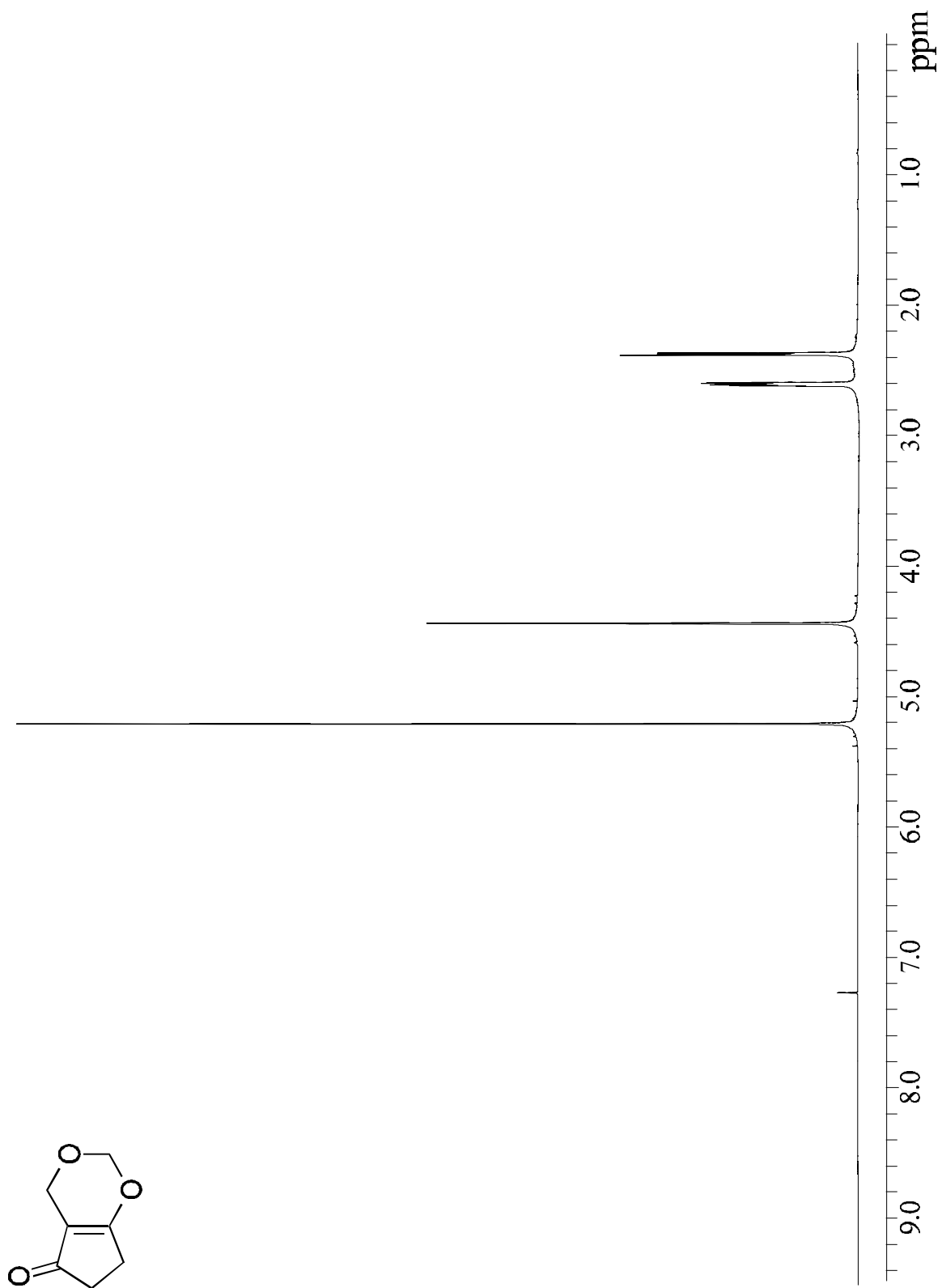


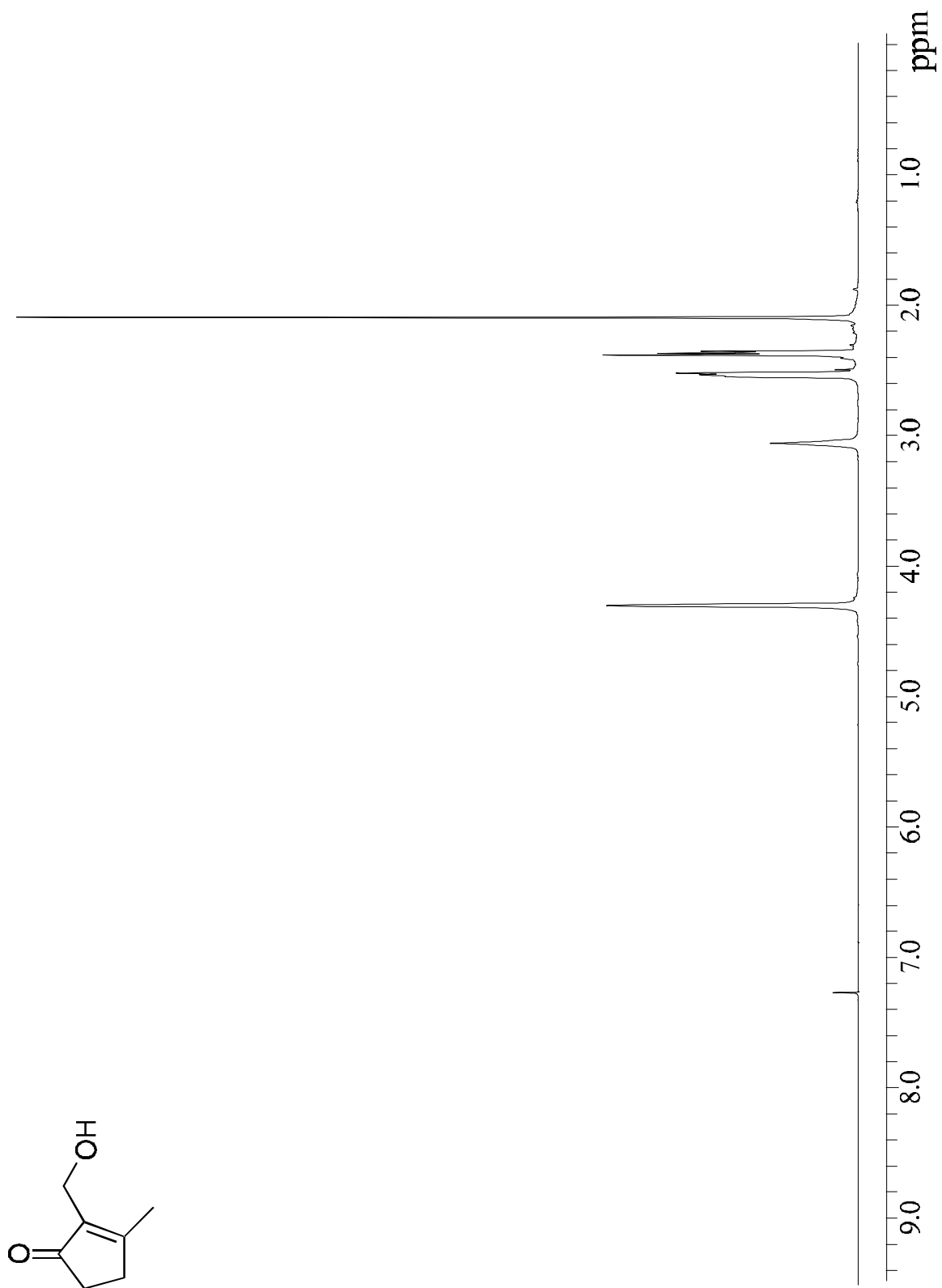
ADDENDUM I: SELECTED ¹H NMR SPECTRA

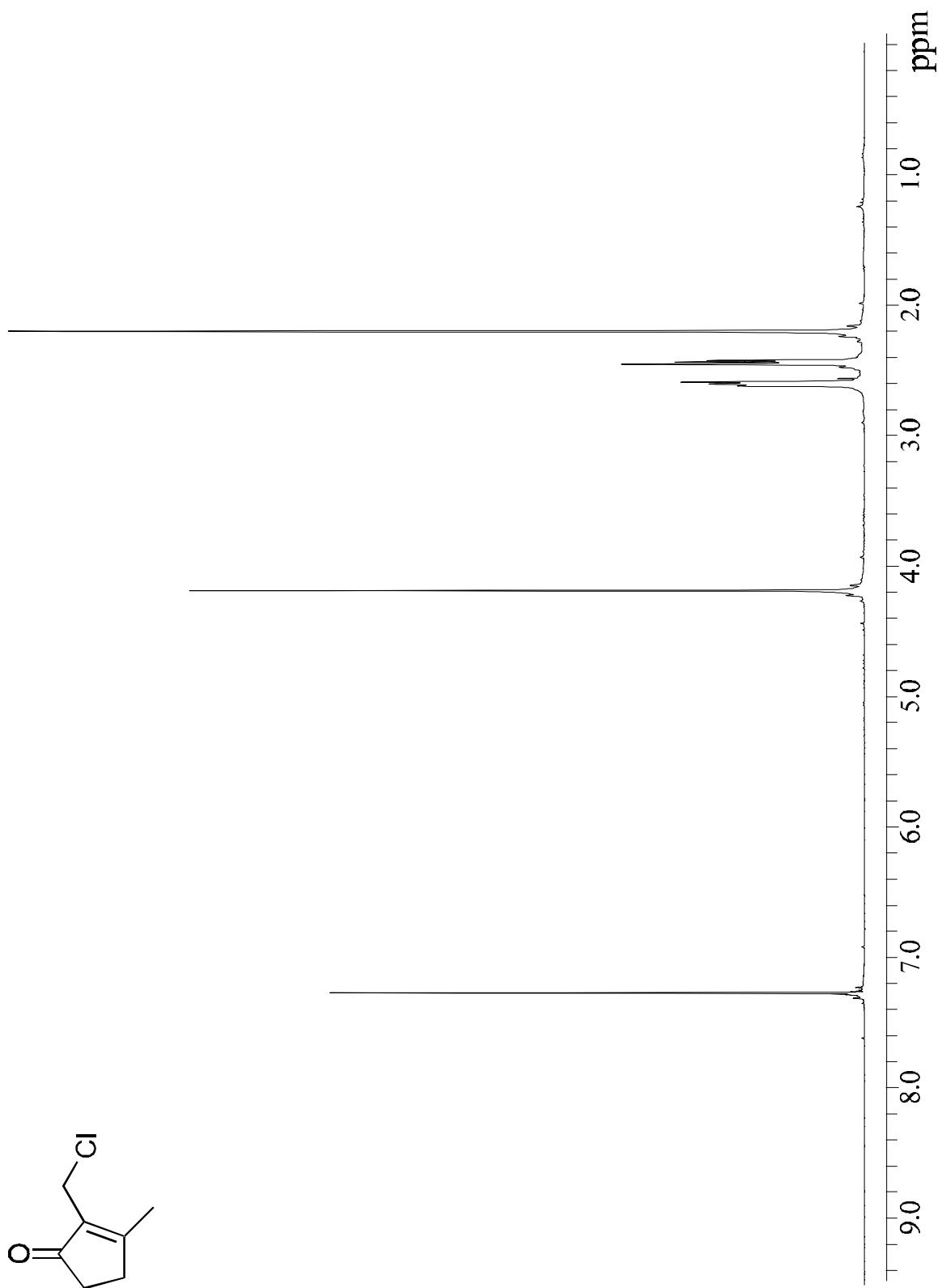
Note:

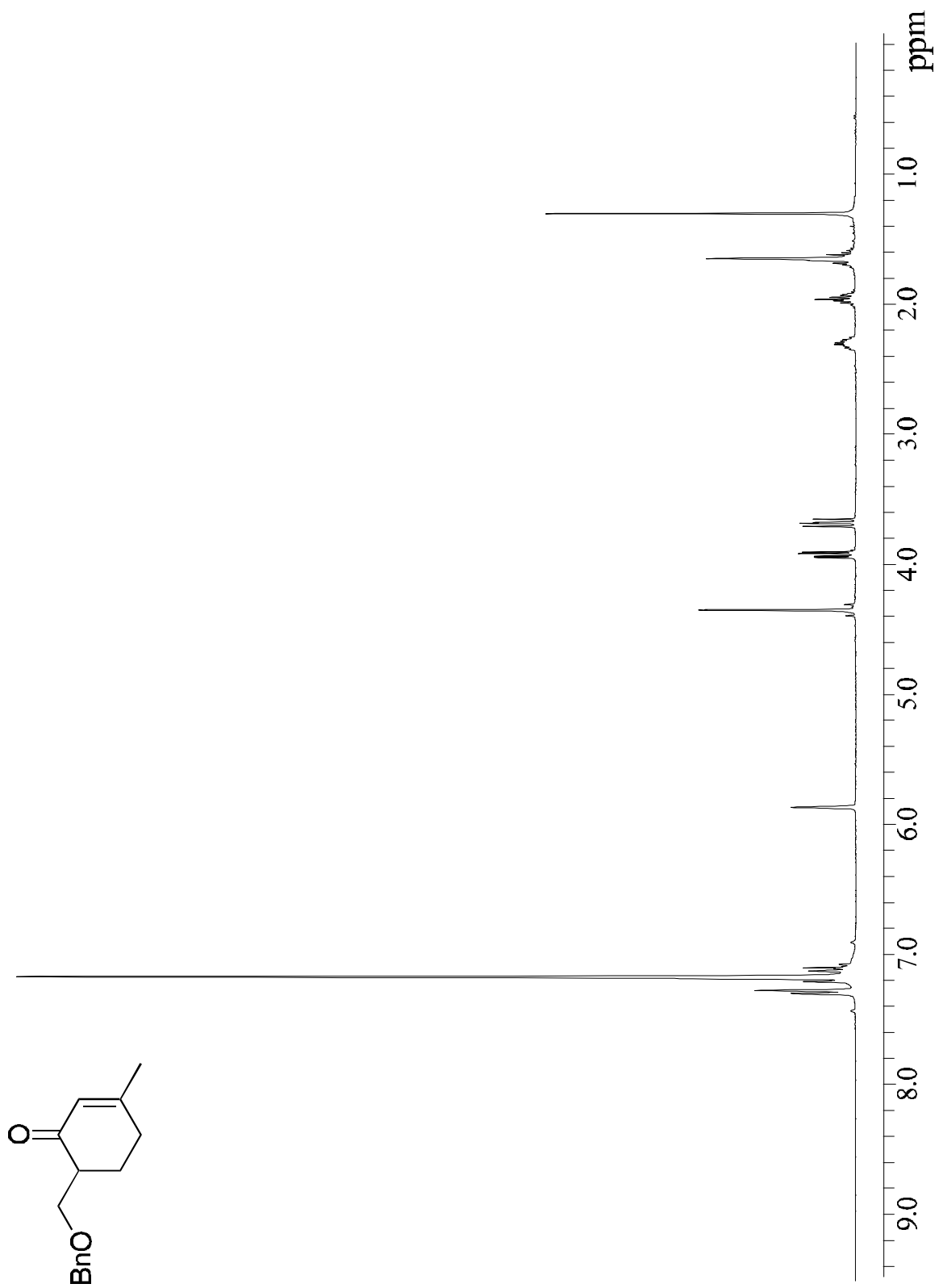
¹H NMR data was processed with *Felix* version 95.0 NMR data processing program, from Biosym Technologies Inc., on a Silicon Graphics *Indigo* R3000 workstation, running Irix version 5.3 as the operating system.

