

## Supplementary information

### **Cyanide free contraction of disclosed 1,4-dioxane ring as a route to cobalt bis(dicarbollide) derivatives with short spacer between the boron cage and terminal functional group**

**Akim V. Shmal'ko,<sup>a,b</sup> Marina Yu. Stogniy,<sup>a</sup> Grigorii S. Kazakov,<sup>a</sup> Sergey A. Anufriev,<sup>a</sup> Igor B. Sivaev,<sup>a\*</sup> Leonid V. Kovalenko,<sup>b</sup> Vladimir I. Bregadze<sup>a</sup>**

<sup>a</sup> A. N. Nesmeyanov Institute of Organoelement Compounds, Russian Academy of Sciences, 28 Vavilov Str., 119991, Moscow, Russia

<sup>b</sup> D. I. Mendeleev Russian Chemical Technological University, 9 Miusskaya Sq., 125047, Moscow, Russia

Figure S1. <sup>1</sup>H NMR spectrum of compound **7** in acetone-*d*<sub>6</sub>.

Figure S2. <sup>13</sup>C NMR spectrum of compound **7** in acetone-*d*<sub>6</sub>.

Figure S3. <sup>11</sup>B{<sup>1</sup>H} NMR spectrum of compound **7** in acetone-*d*<sub>6</sub>.

Figure S4. <sup>11</sup>B NMR spectrum of compound **7** in acetone-*d*<sub>6</sub>.

