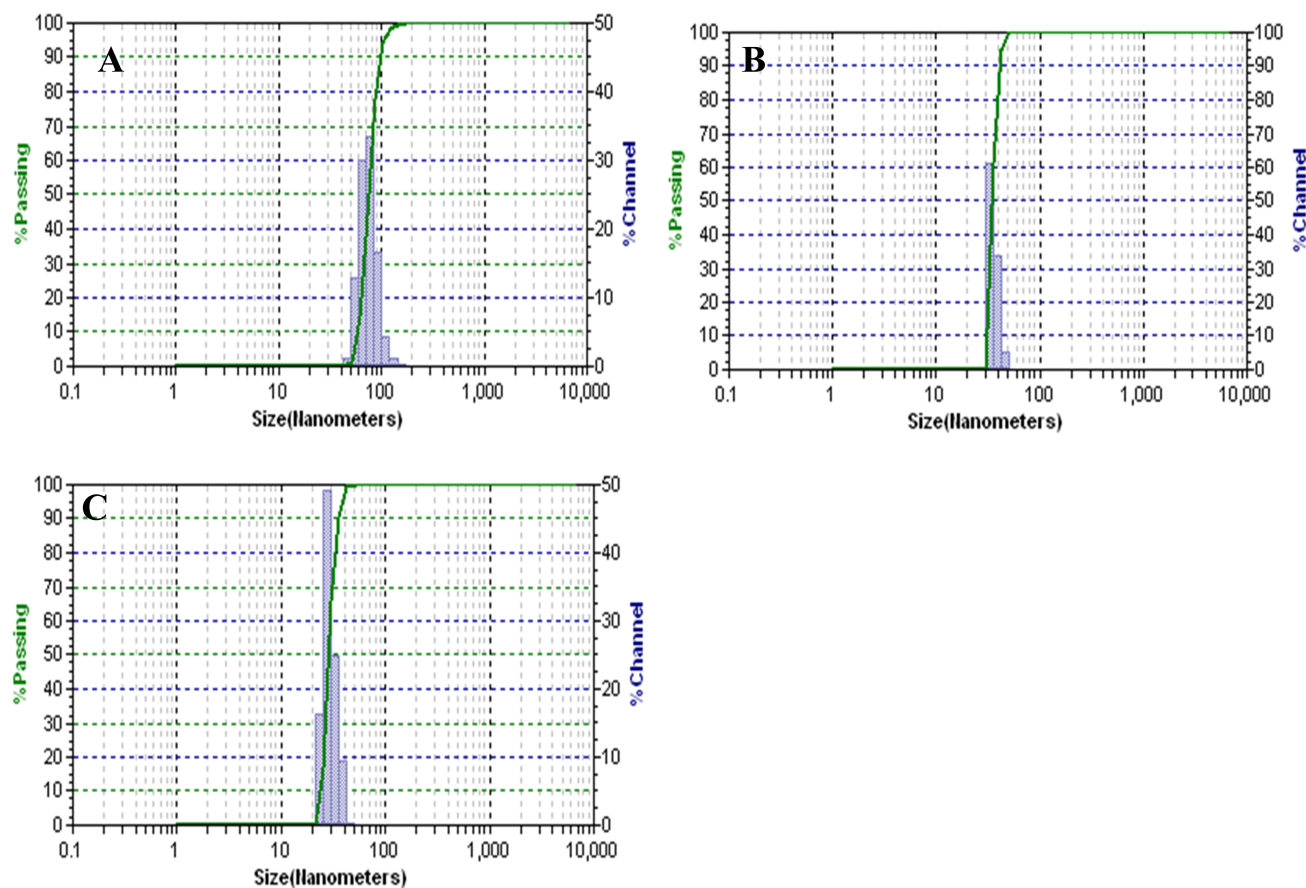
<sup>b</sup>Department of Chemistry, Yonsei University, Wonju 220-710, Republic of Korea

E-mail: [nsingh@iitrpr.ac.in](mailto:nsingh@iitrpr.ac.in); [dojang@yonsei.ac.kr](mailto:dojang@yonsei.ac.kr)