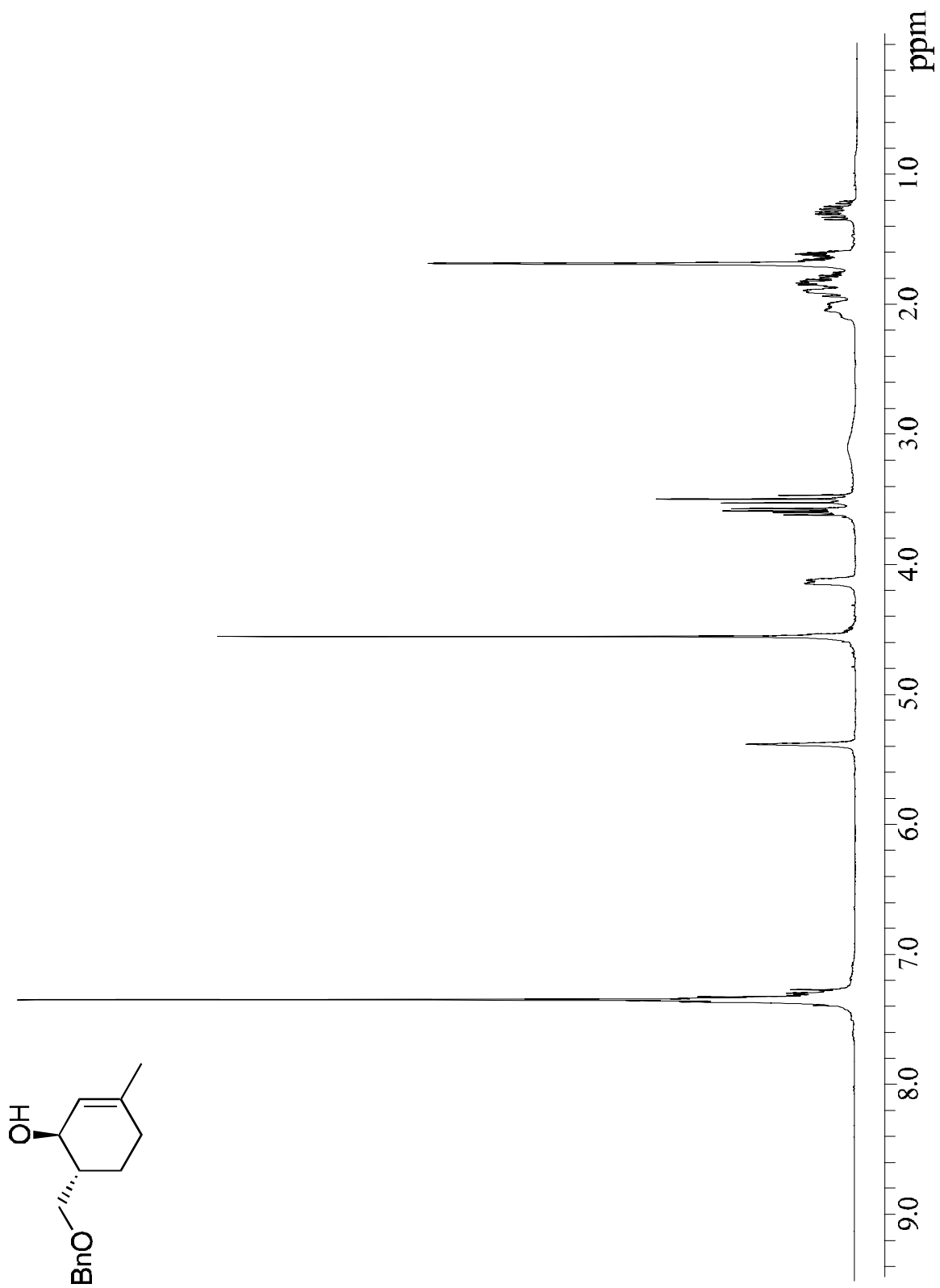
X-Axis = *ppm* downfield from TMS

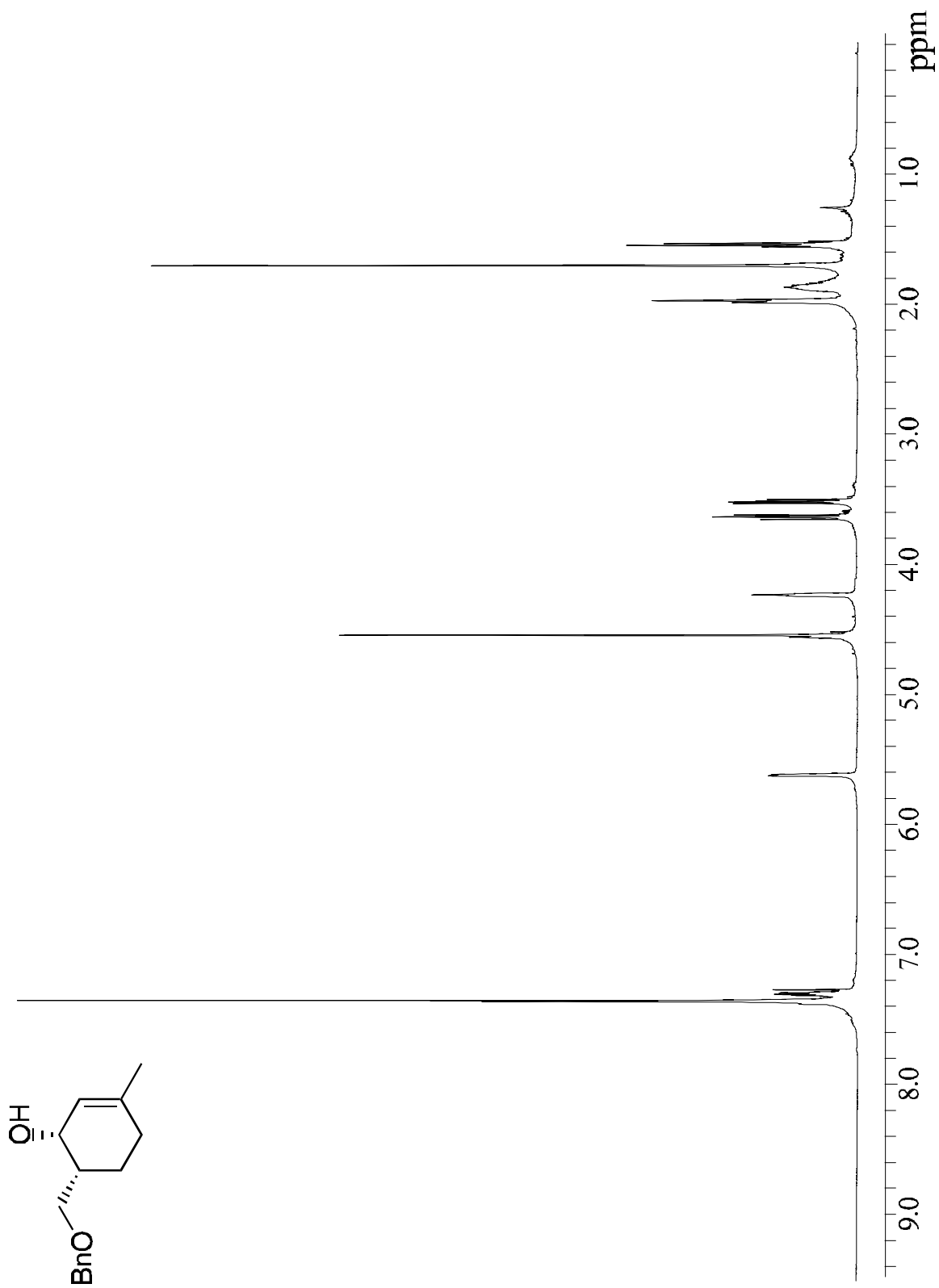


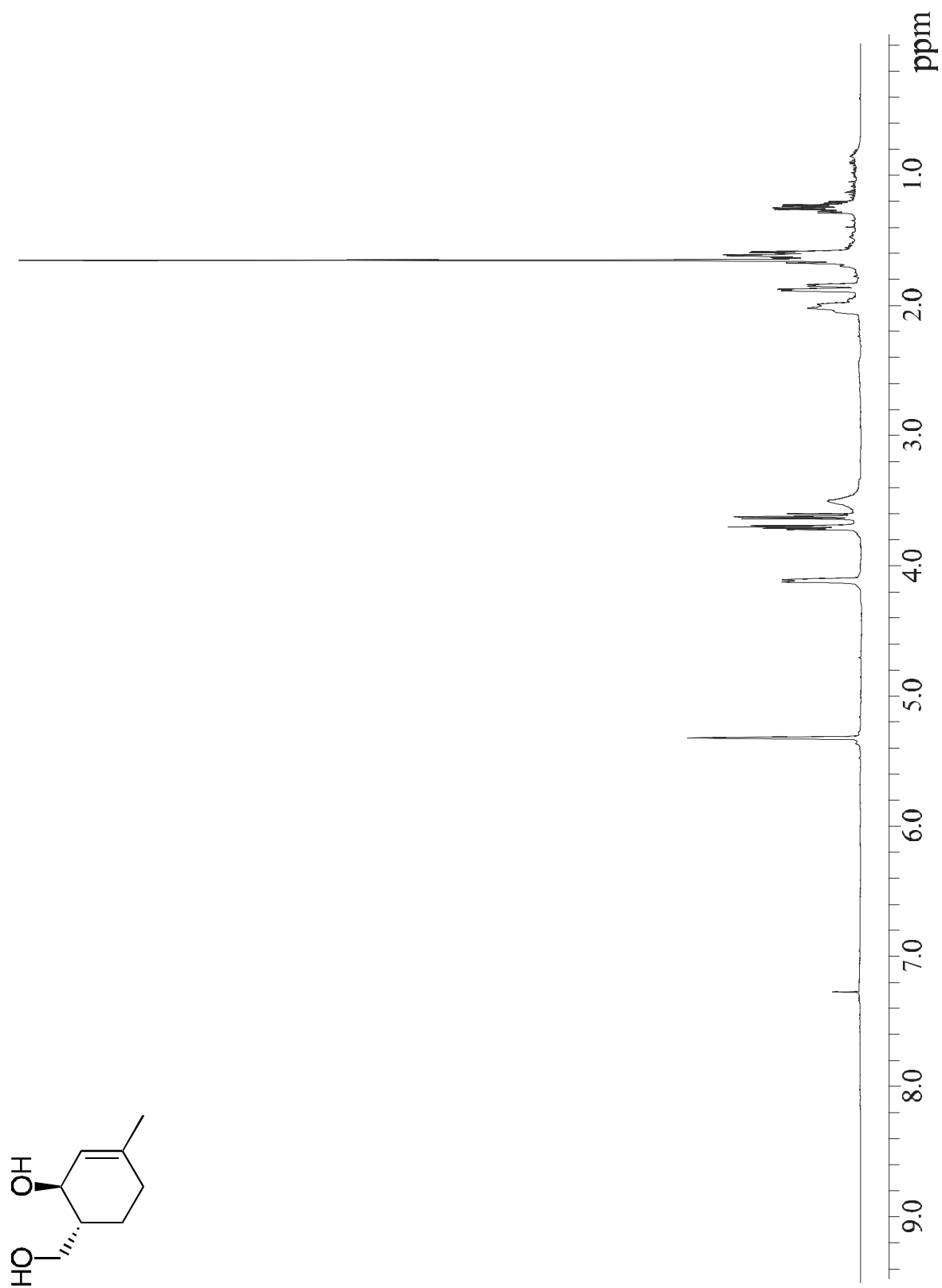


