

## SUPPLEMENTARY INFORMATION

### Synthesis and Structures of Divalent Co, Ni, Zn and Cd Complexes of Mixed Dichalcogen and Dipnictogen Ligands with Corrosion Inhibition Properties: Experimental and Computational Studies

Tunde L. Yusuf,<sup>a</sup> Taiwo W. Quadri<sup>b</sup>, , Gideon F. Tolufashe<sup>c</sup>, Lukman O. Olasunkanmi,<sup>b,c</sup> Eno E. Ebenso,<sup>b</sup> Werner E. van Zyl<sup>a,\*</sup>

<sup>a</sup>School of Chemistry and Physics, University of KwaZulu-Natal, Westville Campus, Chiltern Hills, Durban, 4000, South Africa

<sup>b</sup>Department of Chemistry, School of Physical and Chemical Sciences and Materials Science Innovation and Modelling (MaSIM) Research Focus Area, Faculty of Natural and Agricultural Sciences, North-West University (Mafikeng Campus), Private Bag X2046, Mmabatho 2735, South Africa.

<sup>c</sup>Department of Chemistry and Biochemistry, Faculty of Sciences, University of Porto, 4169-007 Porto, Portugal

<sup>d</sup>Department of Chemistry, Faculty of Science, Obafemi Awolowo University, Ile-Ife 220005, Nigeria

\*Corresponding author: Werner E. van Zyl (Email: [vanzylw@ukzn.ac.za](mailto:vanzylw@ukzn.ac.za))