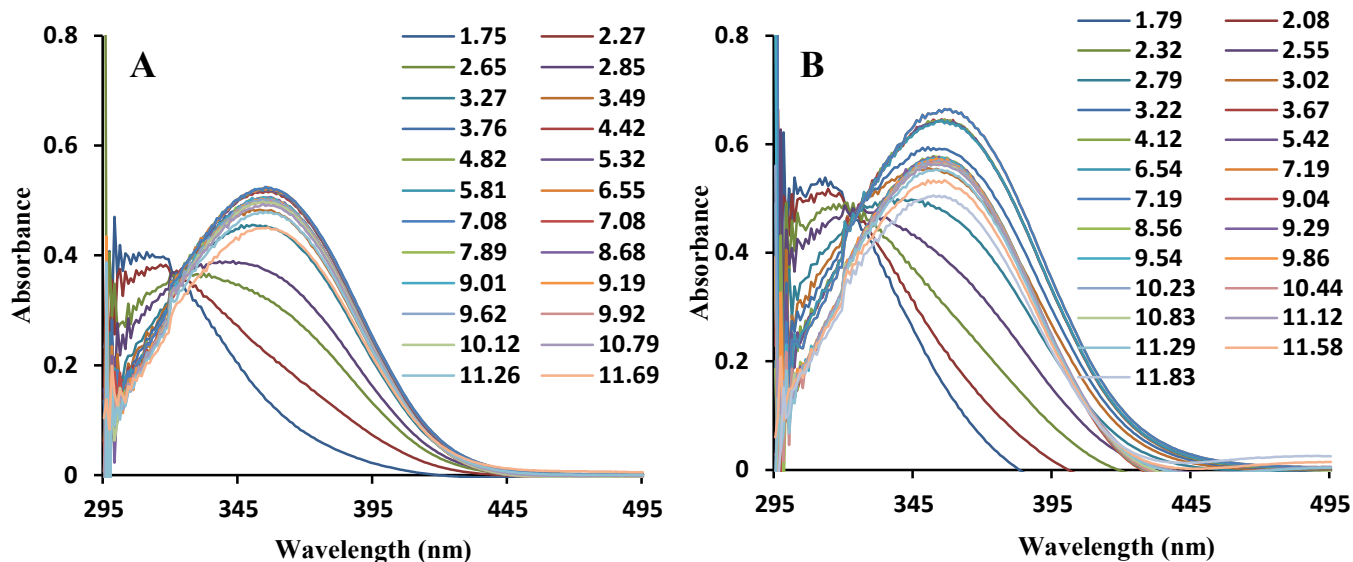




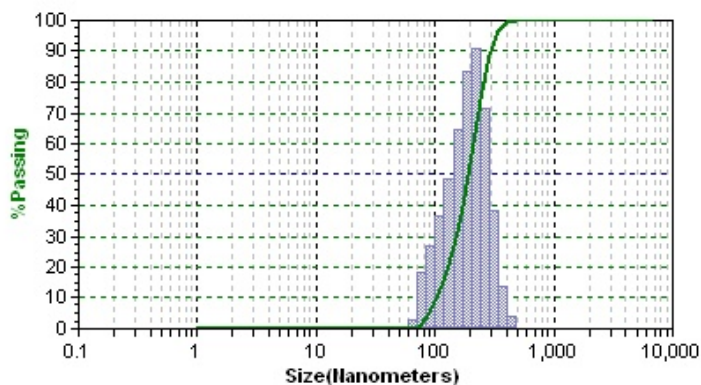
**Figure S1.** The absorption spectra of sensors (A) **1** and **N1**, (B) **2** and **N2**, and (C) **3** and **N3**. The absorption spectra of compounds **1-3** were recorded in pure methanol while the absorption spectra of sensors **N1-N3** were taken in aqueous medium with a concentration of 20  $\mu\text{M}$ .



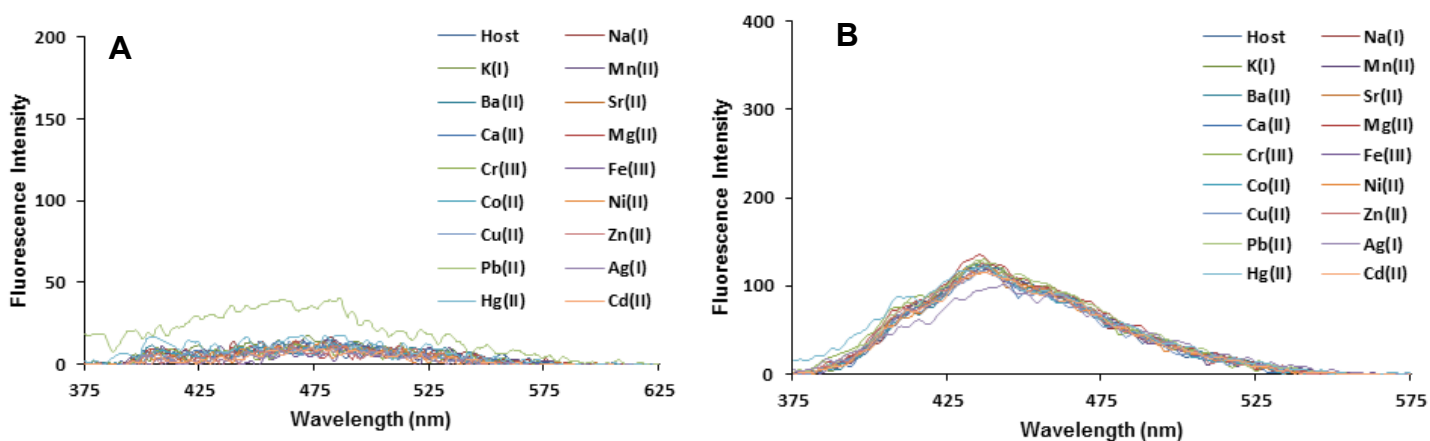
**Figure S2.** Distribution of particle size of (A) **N1**, (B) **N2** and (C) **N3** measured with a DLS-based particle size analyzer.