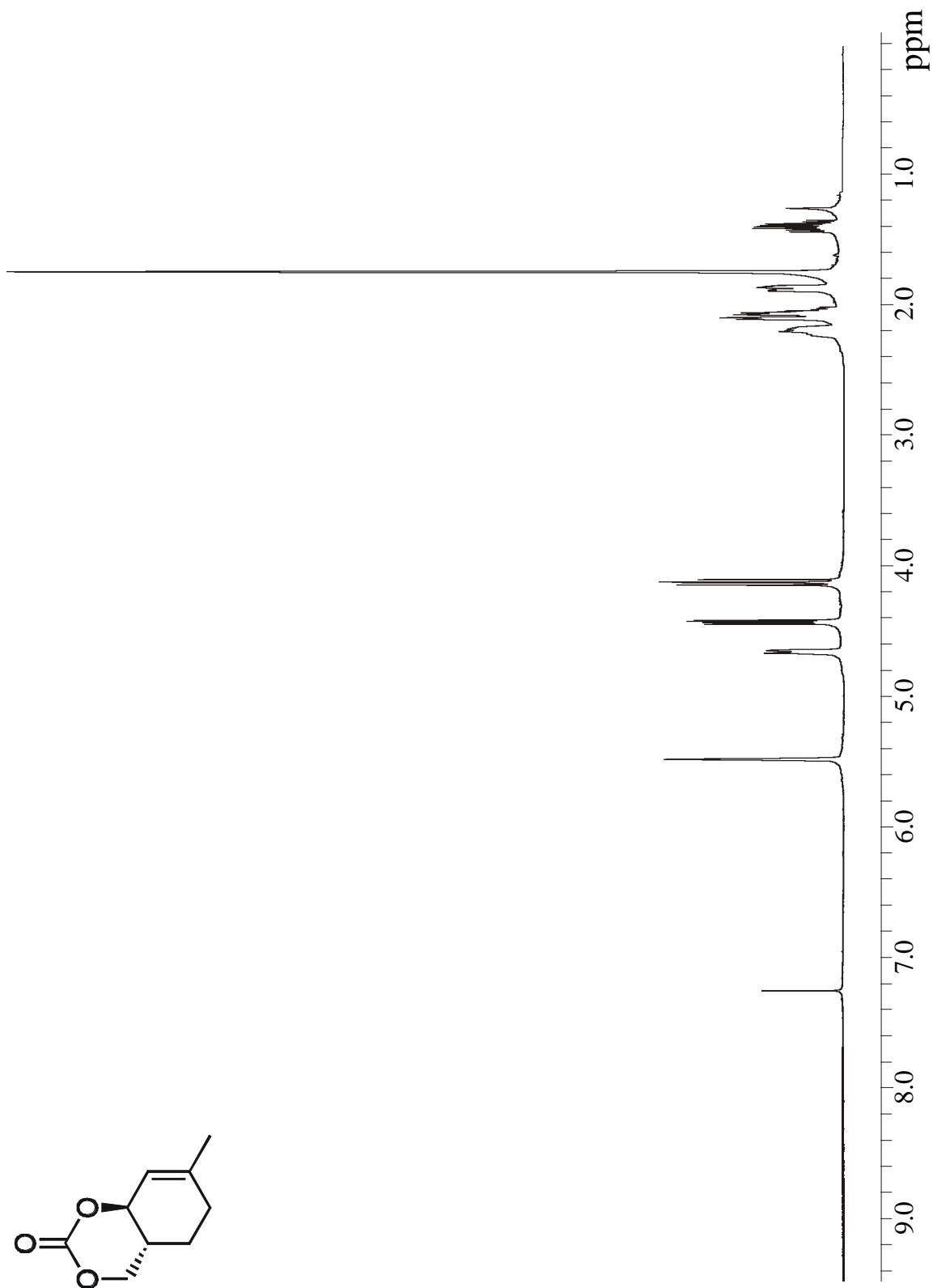


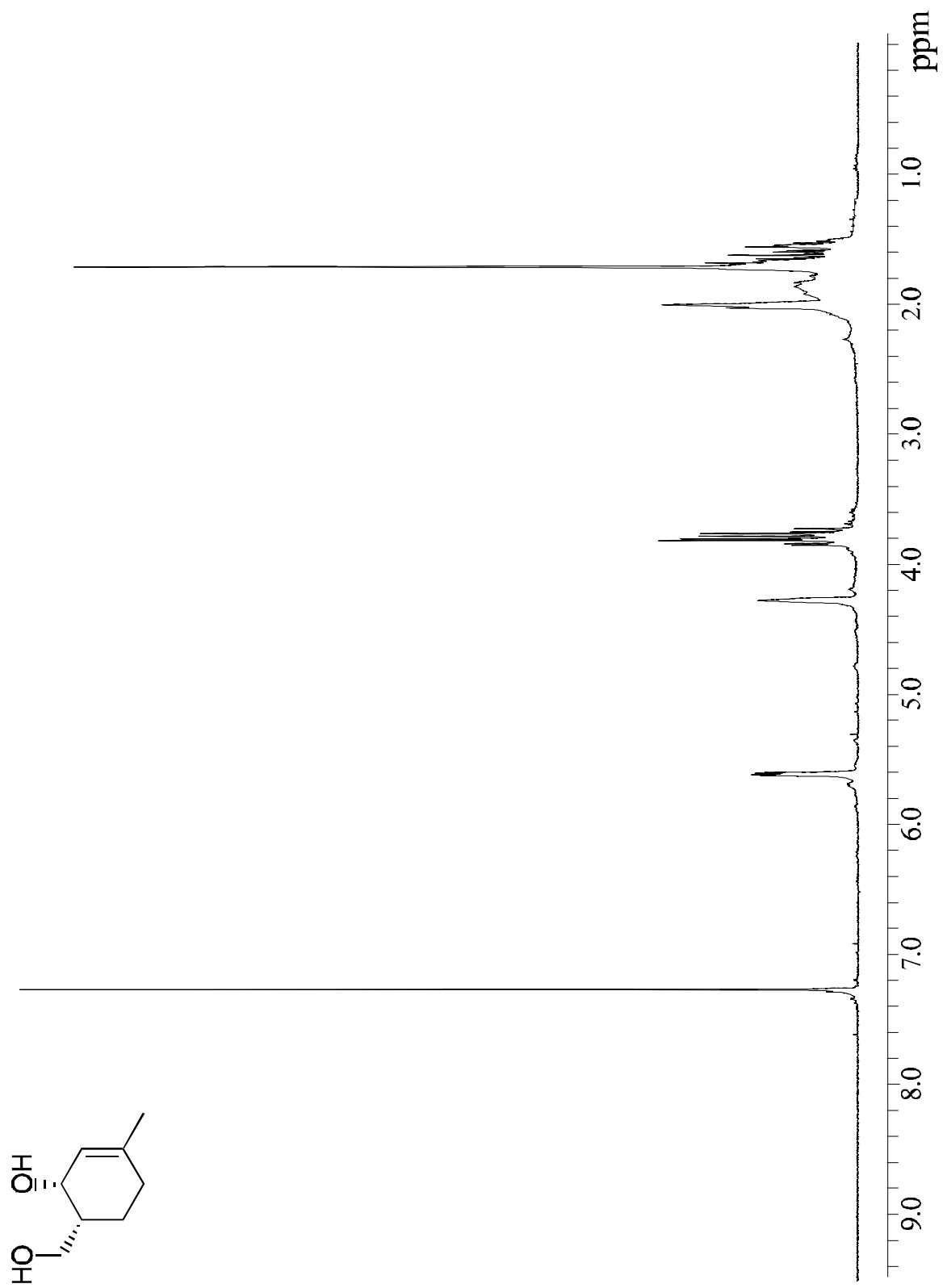


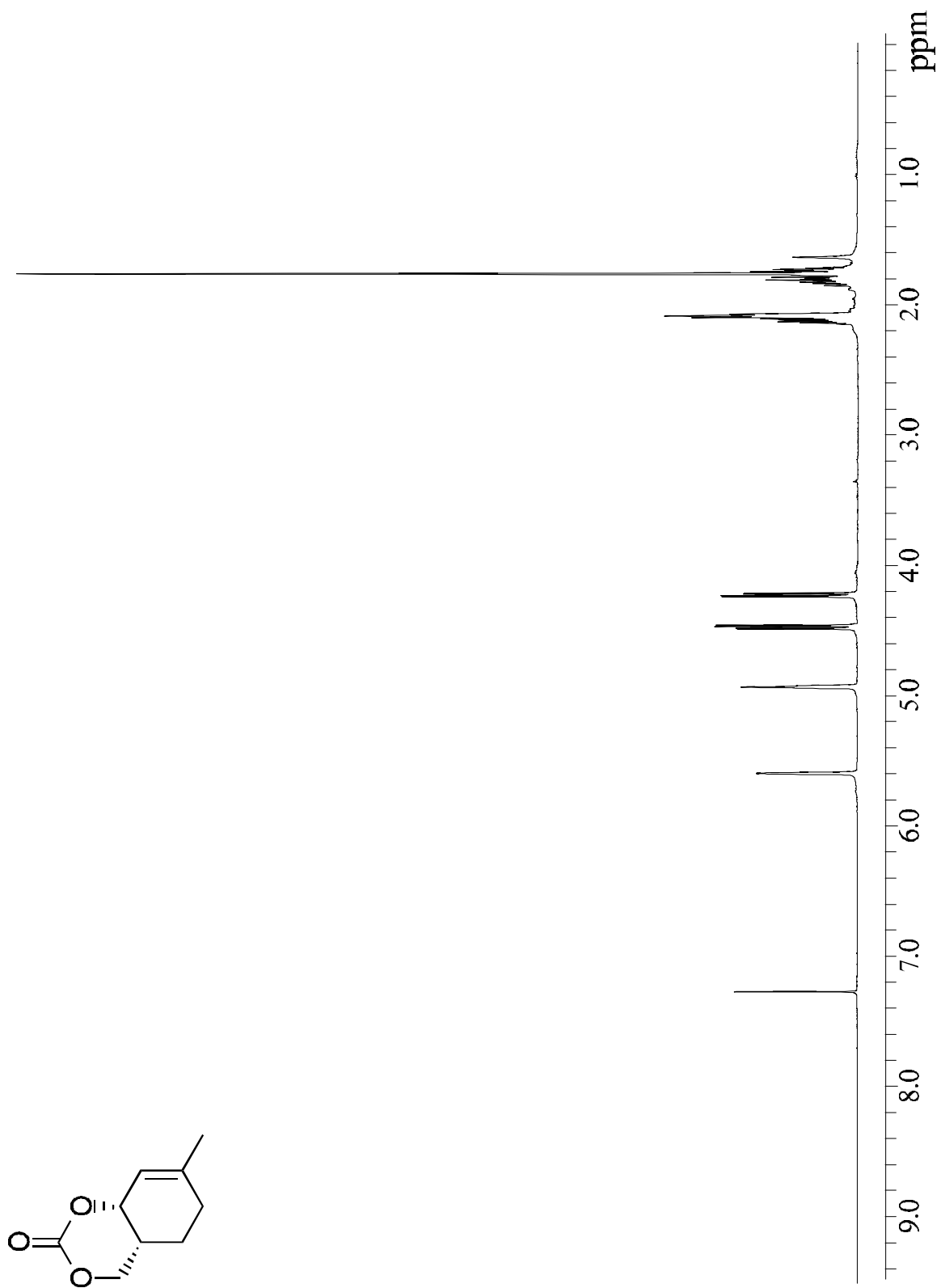


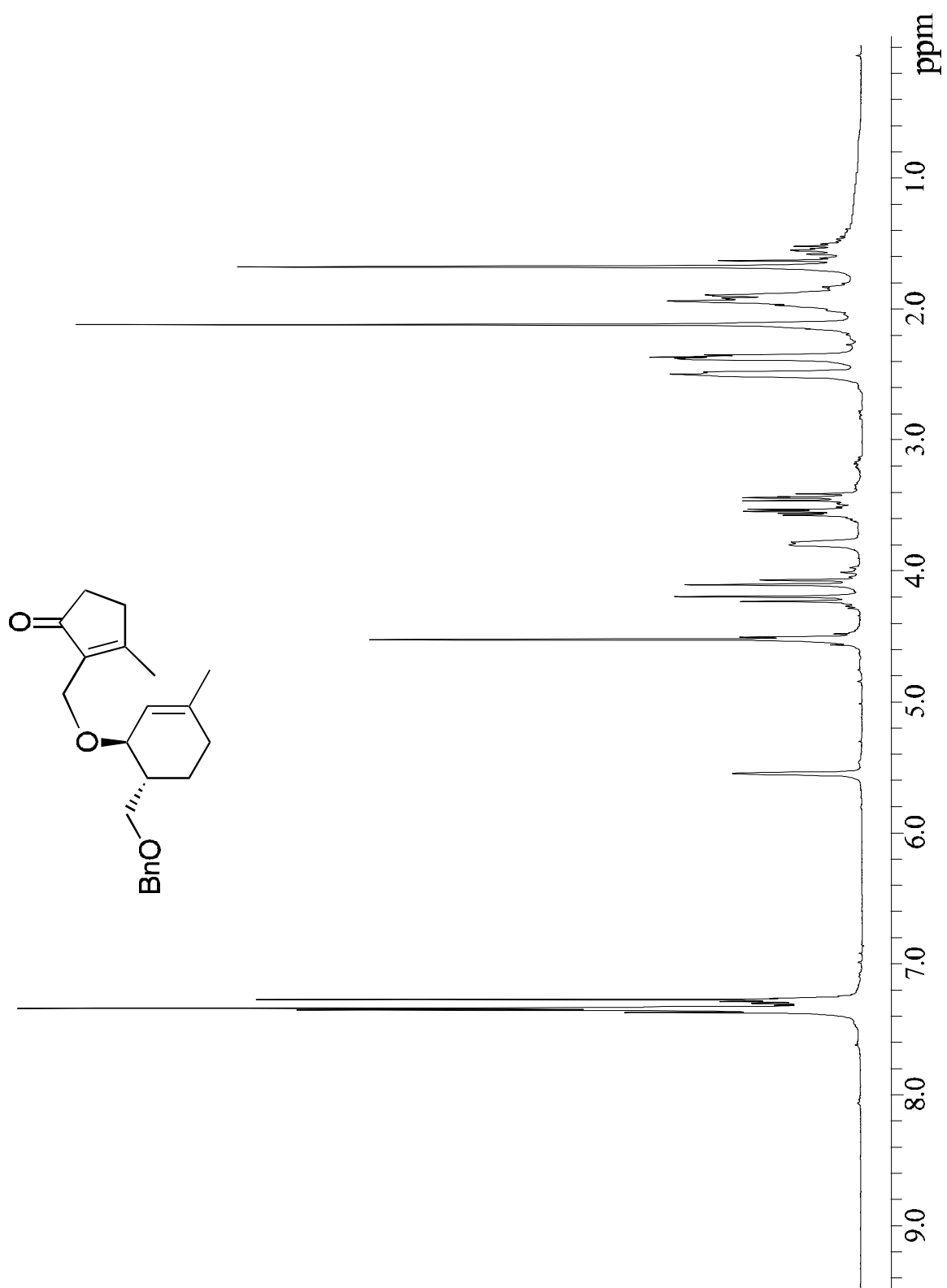