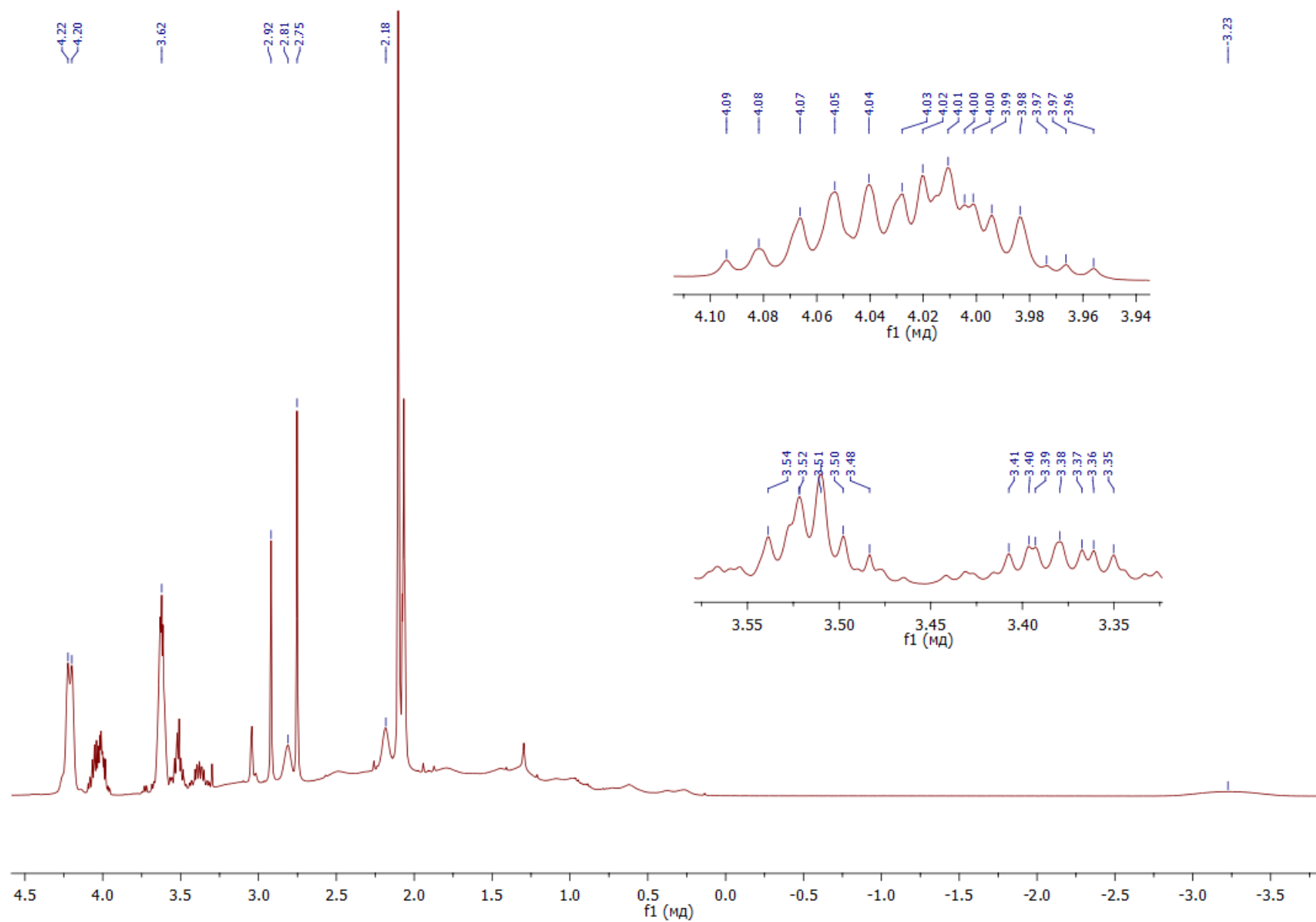


Figure S1