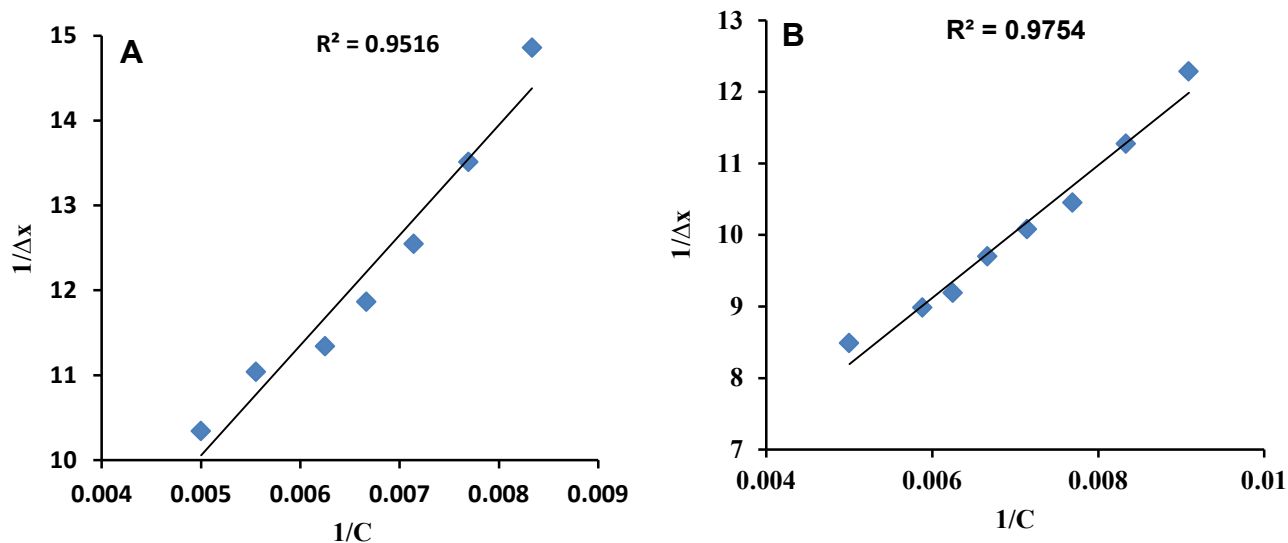
**Figure S3.** Changes in UV-vis absorption spectra of sensors (A) N2 and (B) N3 (20  $\mu\text{M}$ ) varying the pH in aqueous medium.



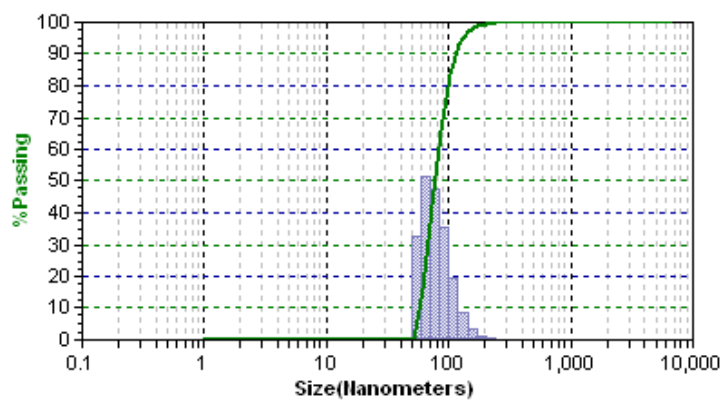
**Figure S4.** Distribution of particle size of sensor N2 upon addition of  $\text{Ag}^+$ . The measurements were done with a DLS-based particle size analyzer.