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ZnnpPhen

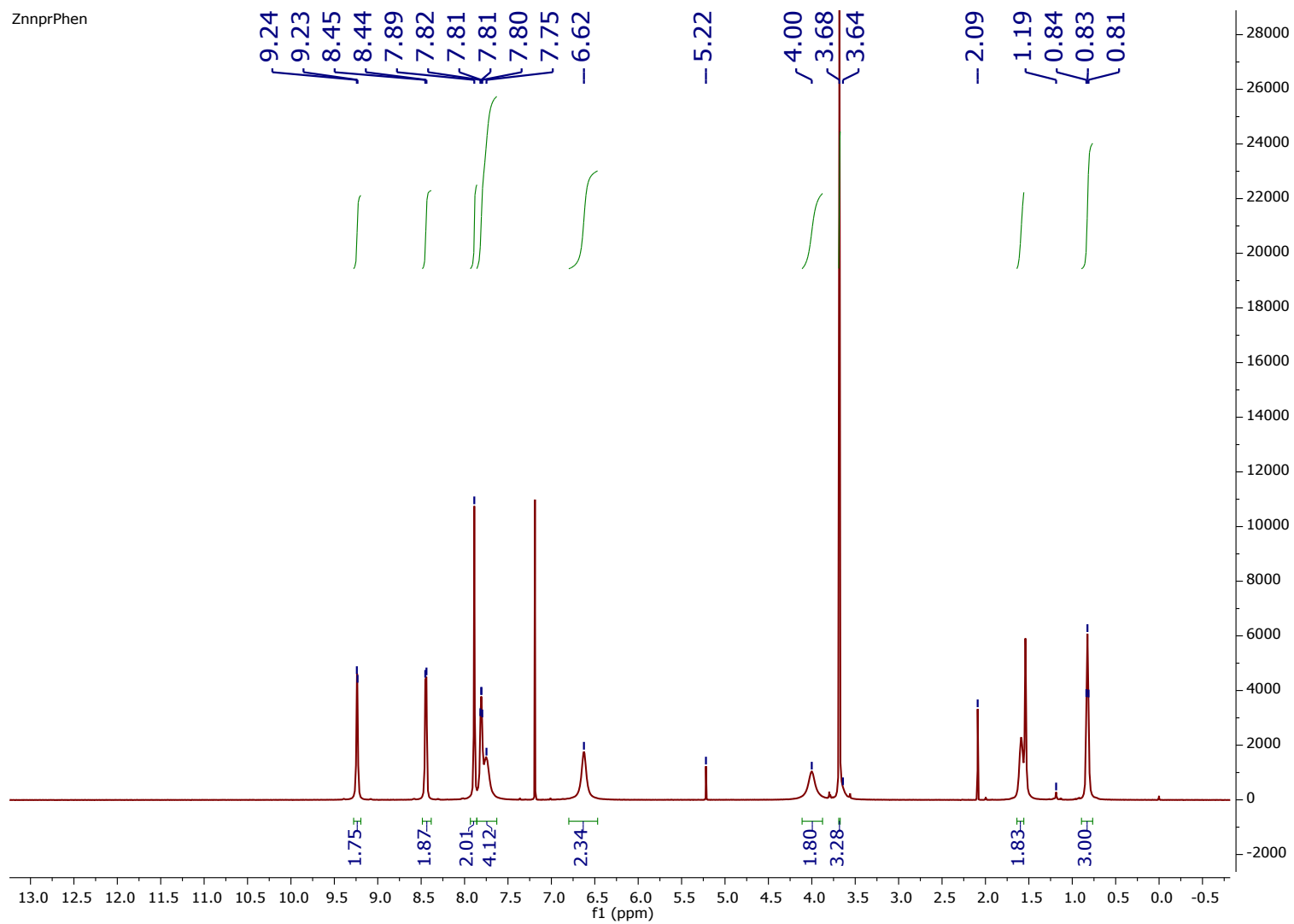