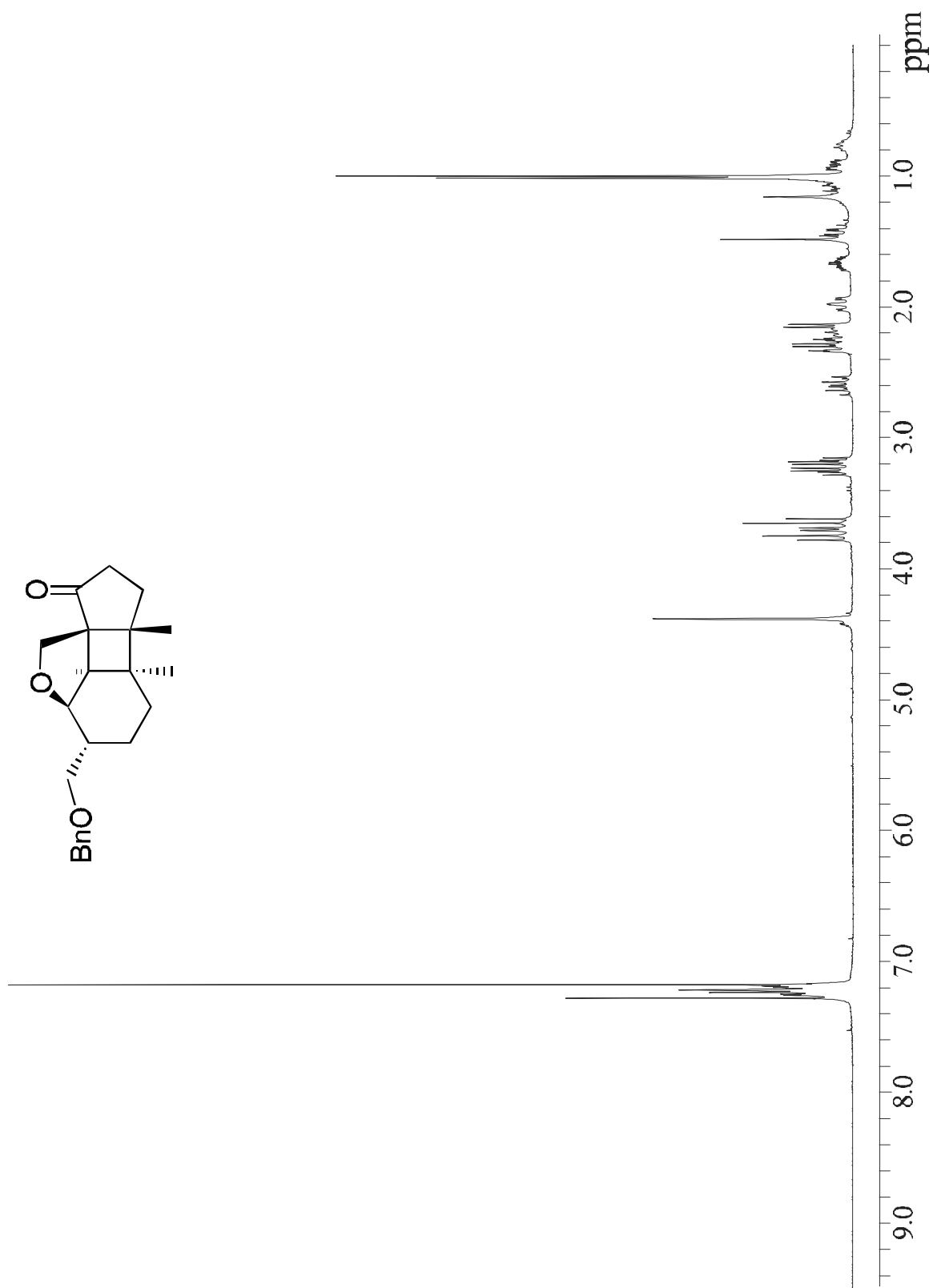


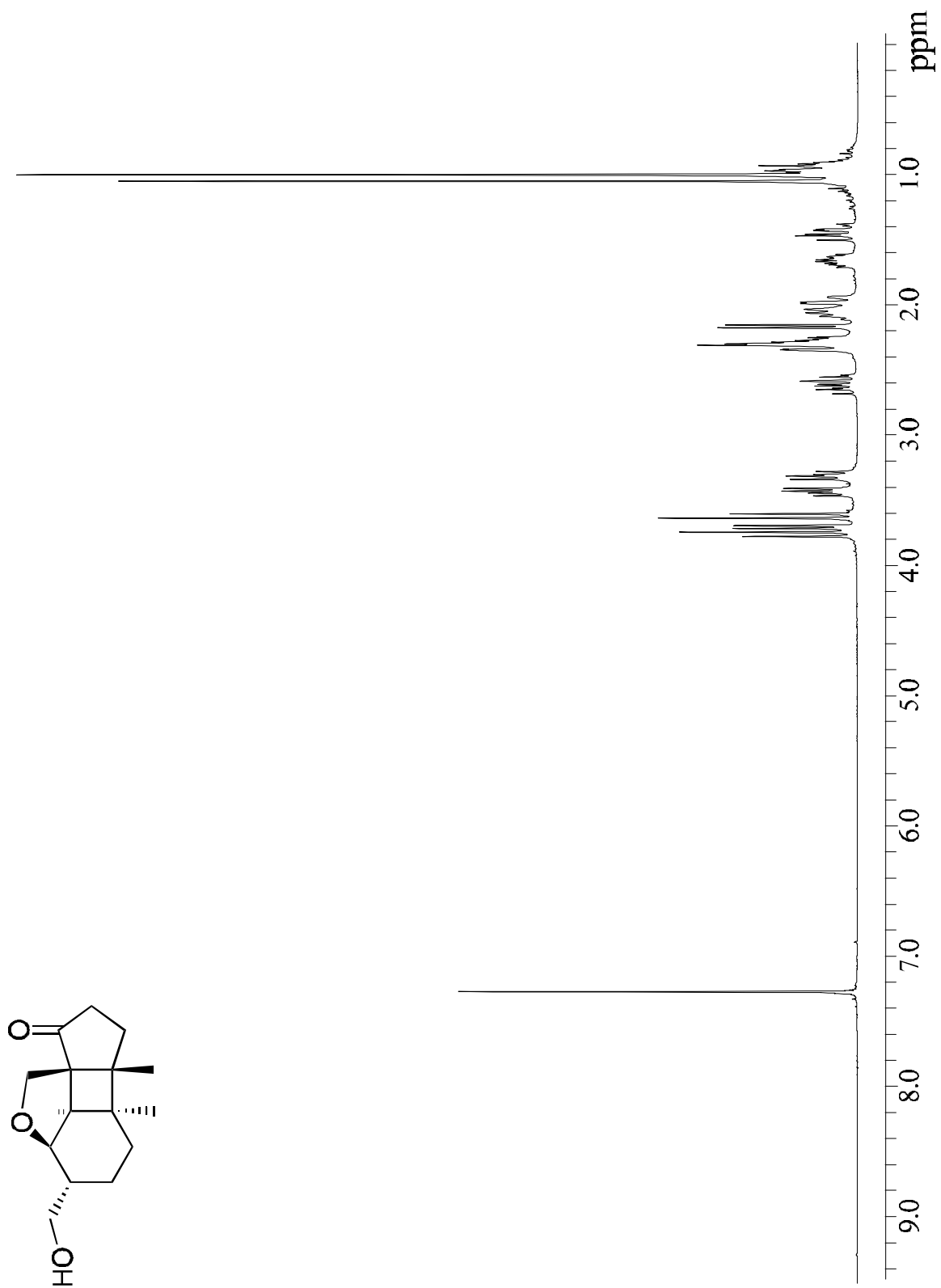


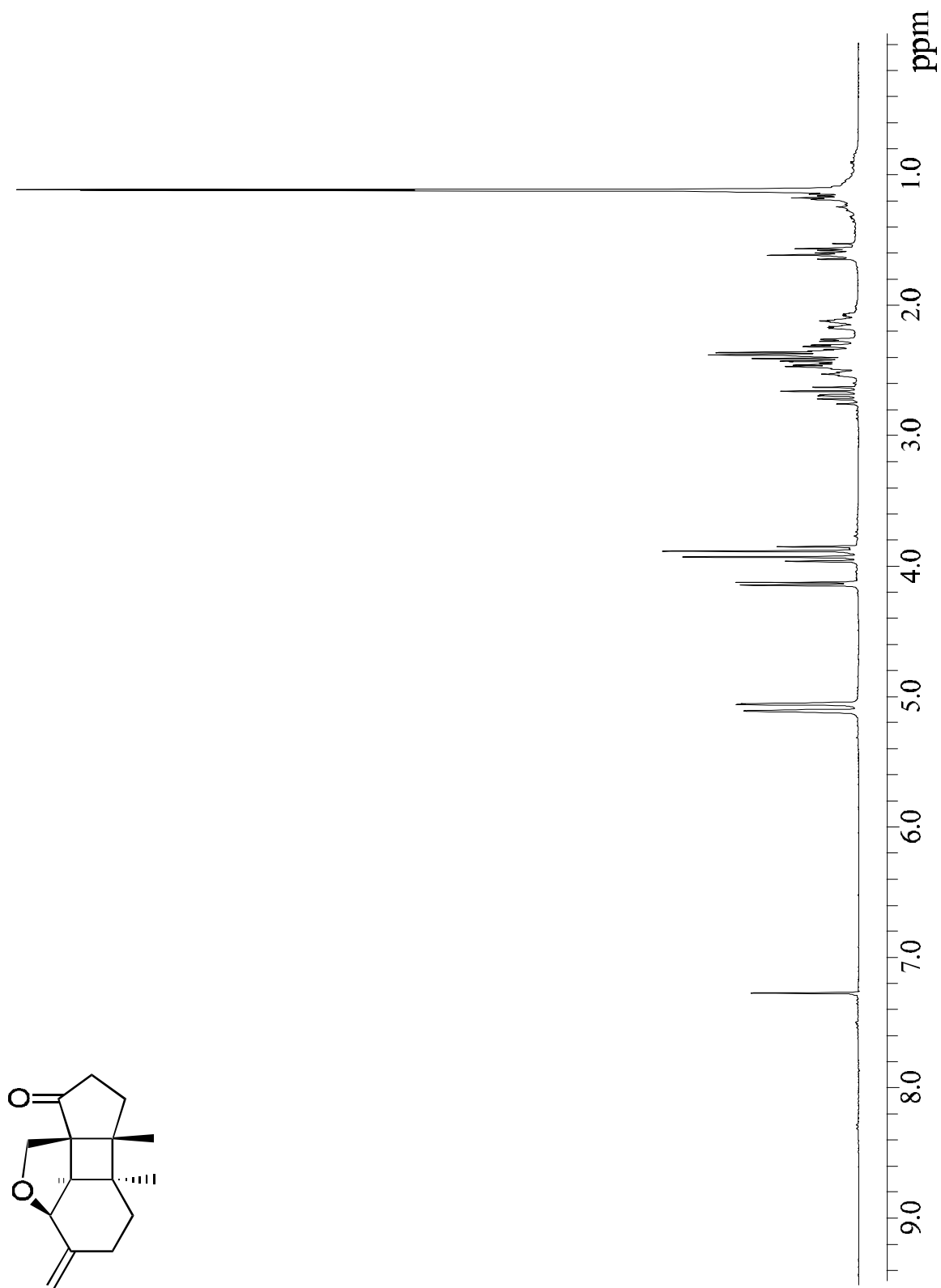


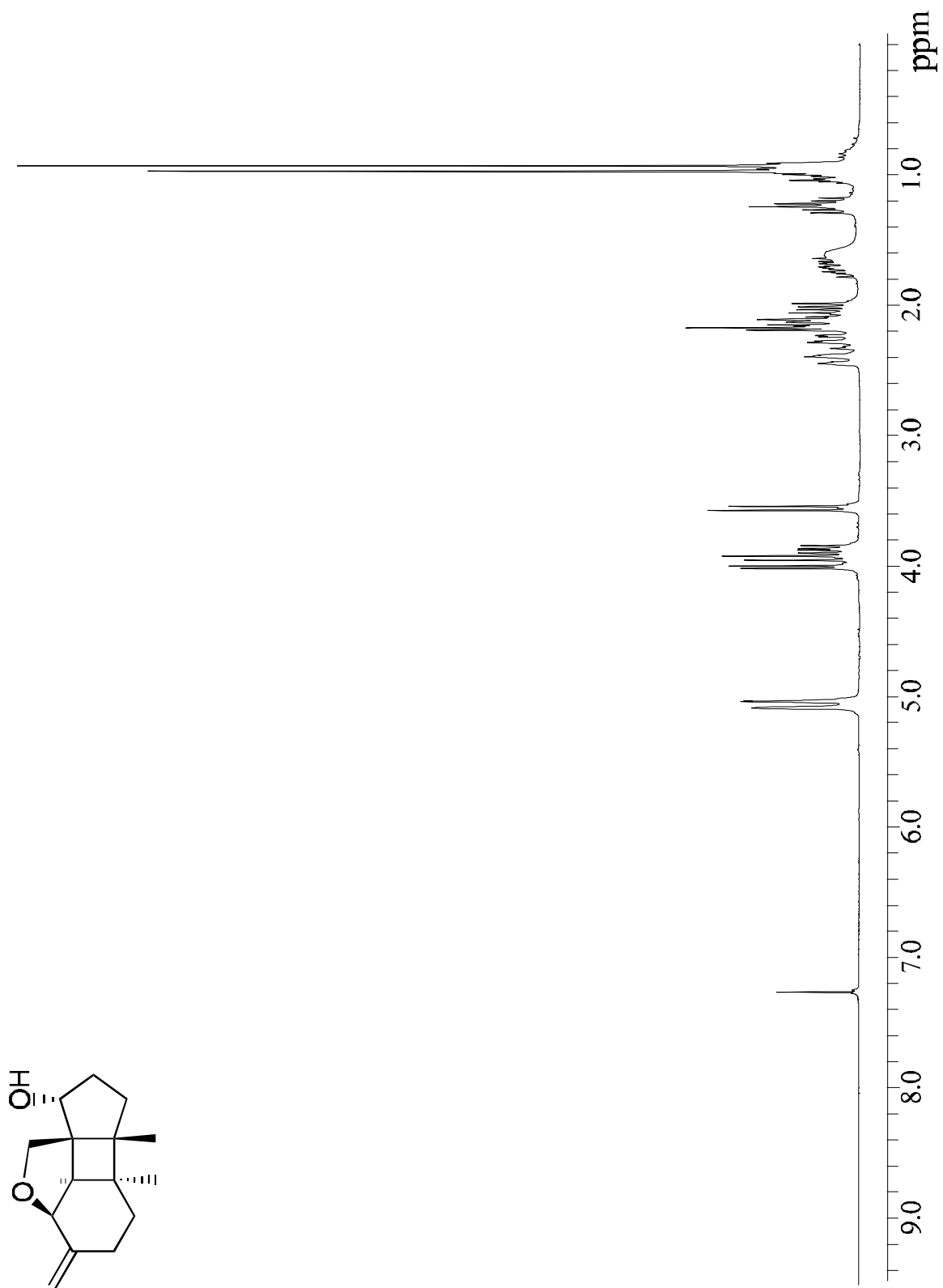


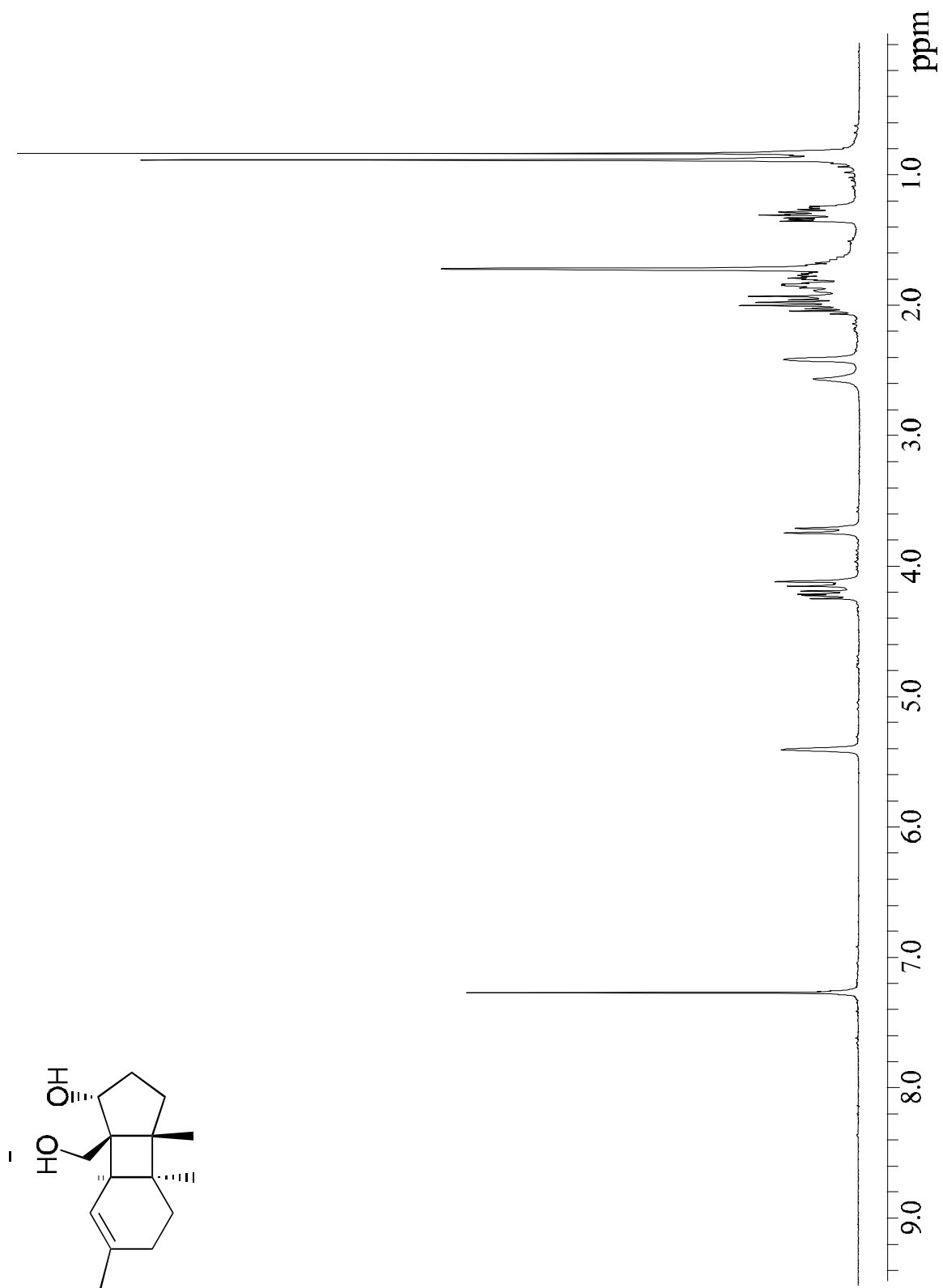