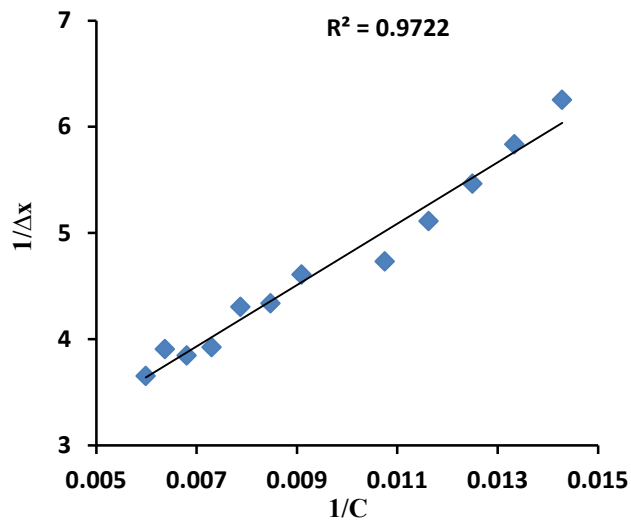
**Figure S5.** Fluorescence responses of sensors (A) N2 and (B) N3 in water with a concentration of 20  $\mu\text{M}$ .



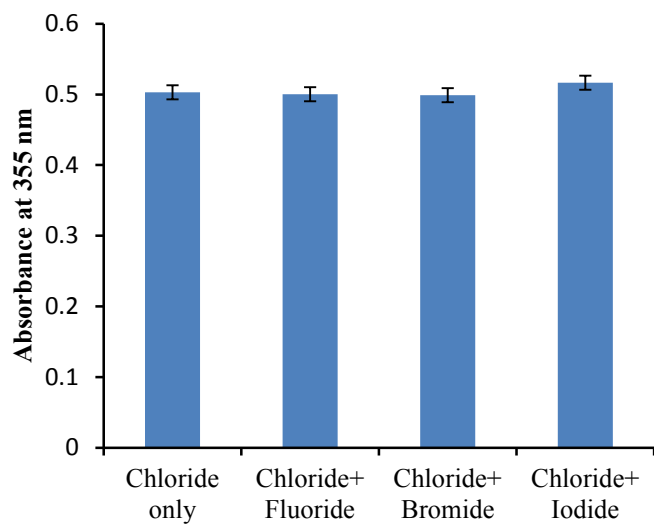
**Figure S6.** Calculation of the binding constants of sensors (A) N2 and (B) N3 with  $\text{Ag}^+$ .



**Figure S7.** Distribution of particle size of sensor N2. $\text{Ag}^+$  upon addition of  $\text{Cl}^-$ . The measurements were done with a DLS-based particle size analyzer.



**Figure S8.** Calculation of the binding constant of complex  $N2.Ag^+$  with  $Cl^-$ .



**Figure S9.** Bar diagram showing the absorbance of complex  $N2.Ag^+$  ( $20 \mu M$ ) binding to  $Cl^-$  ( $200 \mu M$ ) in the presence of other halides ( $200 \mu M$ ) in HEPES aqueous solution ( $20 \text{ mM}$ ,  $\text{pH} = 7.0$ ) at 355 nm.