Figure S1.  $^1\text{H}$  NMR for **3**

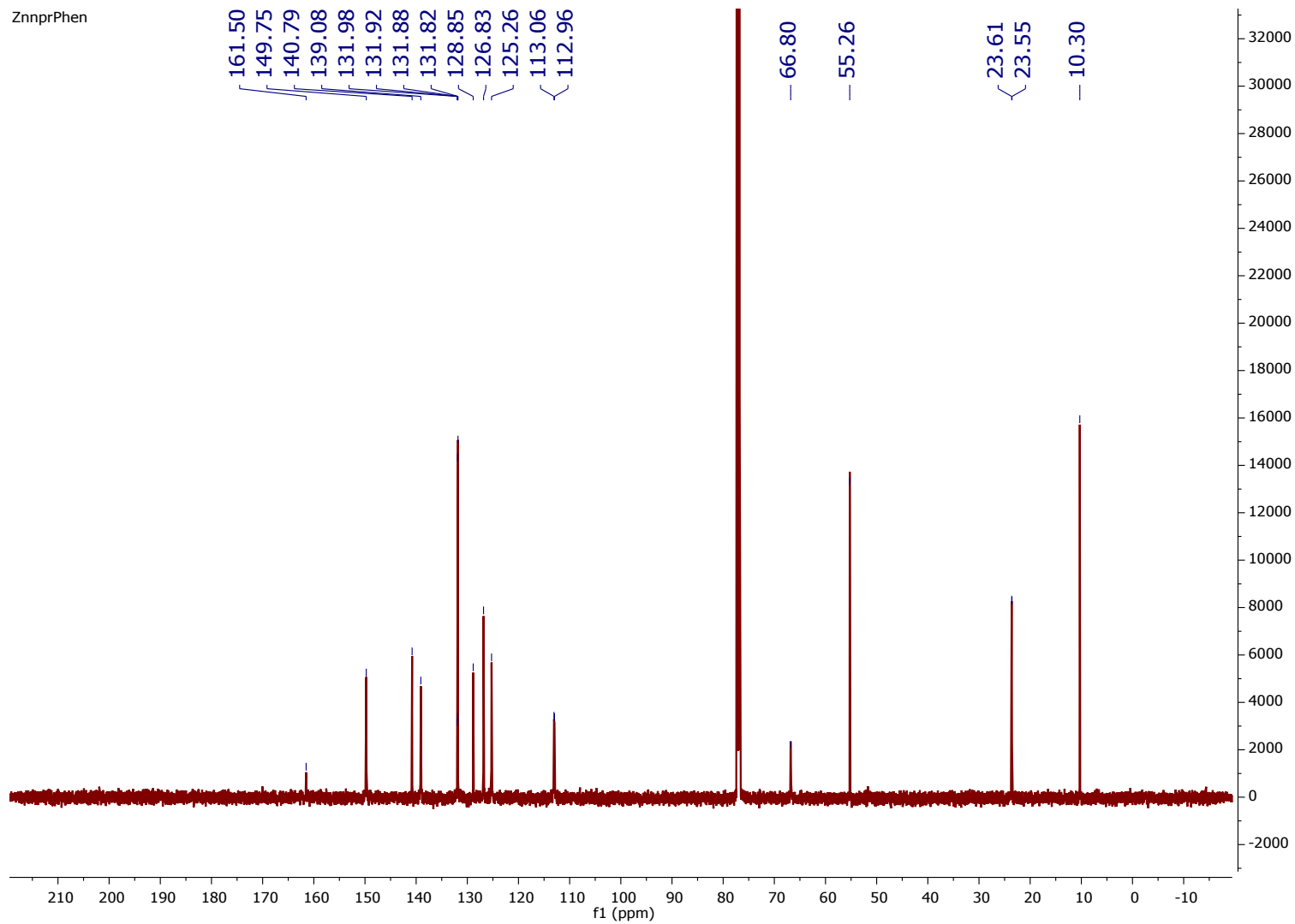
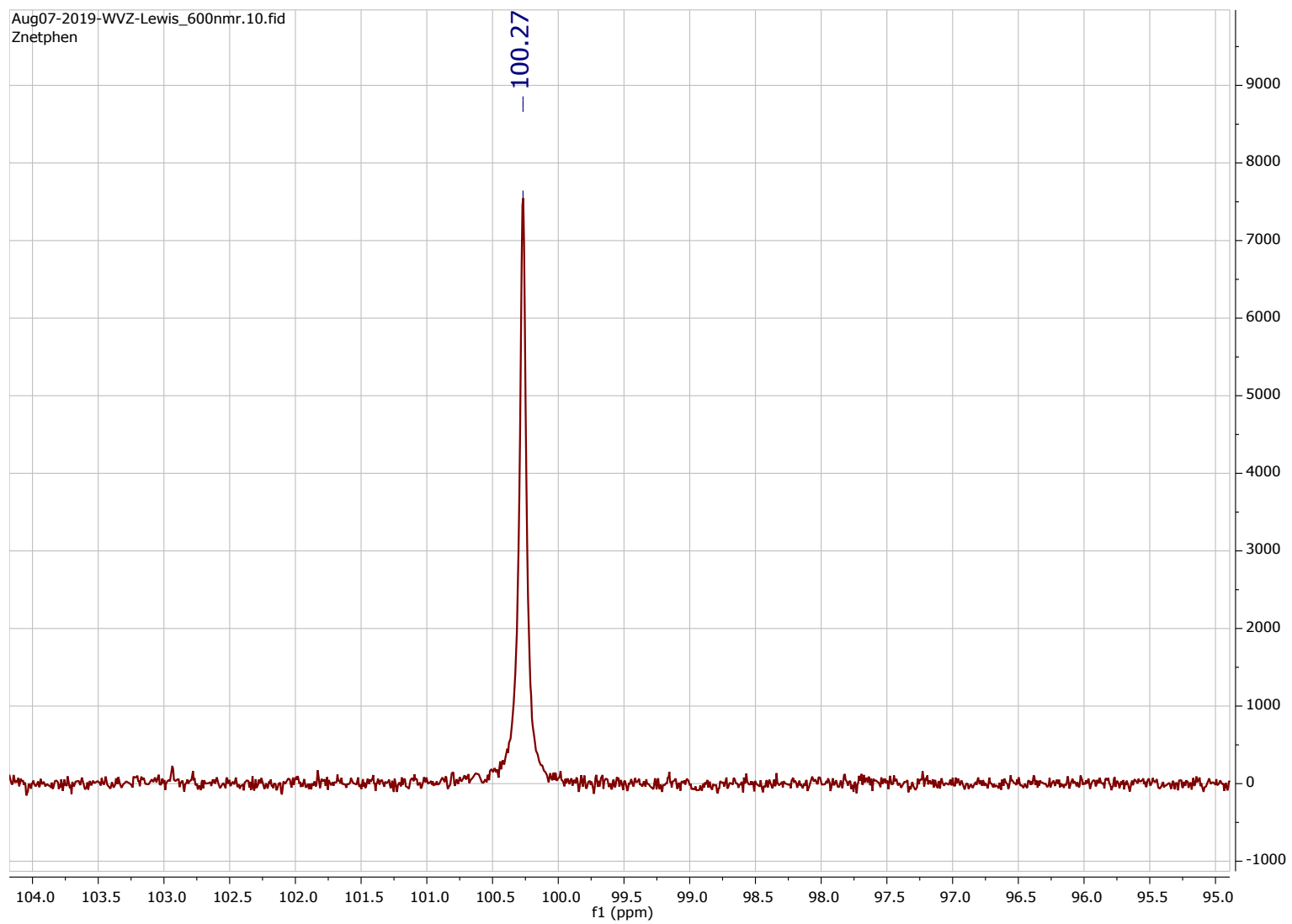