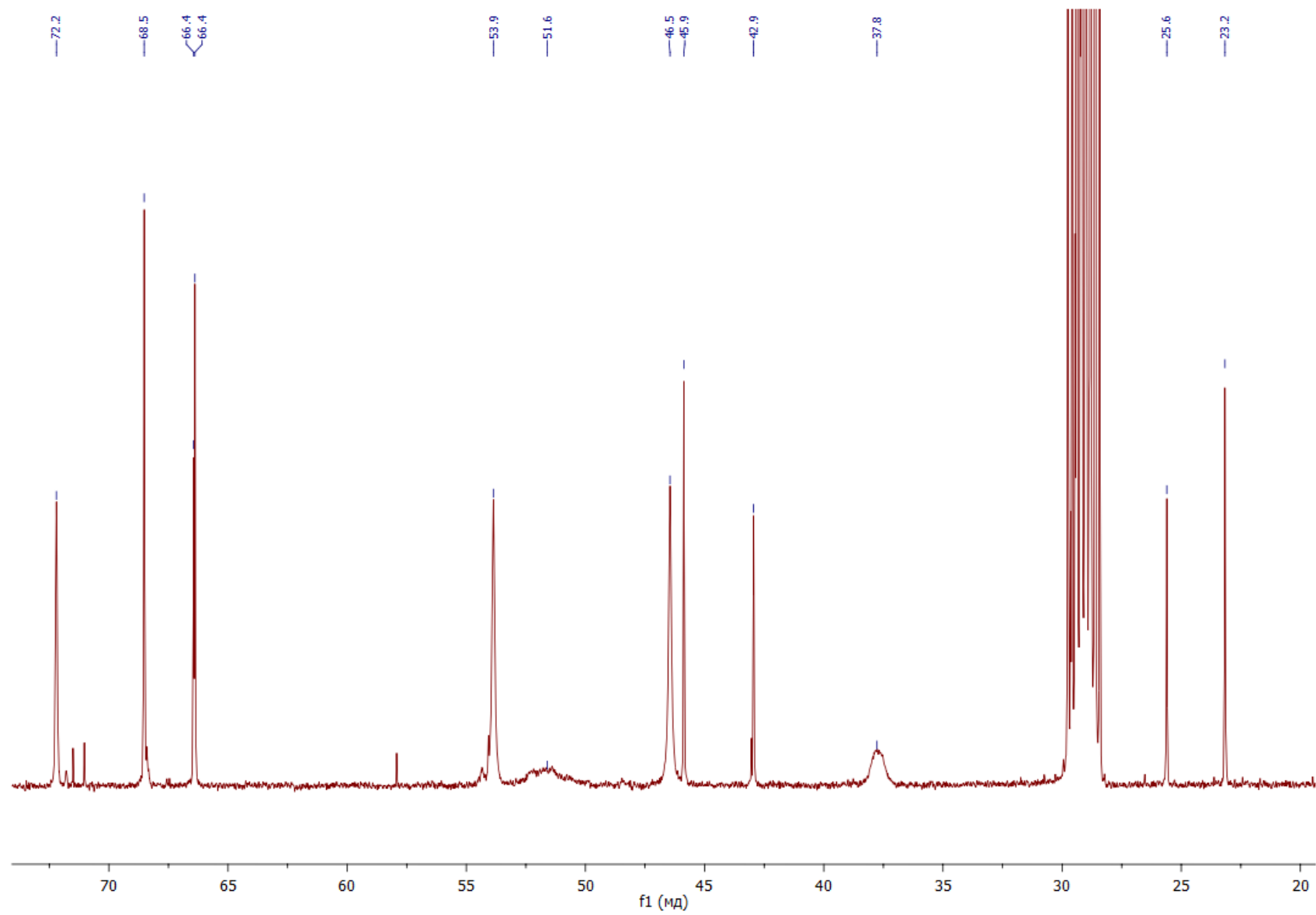


Figure S2

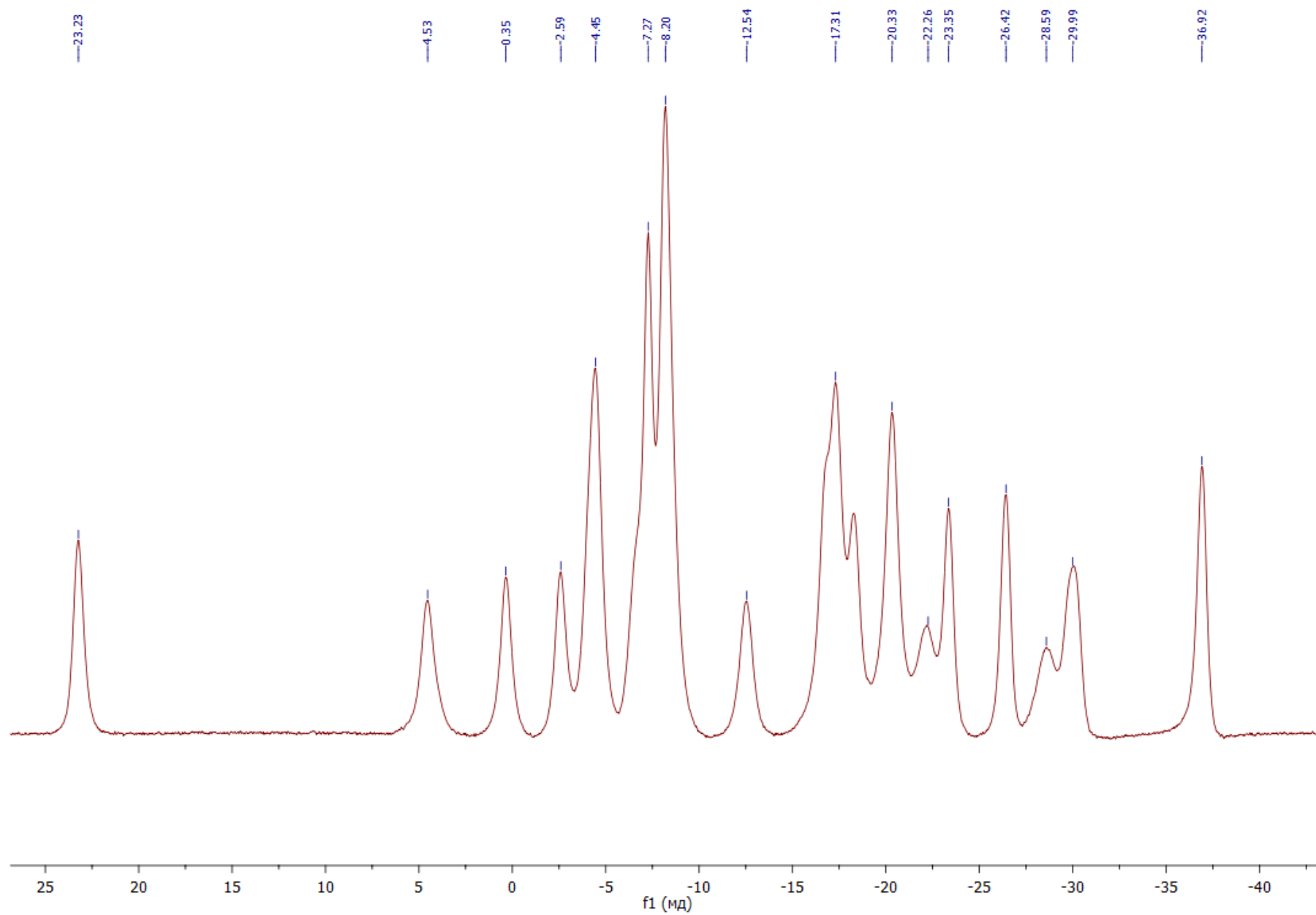