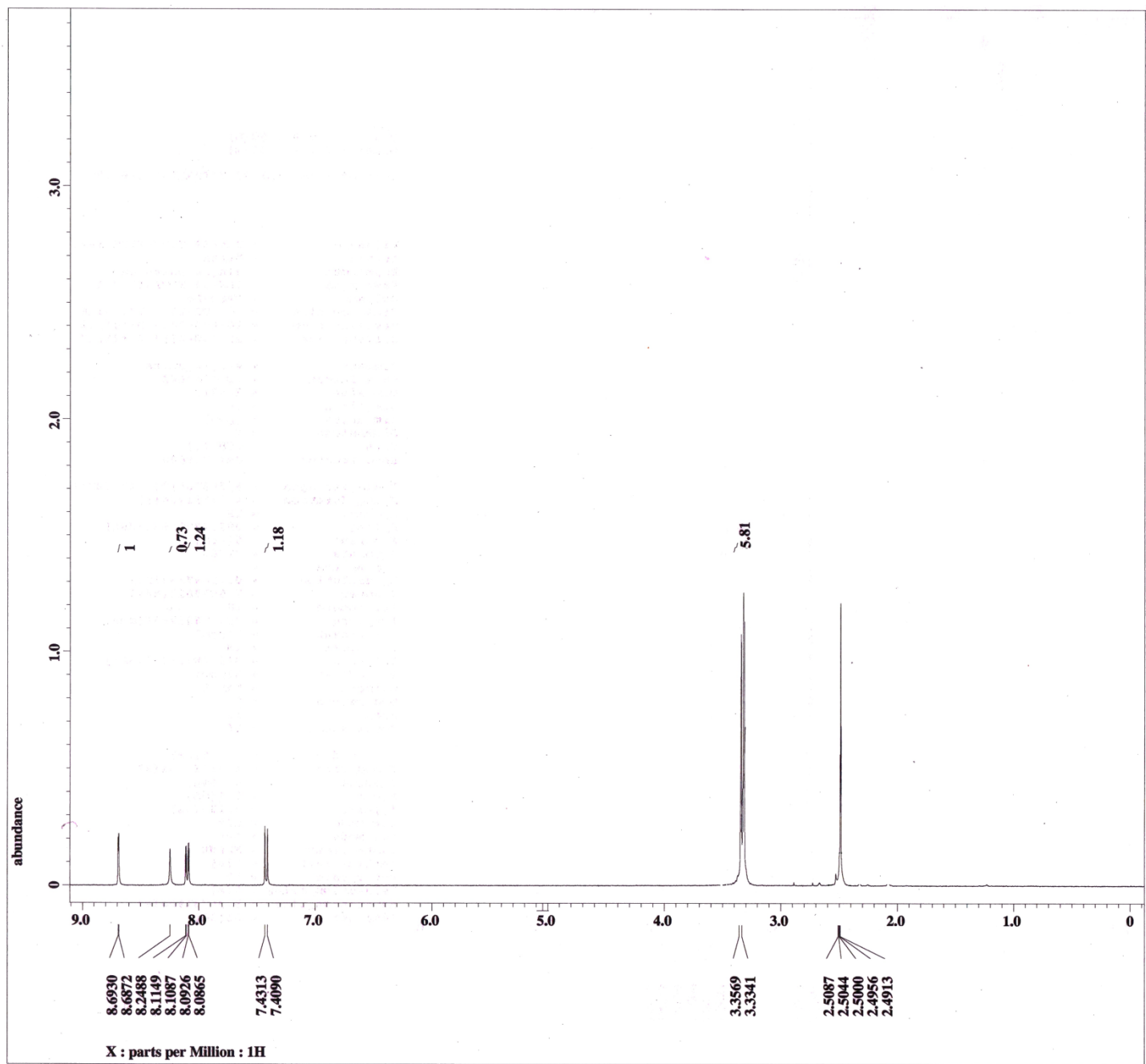


Figure S10. <sup>1</sup>H NMR of compound 2.