Figure S2.  $^{13}\text{C}$  NMR for **3**



**Figure S3.**  $^{31}\text{P}$  NMR for **3**

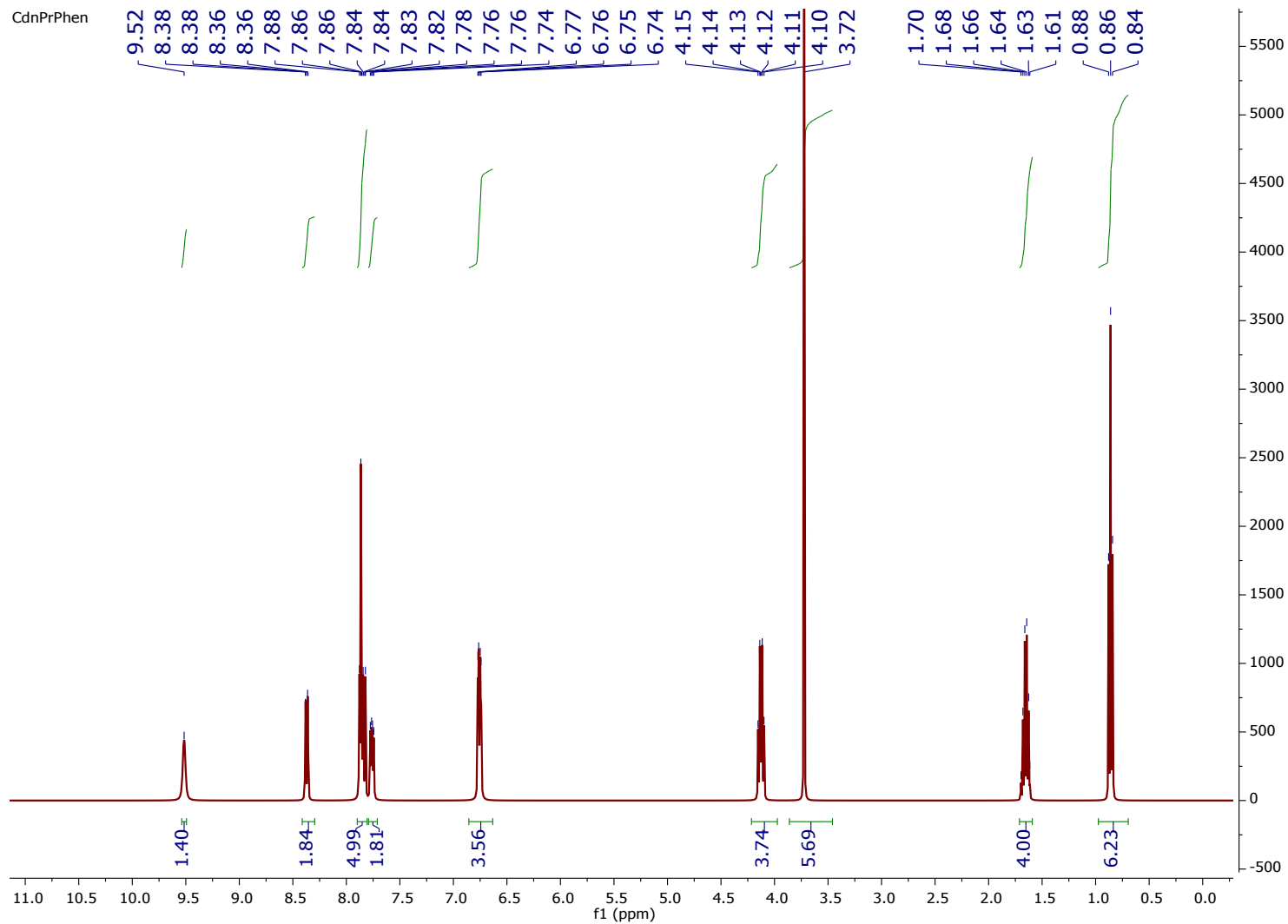