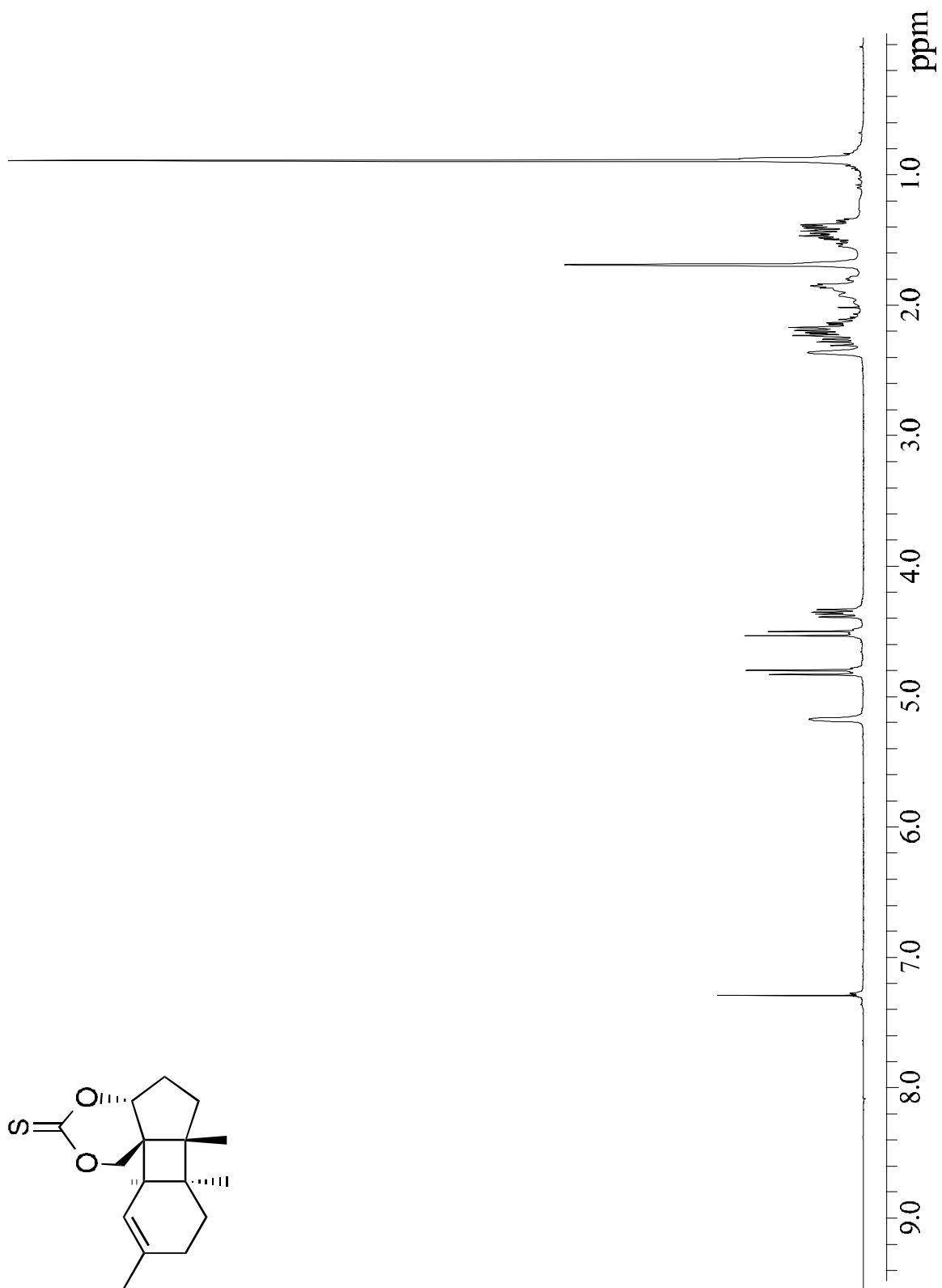


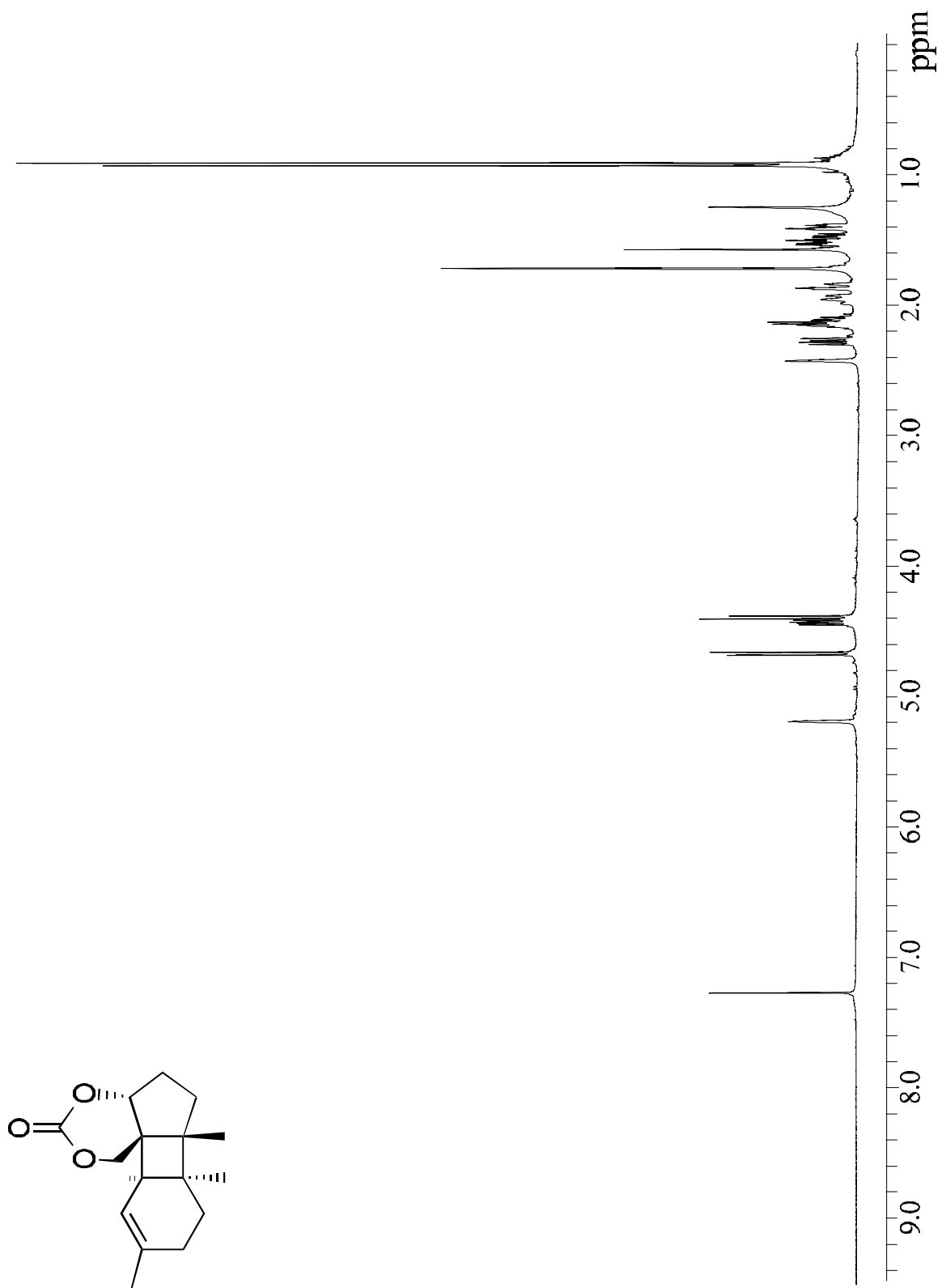


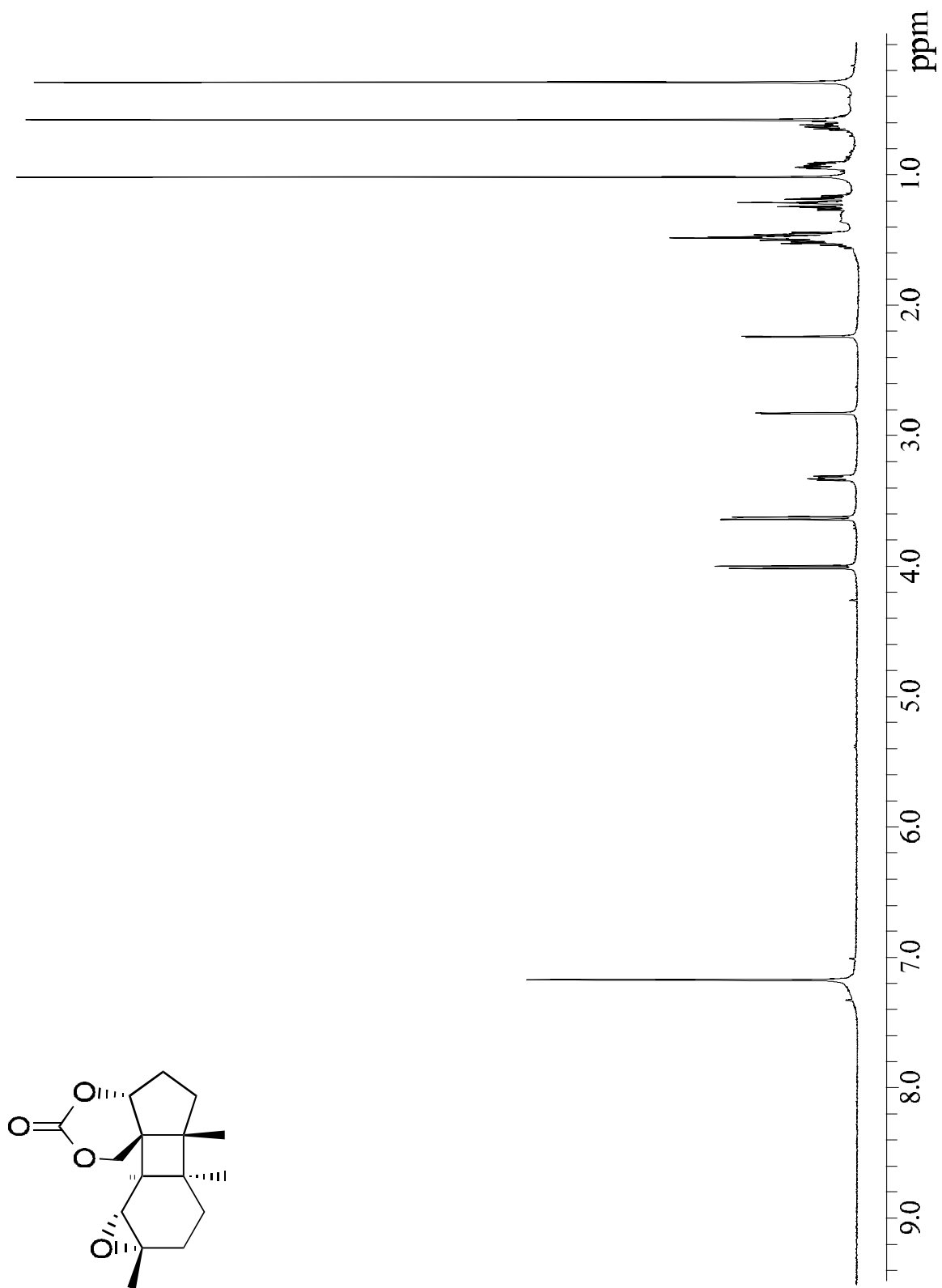


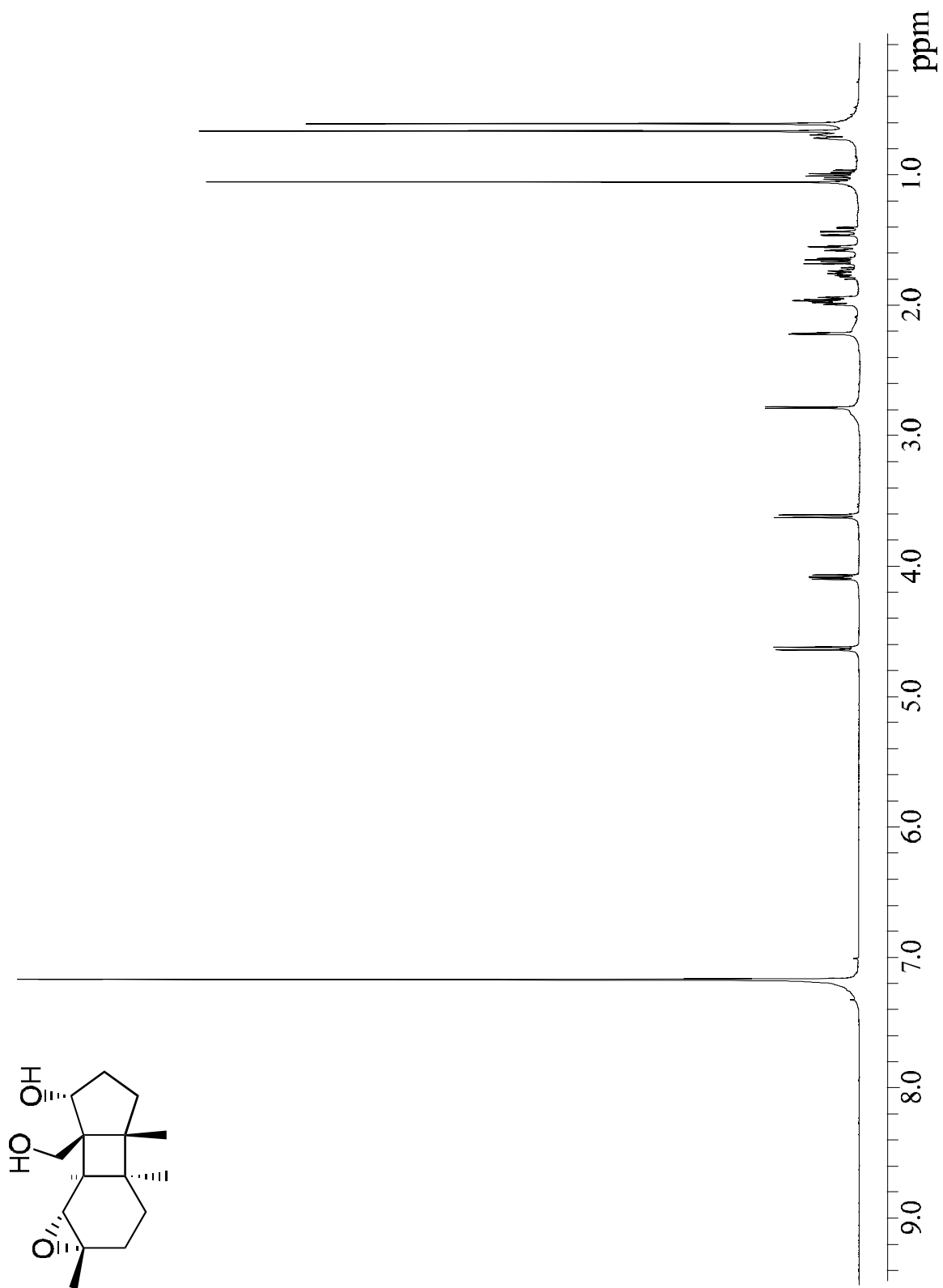