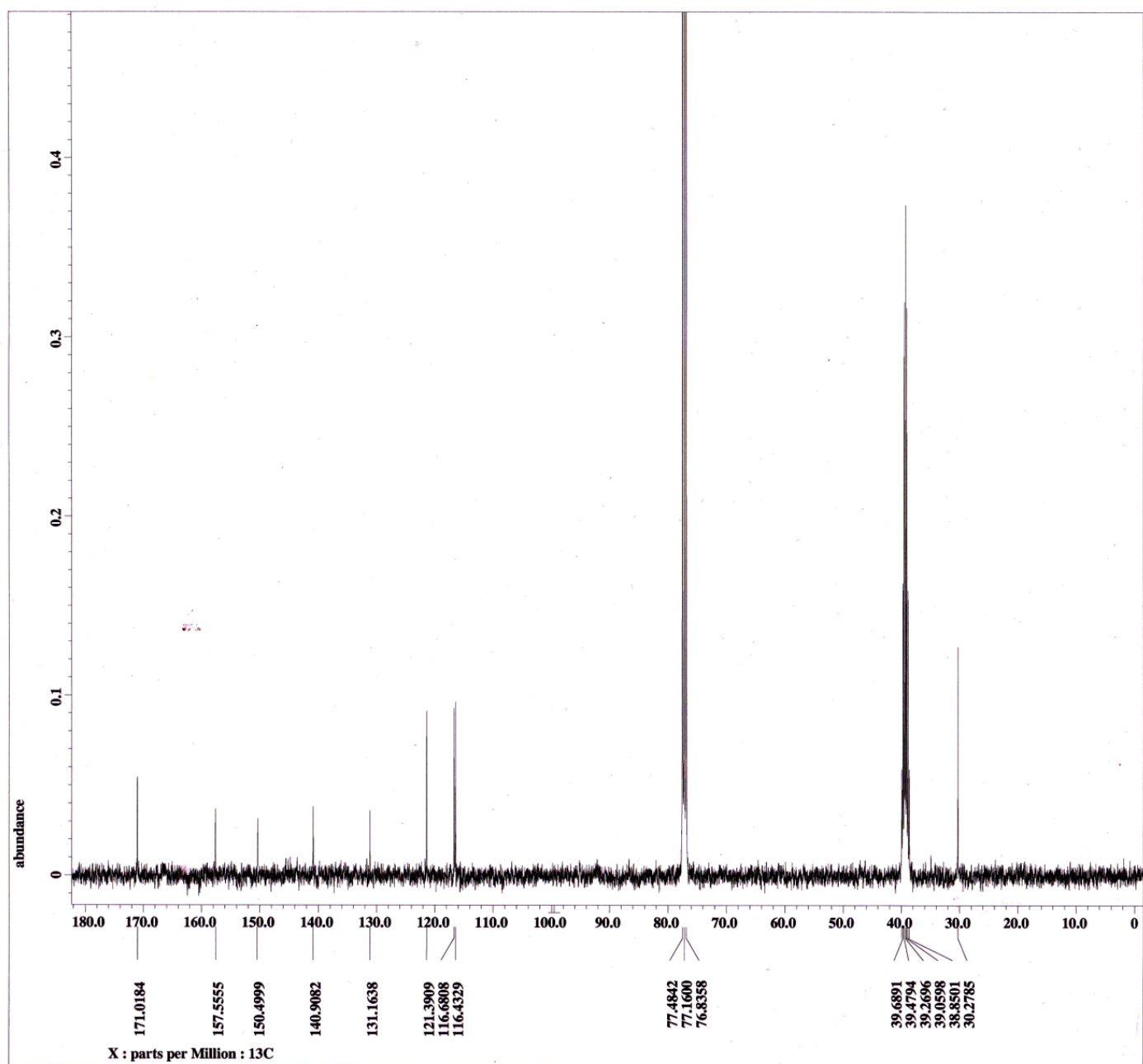


Figure S11.  $^{13}\text{C}$  NMR of compound 2.