Figure S3

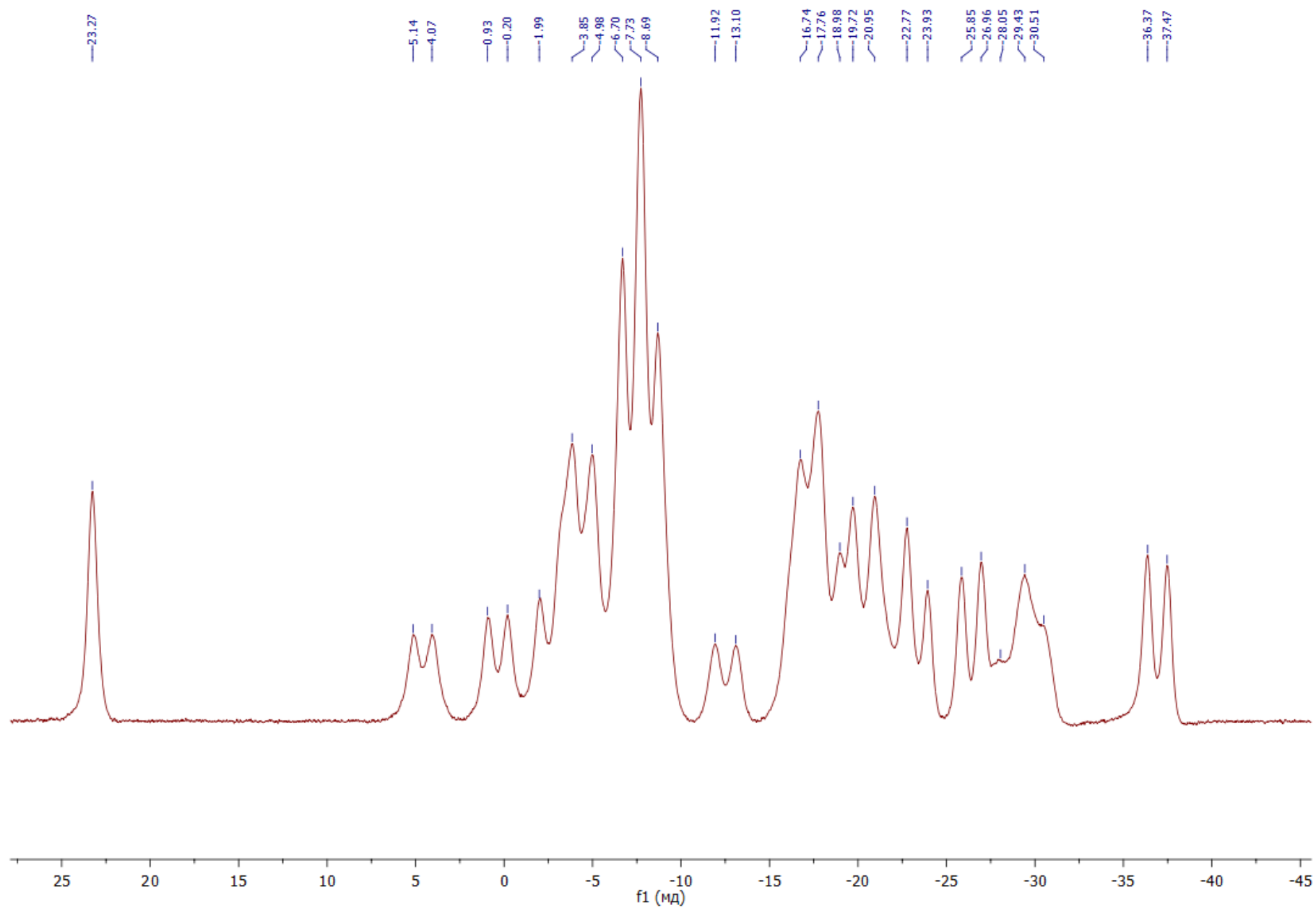


Figure S4