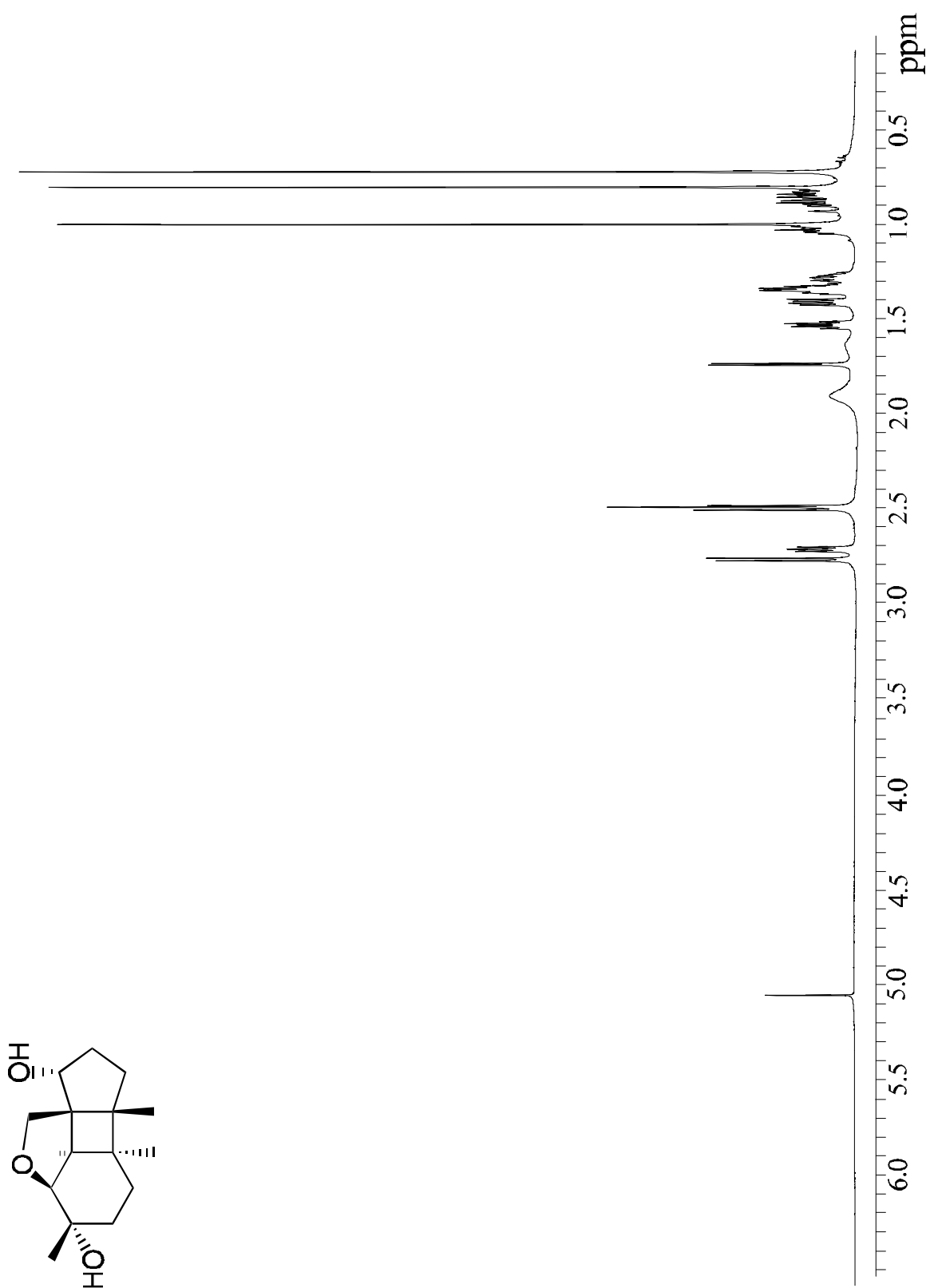


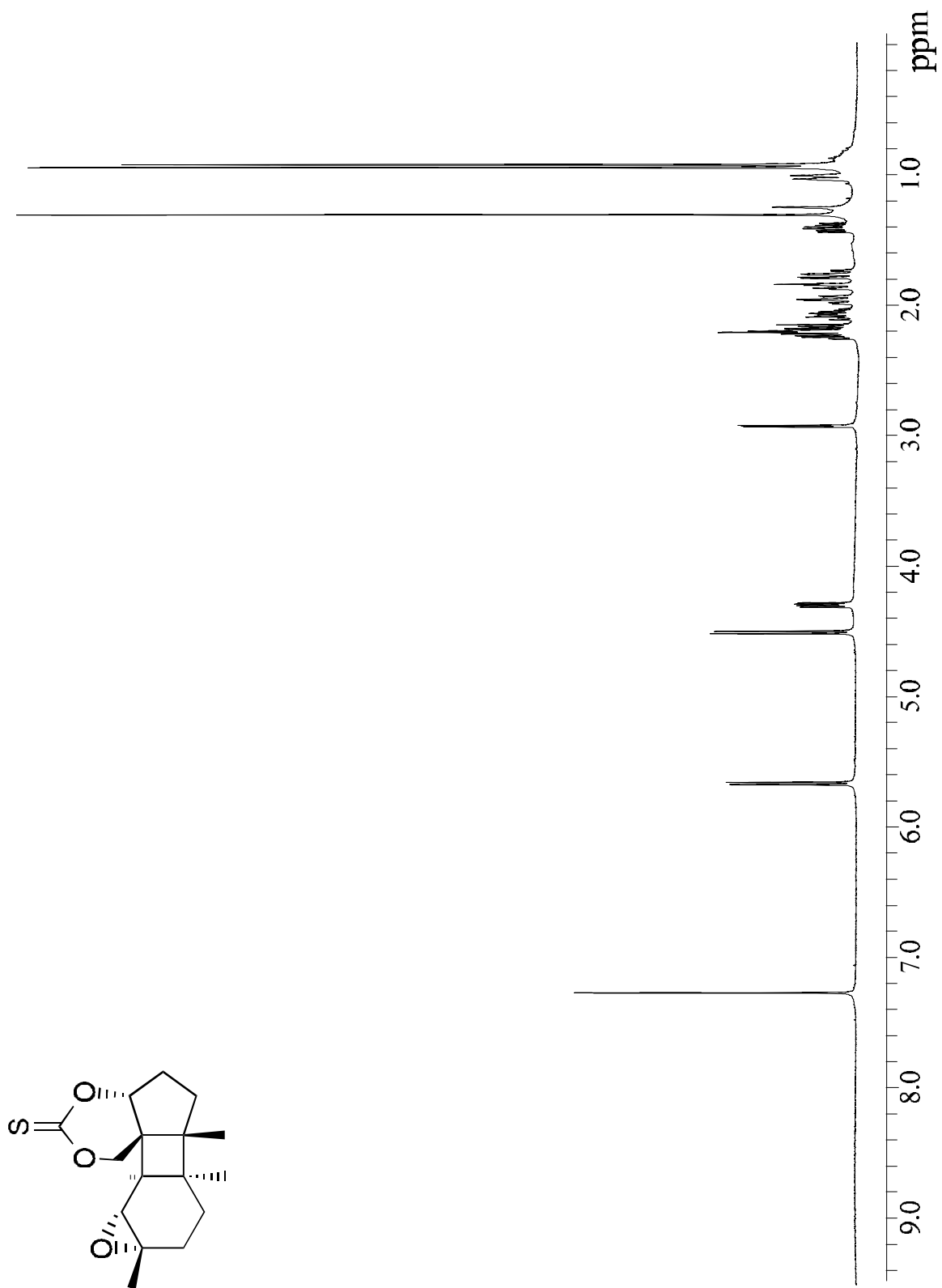


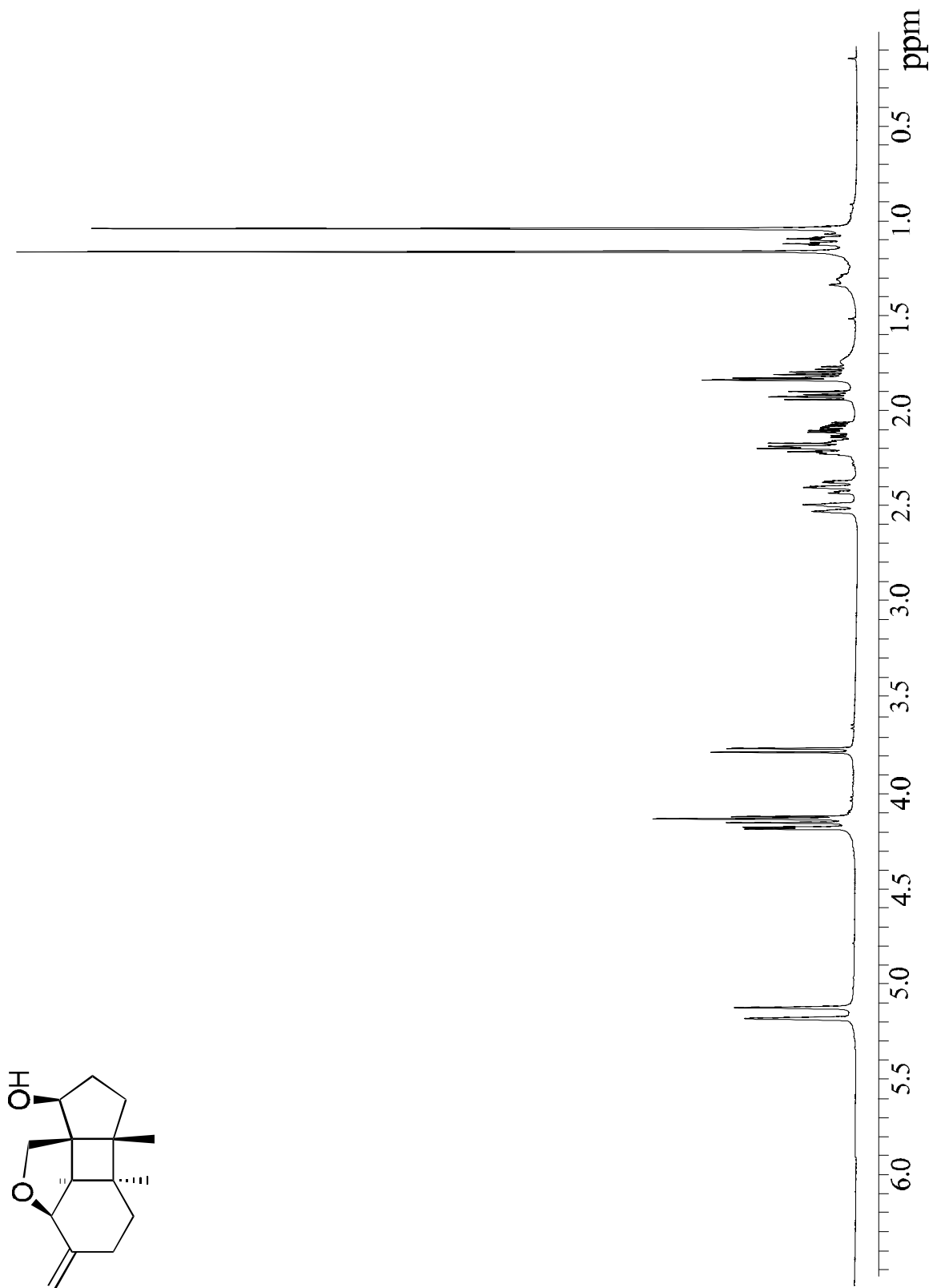


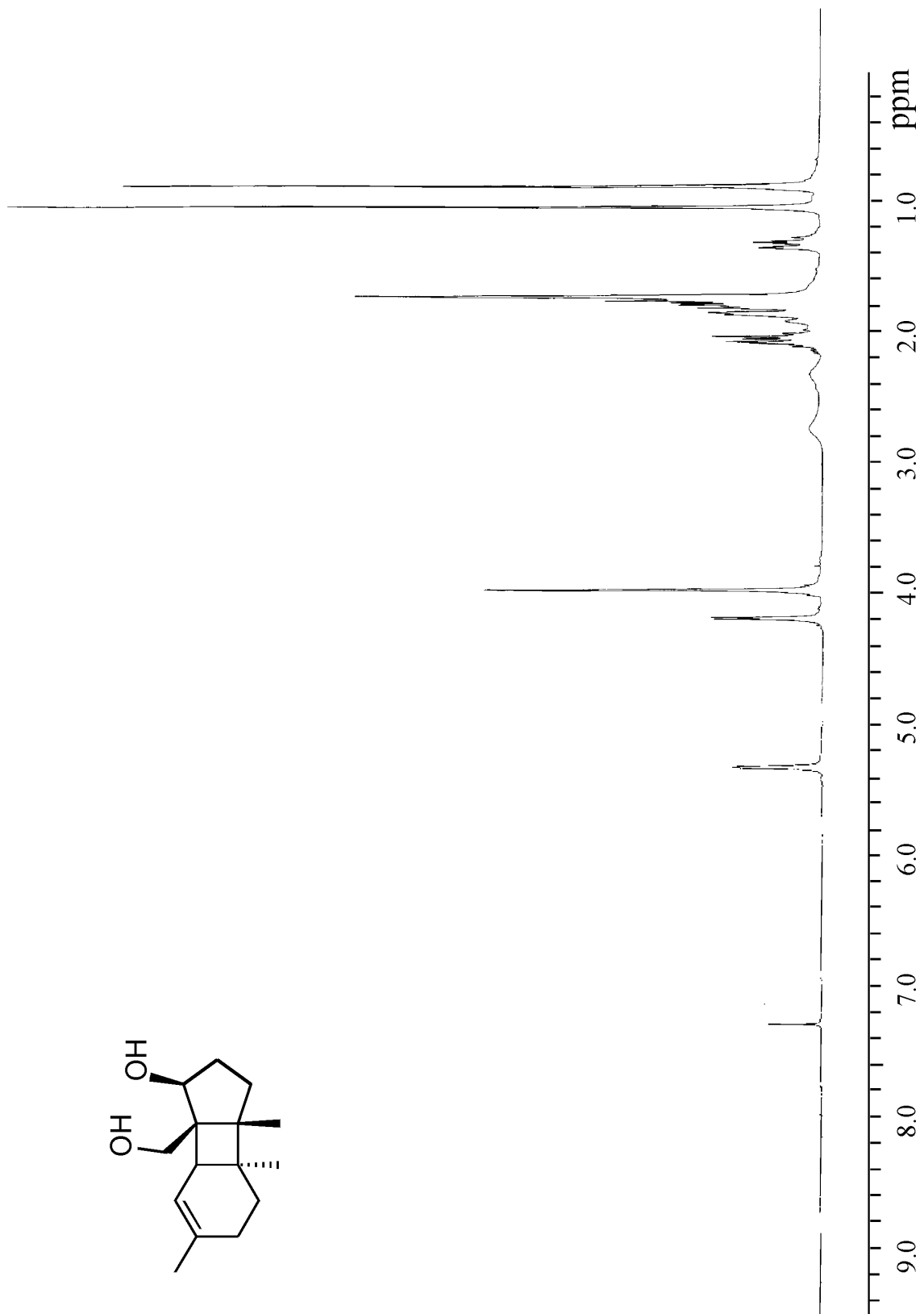