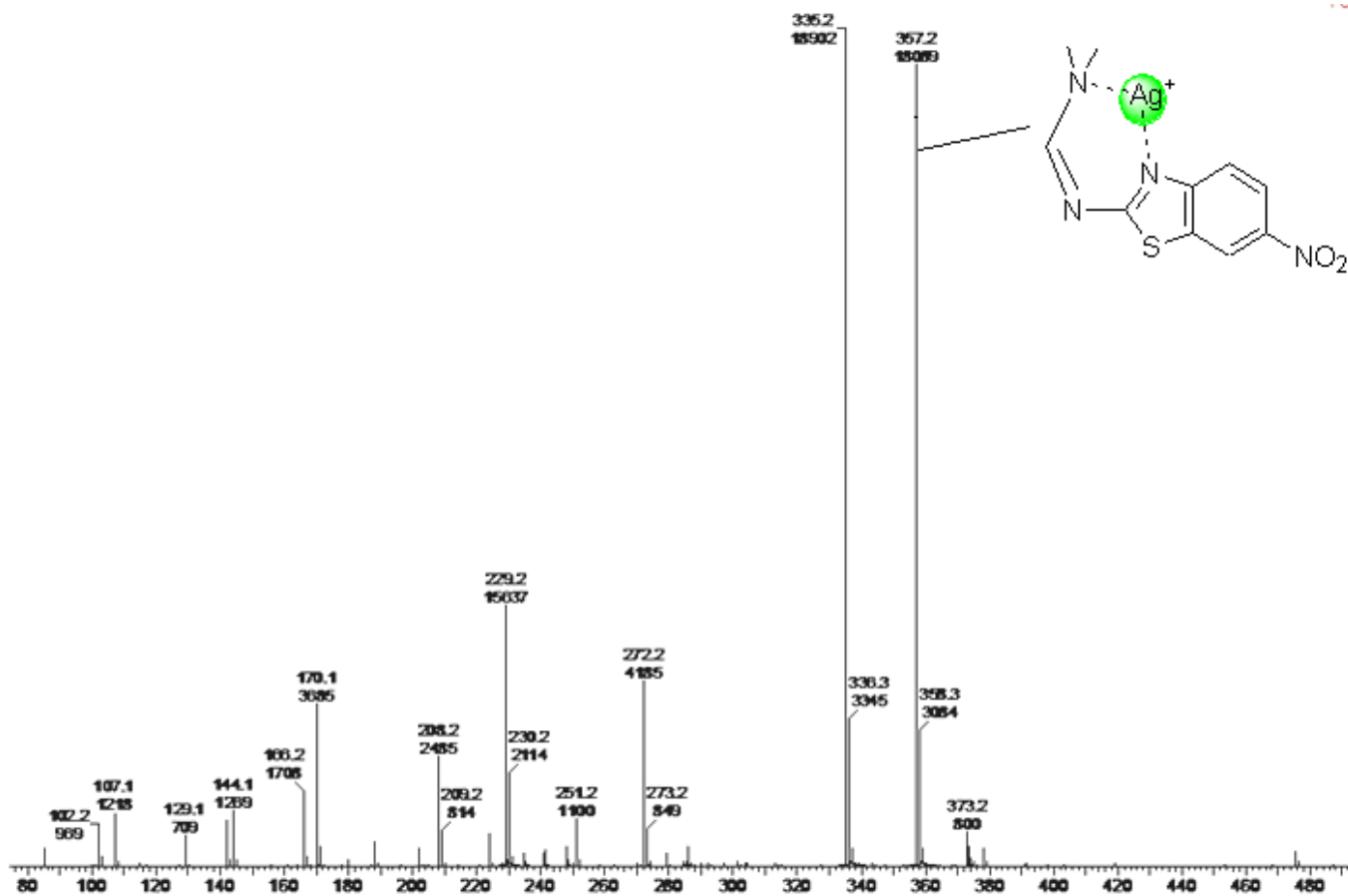


Figure S12. Mass spectrum of complex N2.Ag<sup>+</sup>.



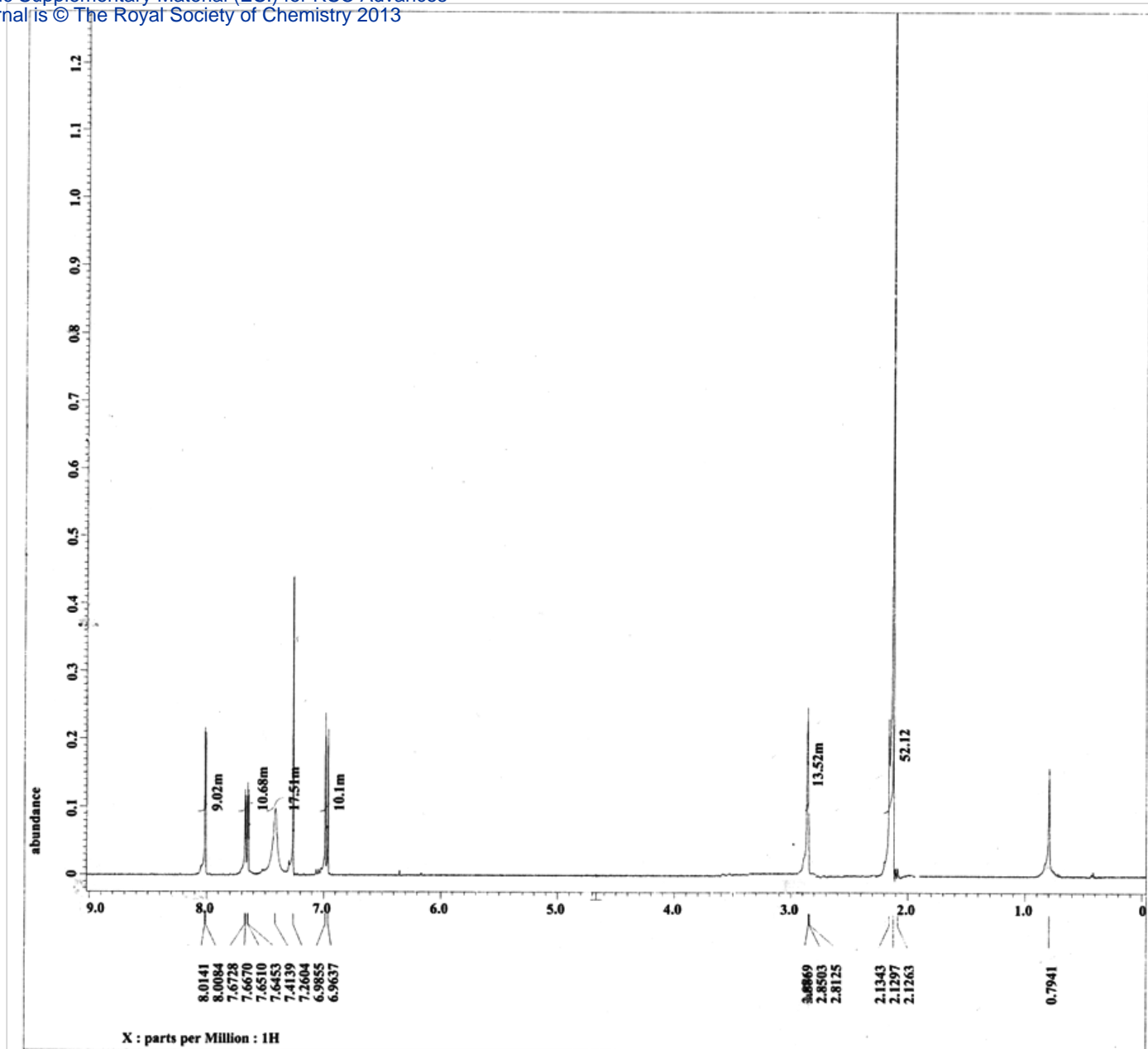


Figure S13.  $^1\text{H}$  NMR of compound 3.