Figure S4  $^1\text{H}$  NMR for 4

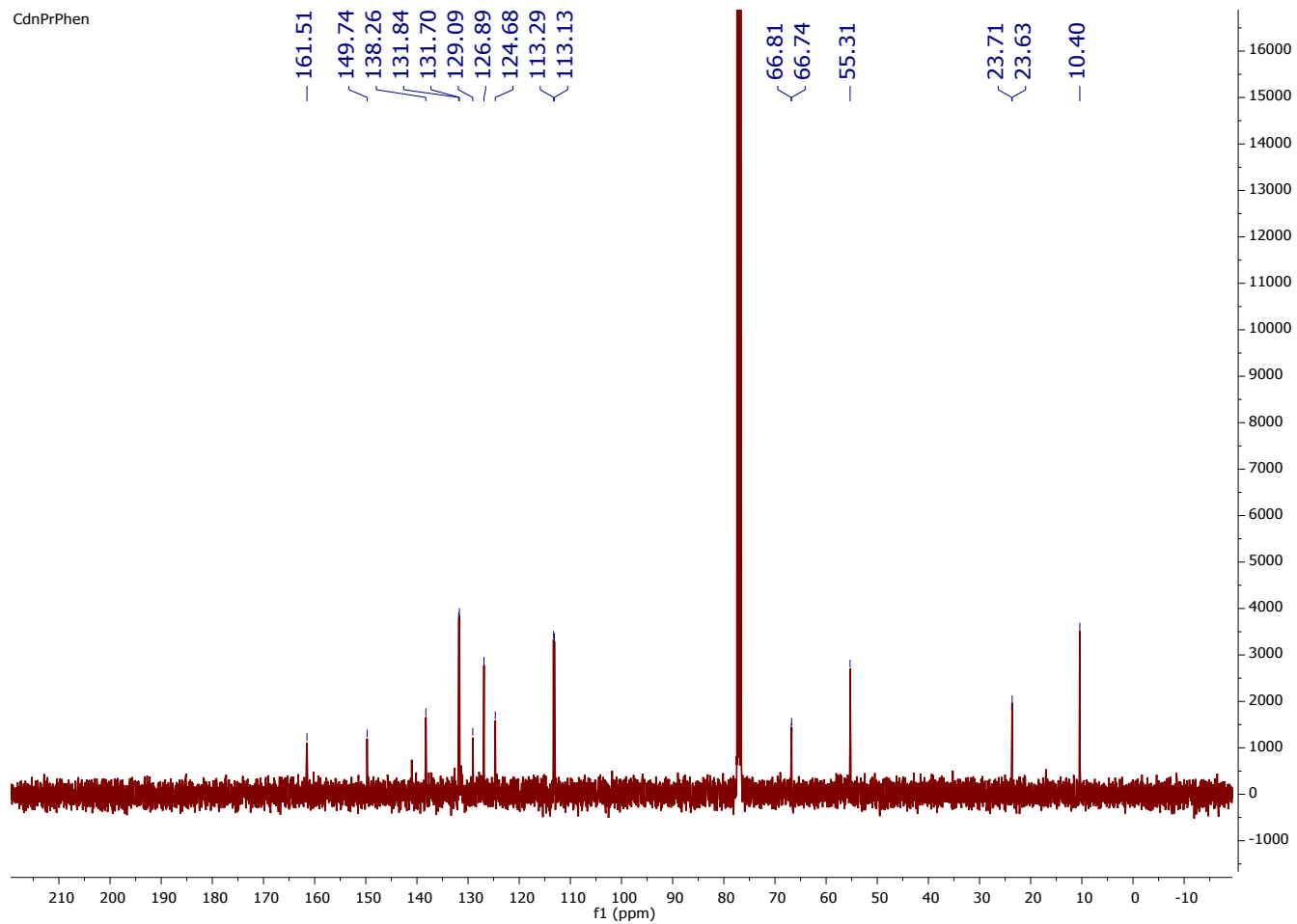


Figure S5.  $^{13}\text{C}$  NMR for 4

CdnPrPhen

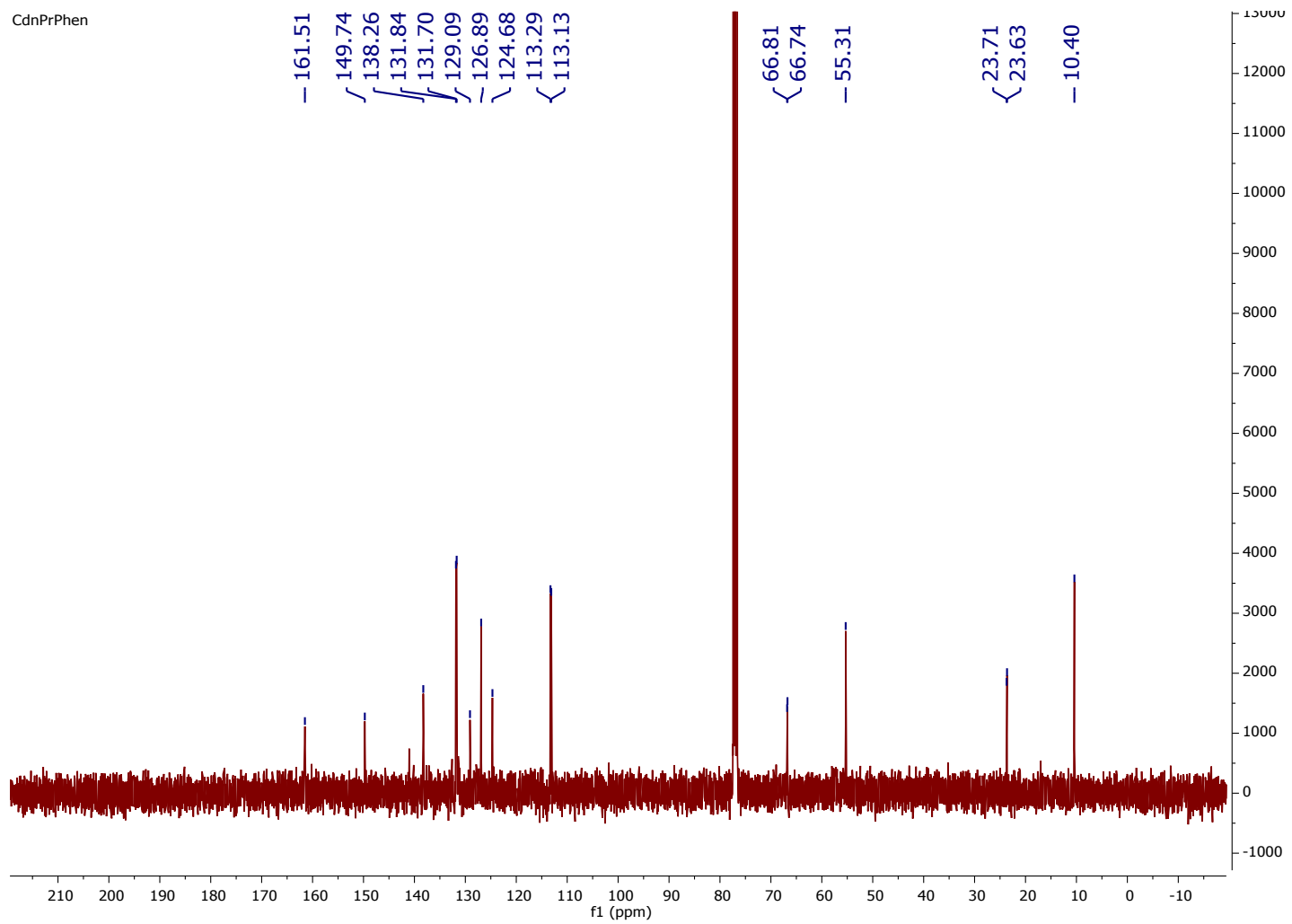