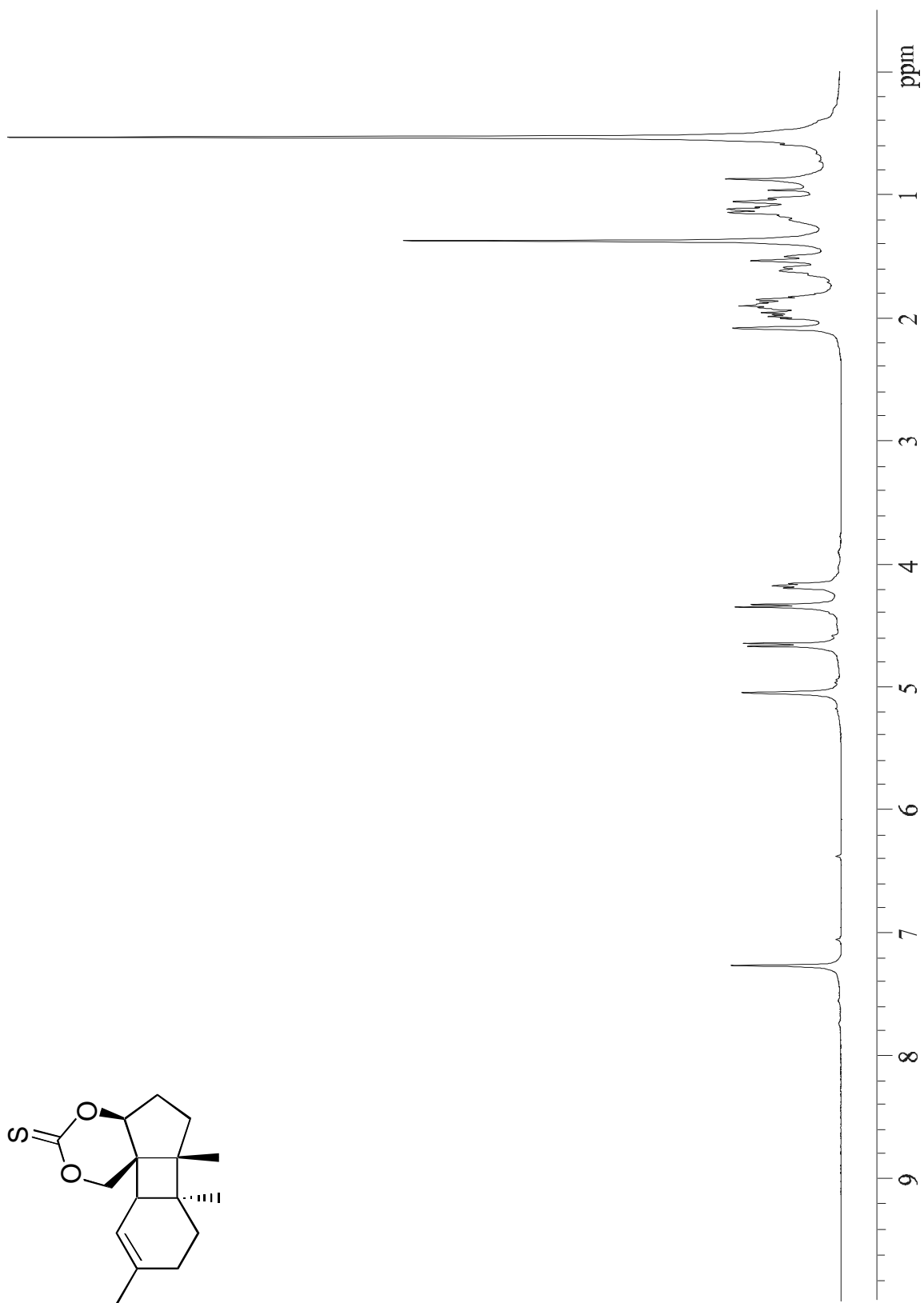


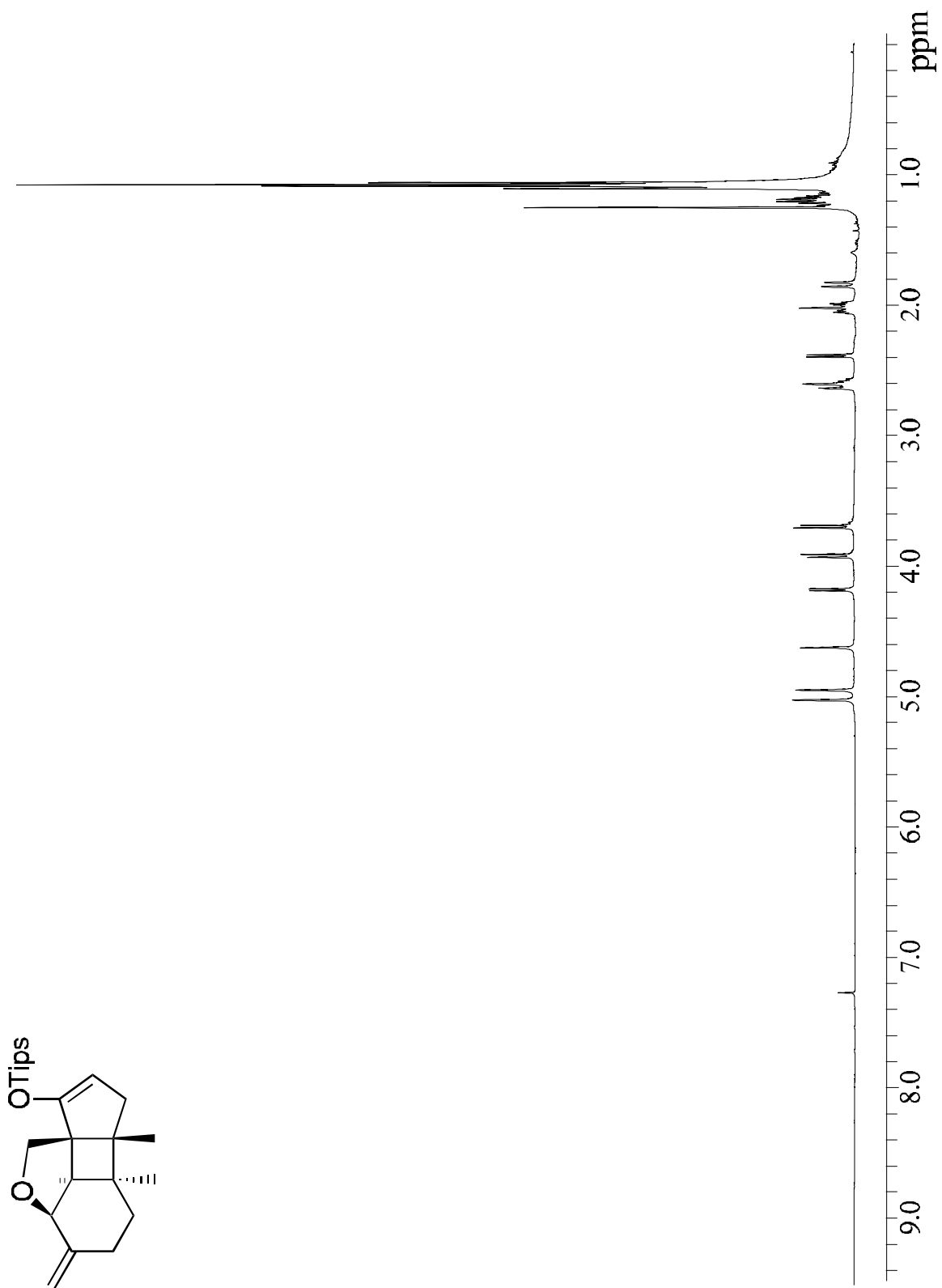


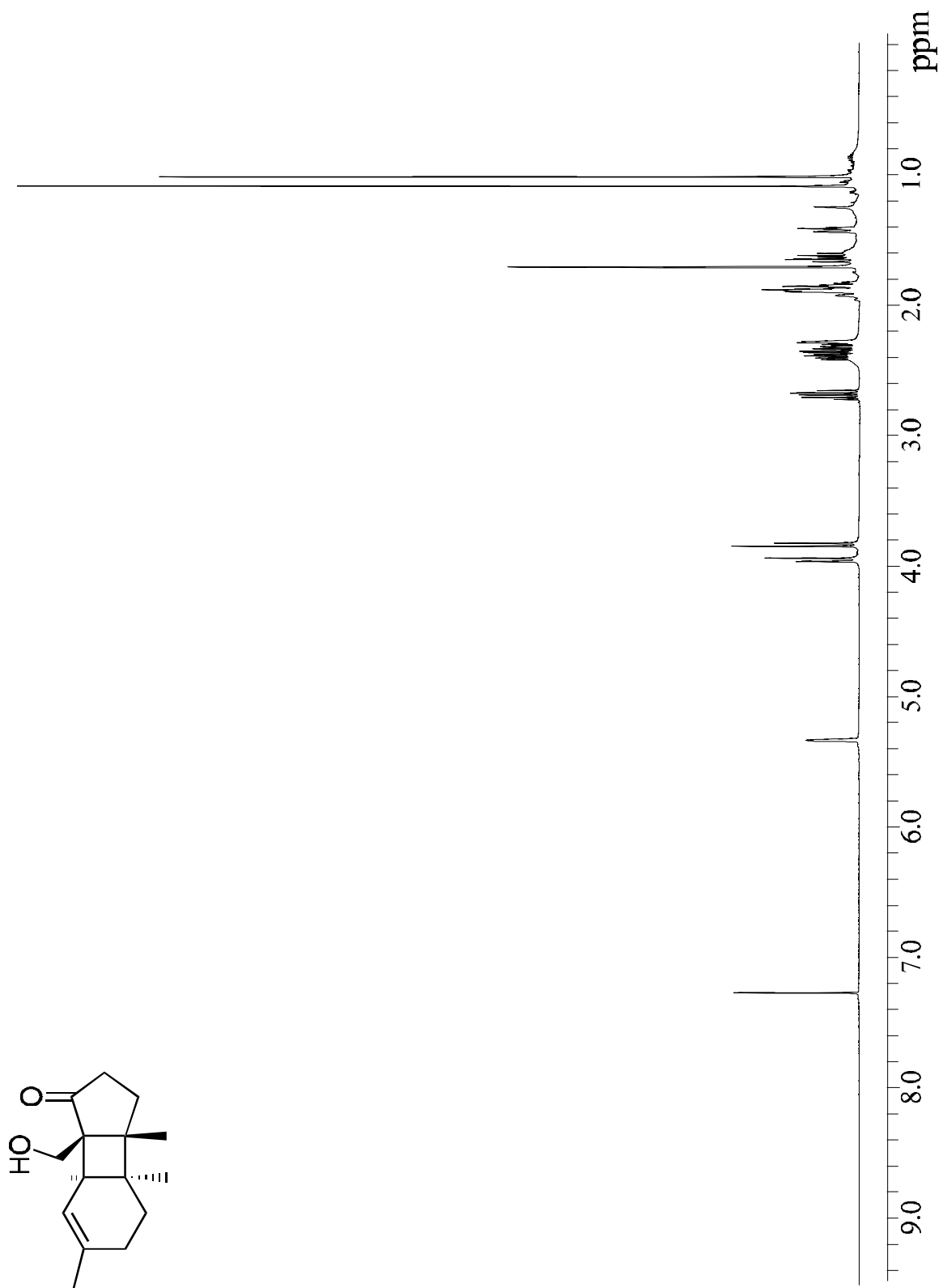


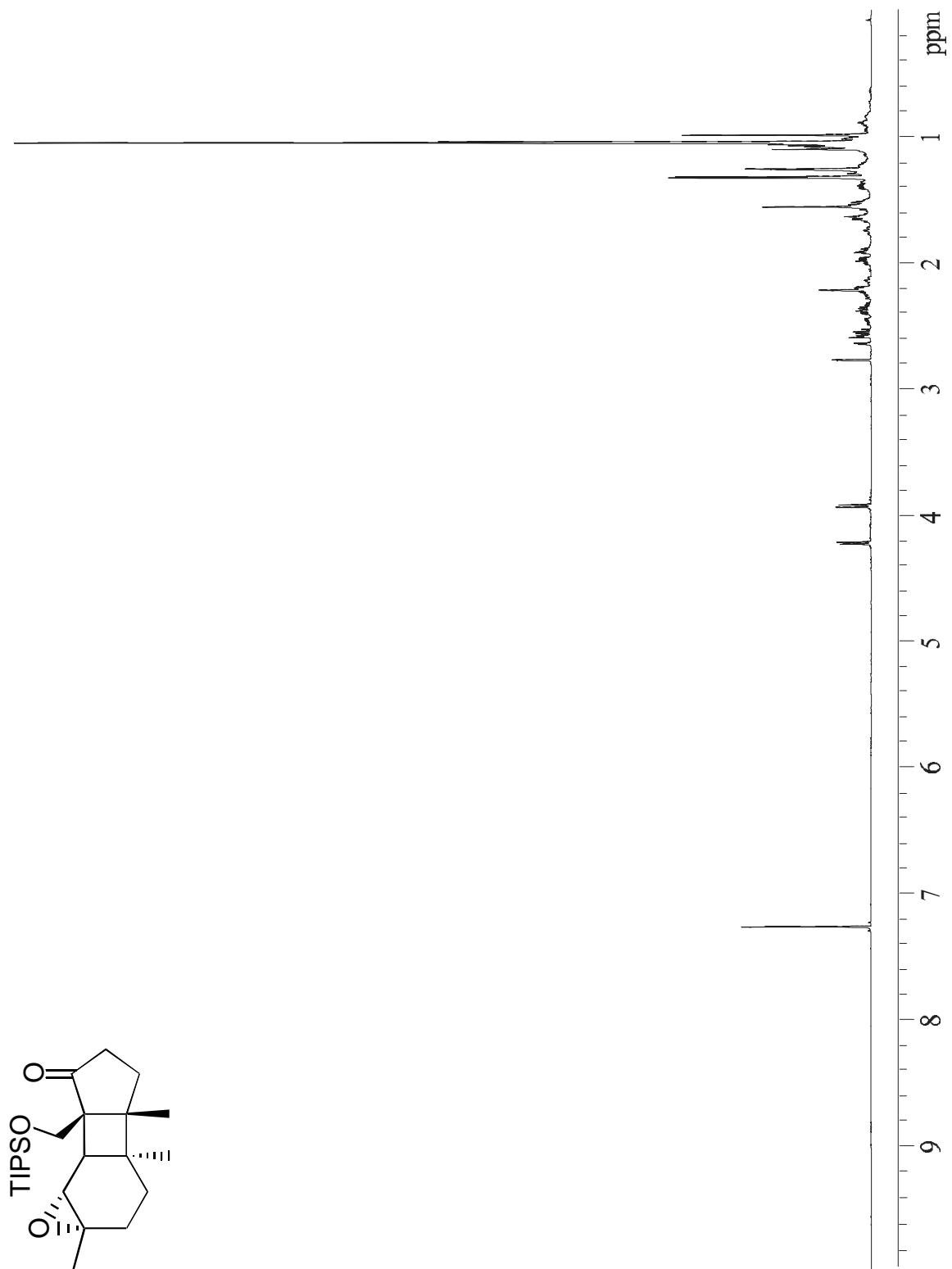