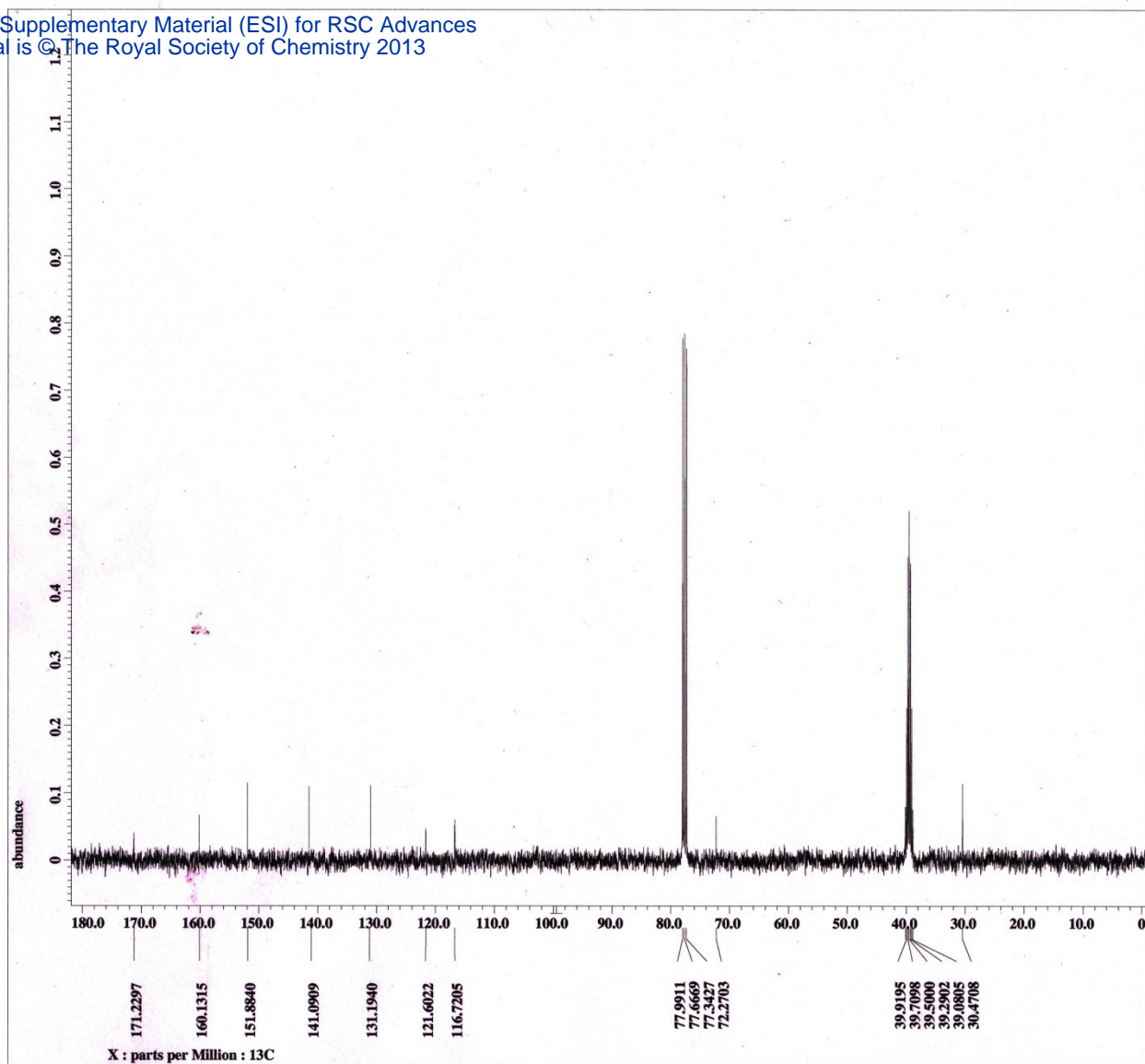


Figure S14.  $^{13}\text{C}$  NMR of compound 3.