Figure S6. <sup>13</sup>C NMR for 4

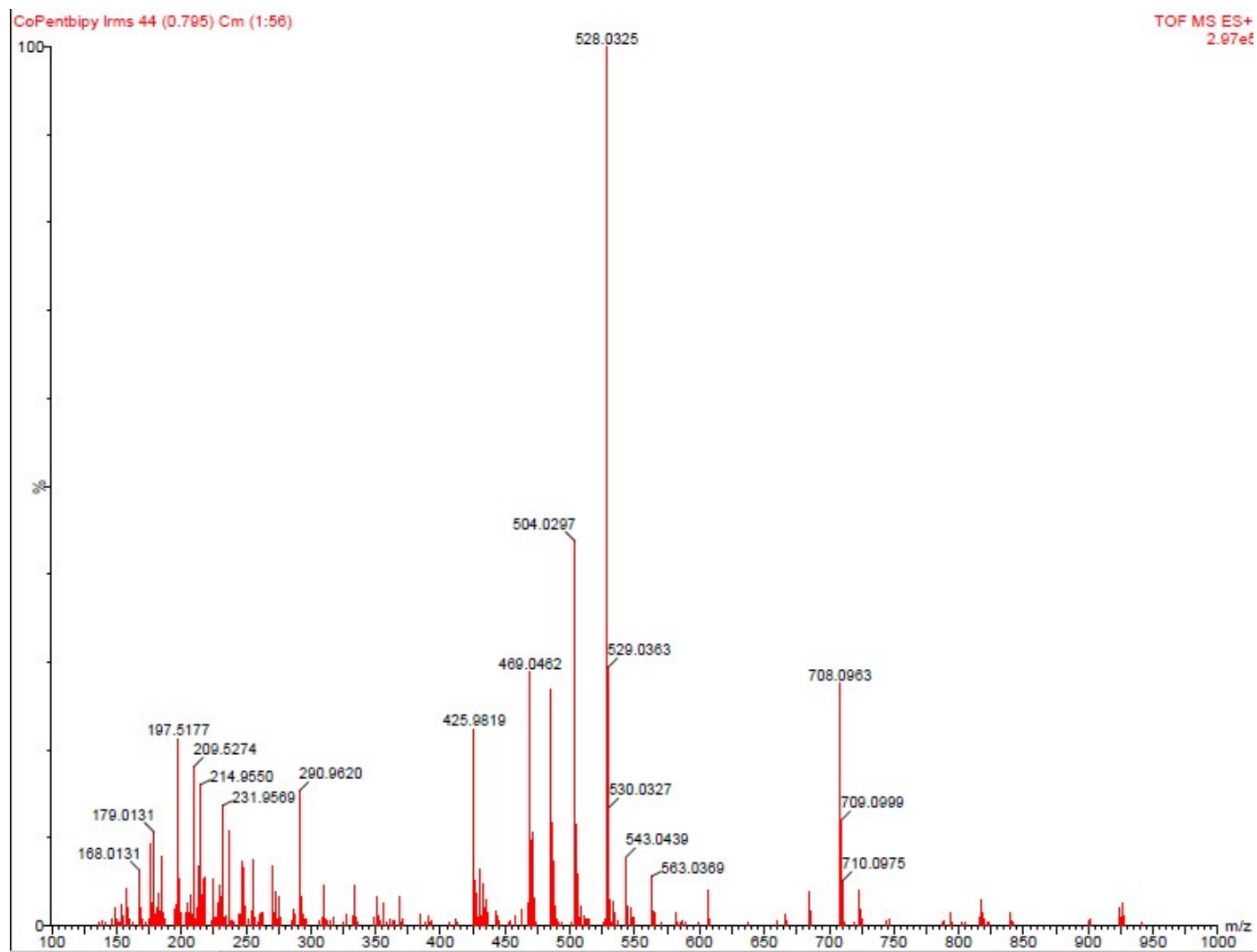


Figure S7.ESI-MS of 1



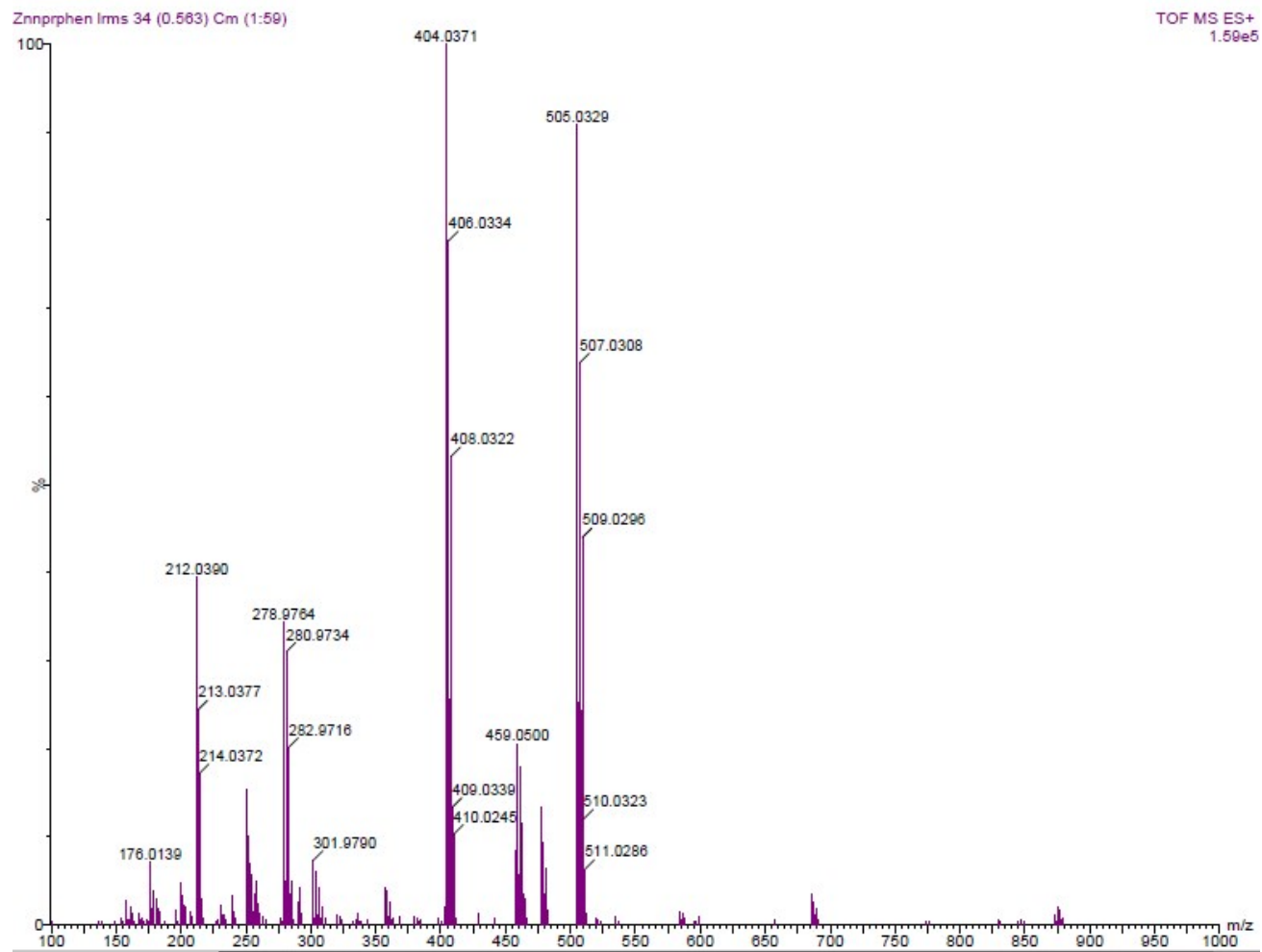


Figure S8. ESI-MS of 3

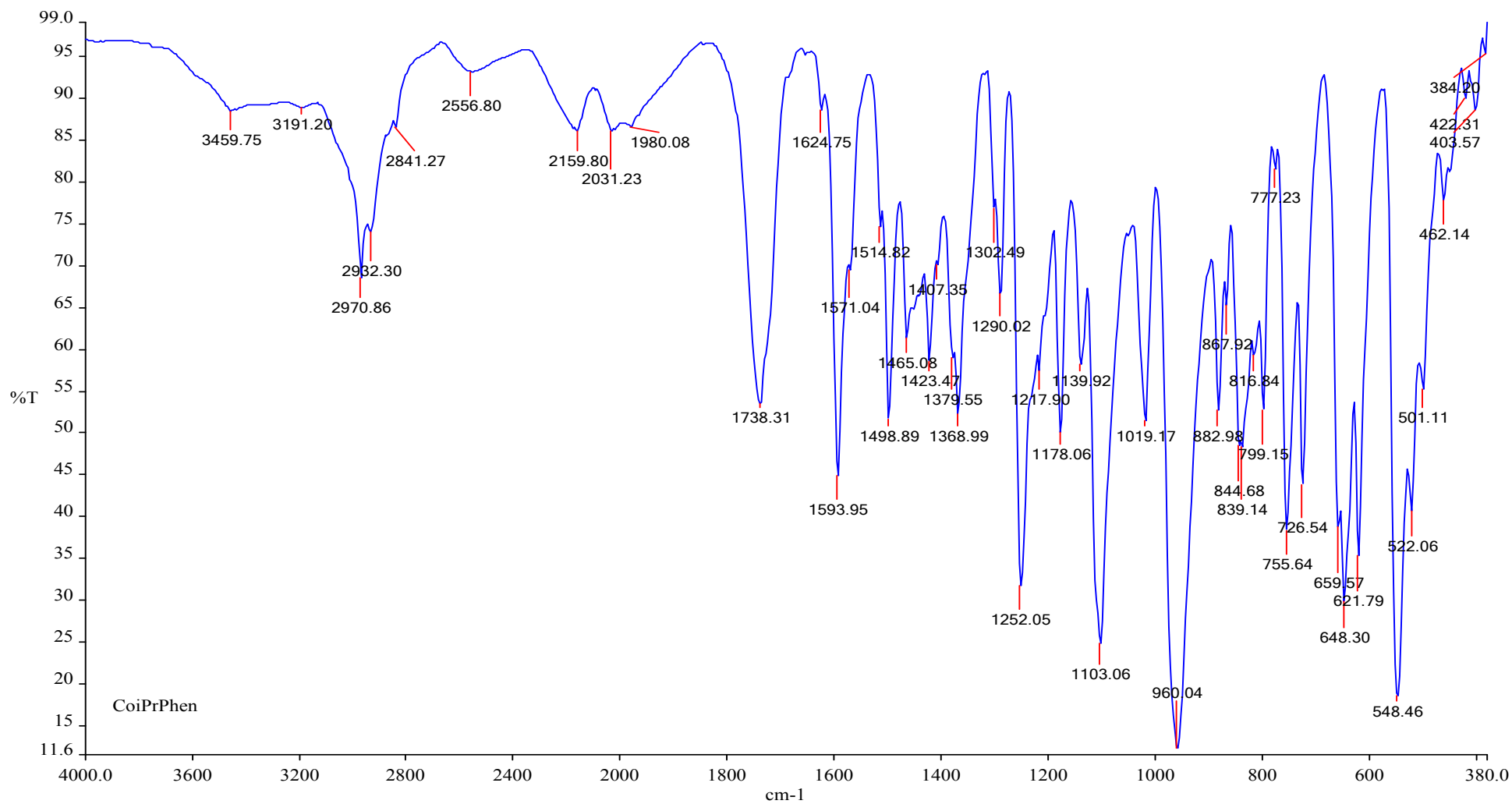


Figure S9 FT-IR for 1

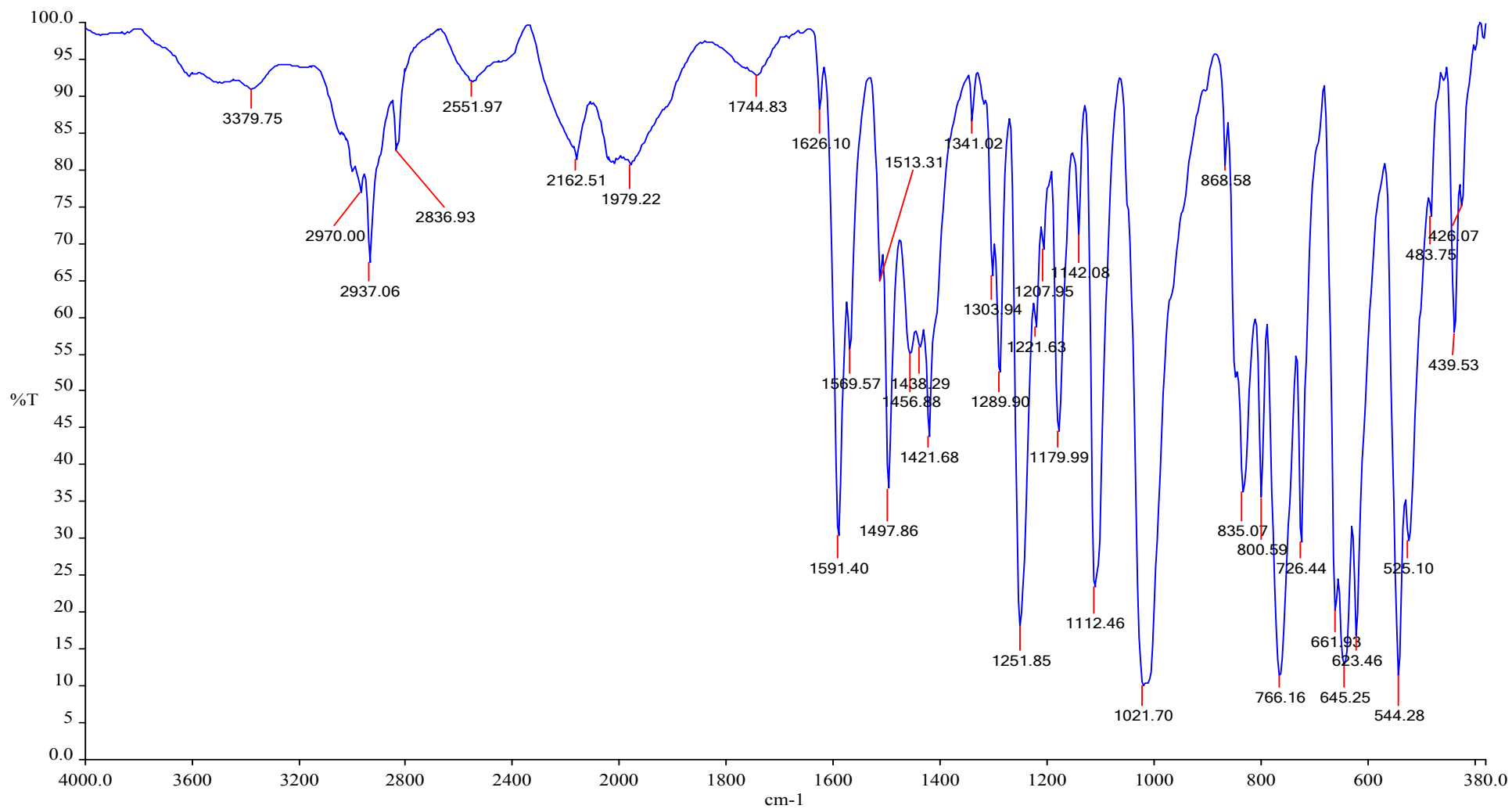


Figure S10. FT-IR for 2

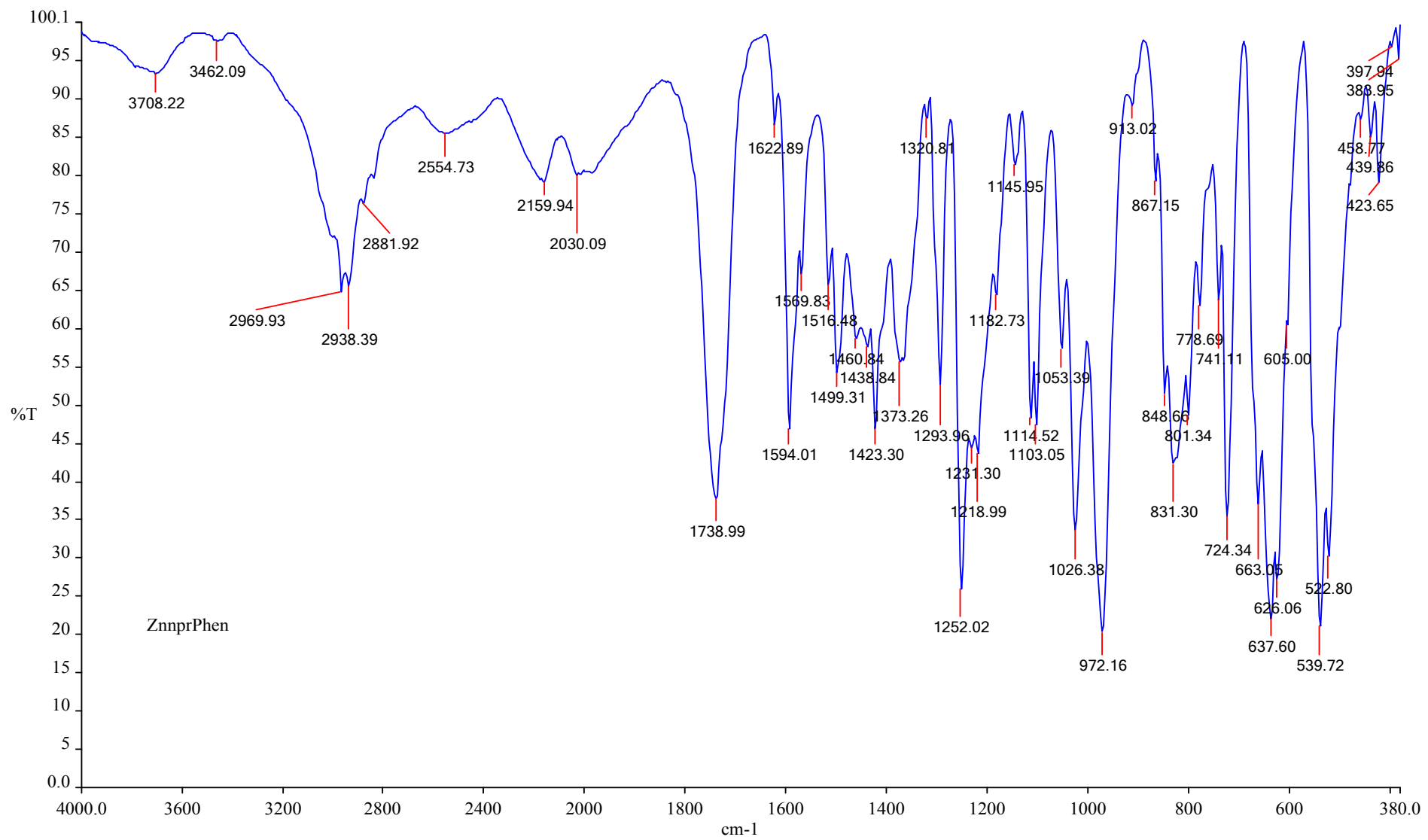


Figure S11. FT-IR for 3

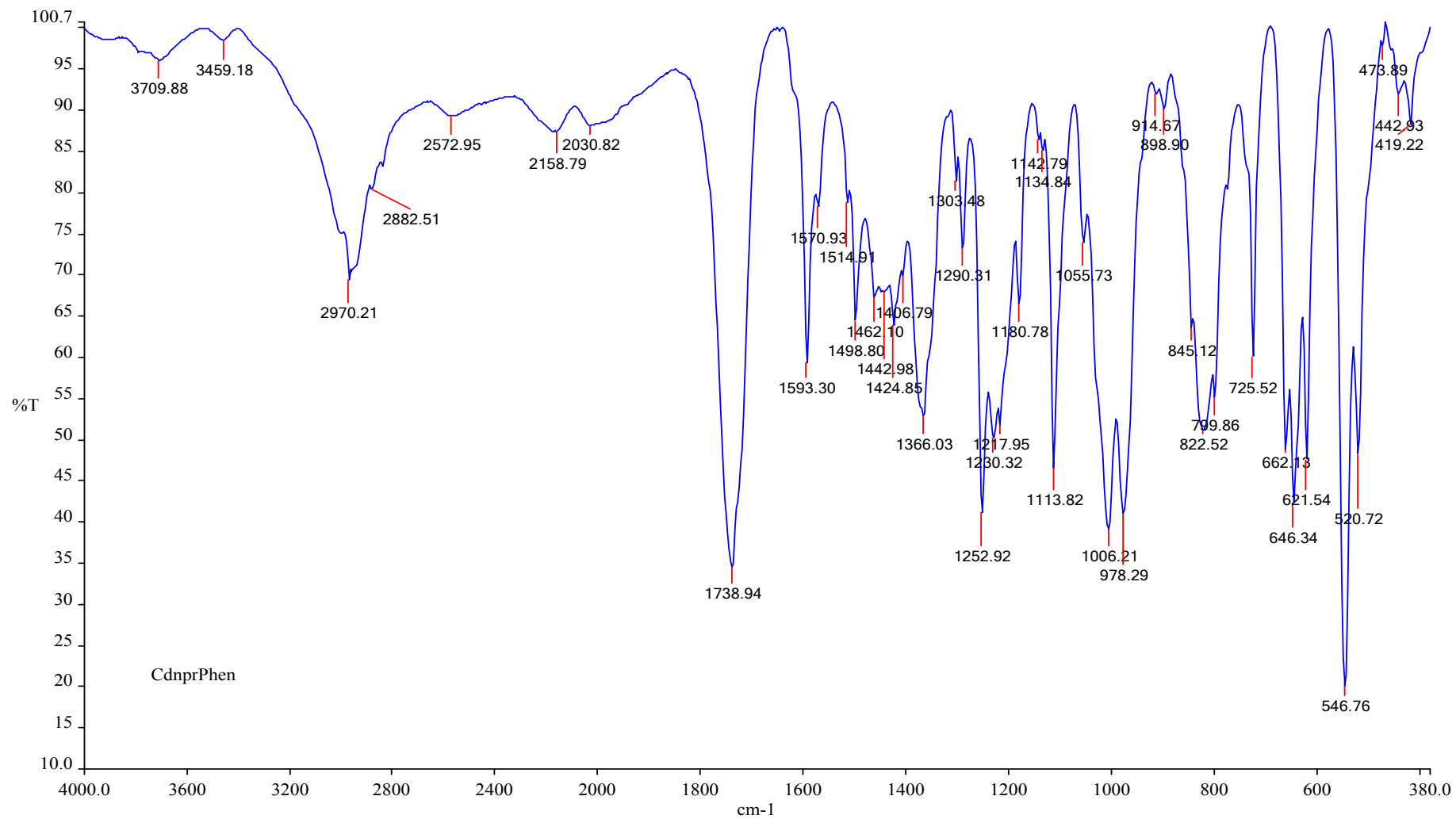


Figure S12. FT-IR for 4