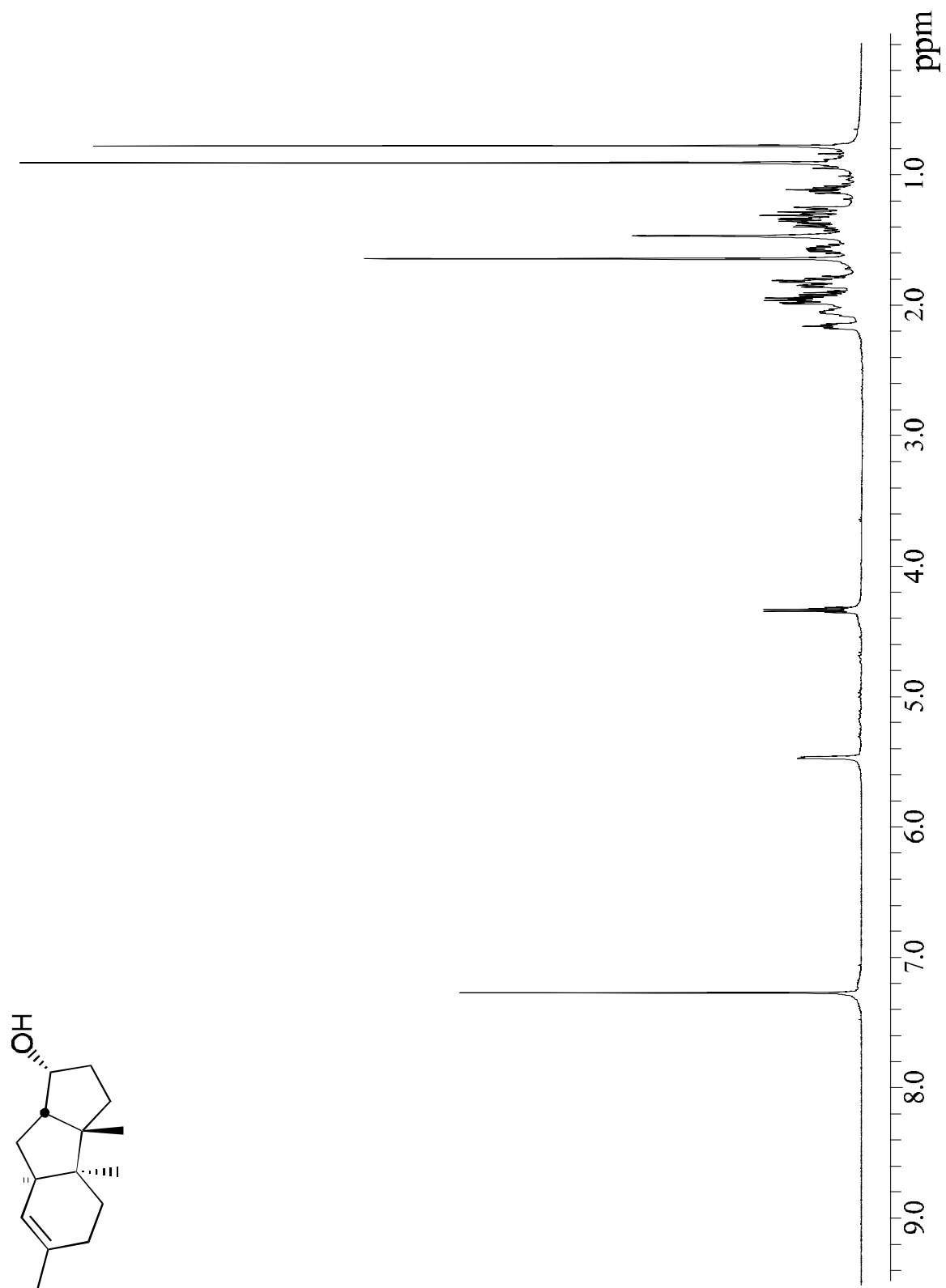


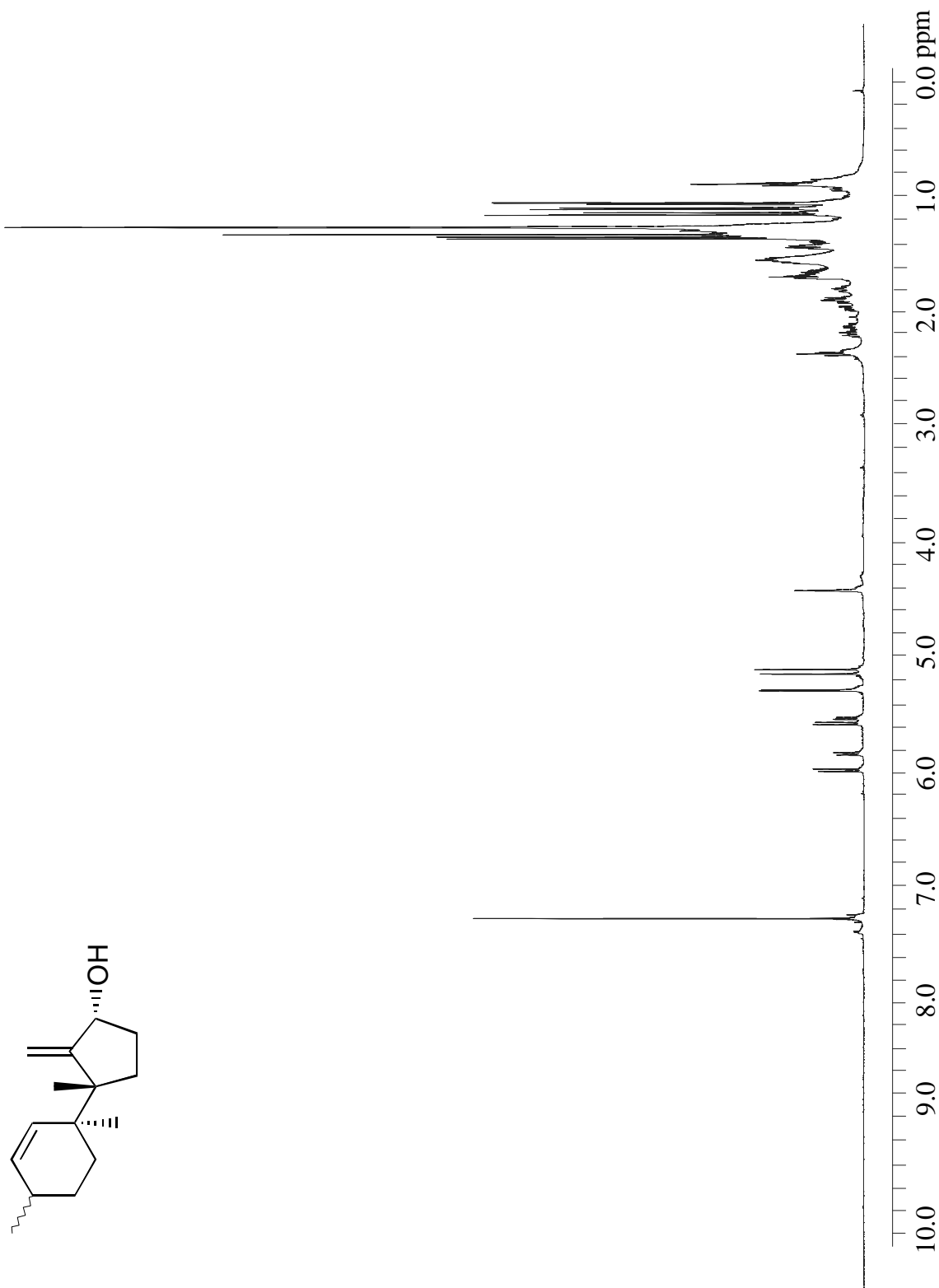


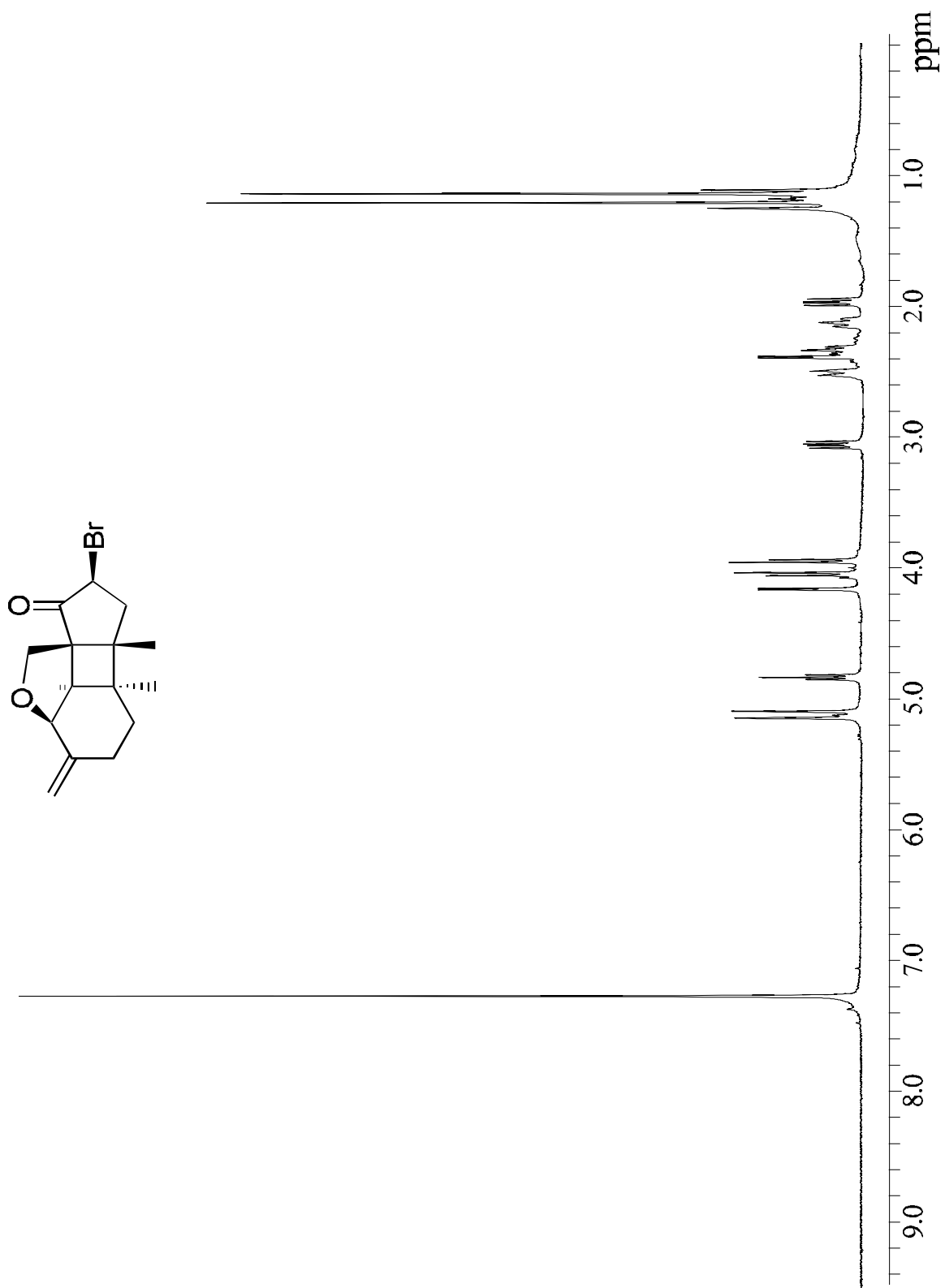


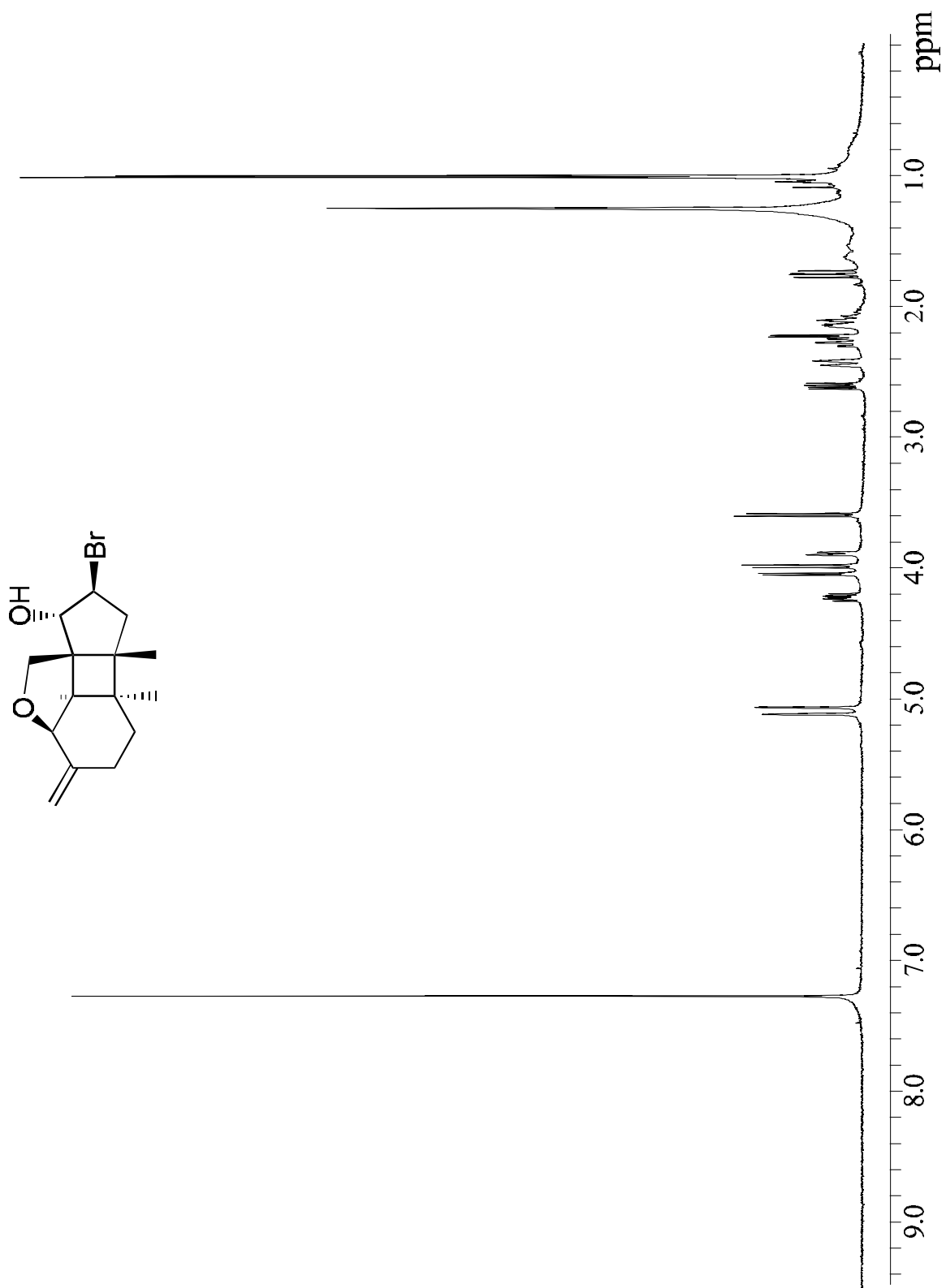


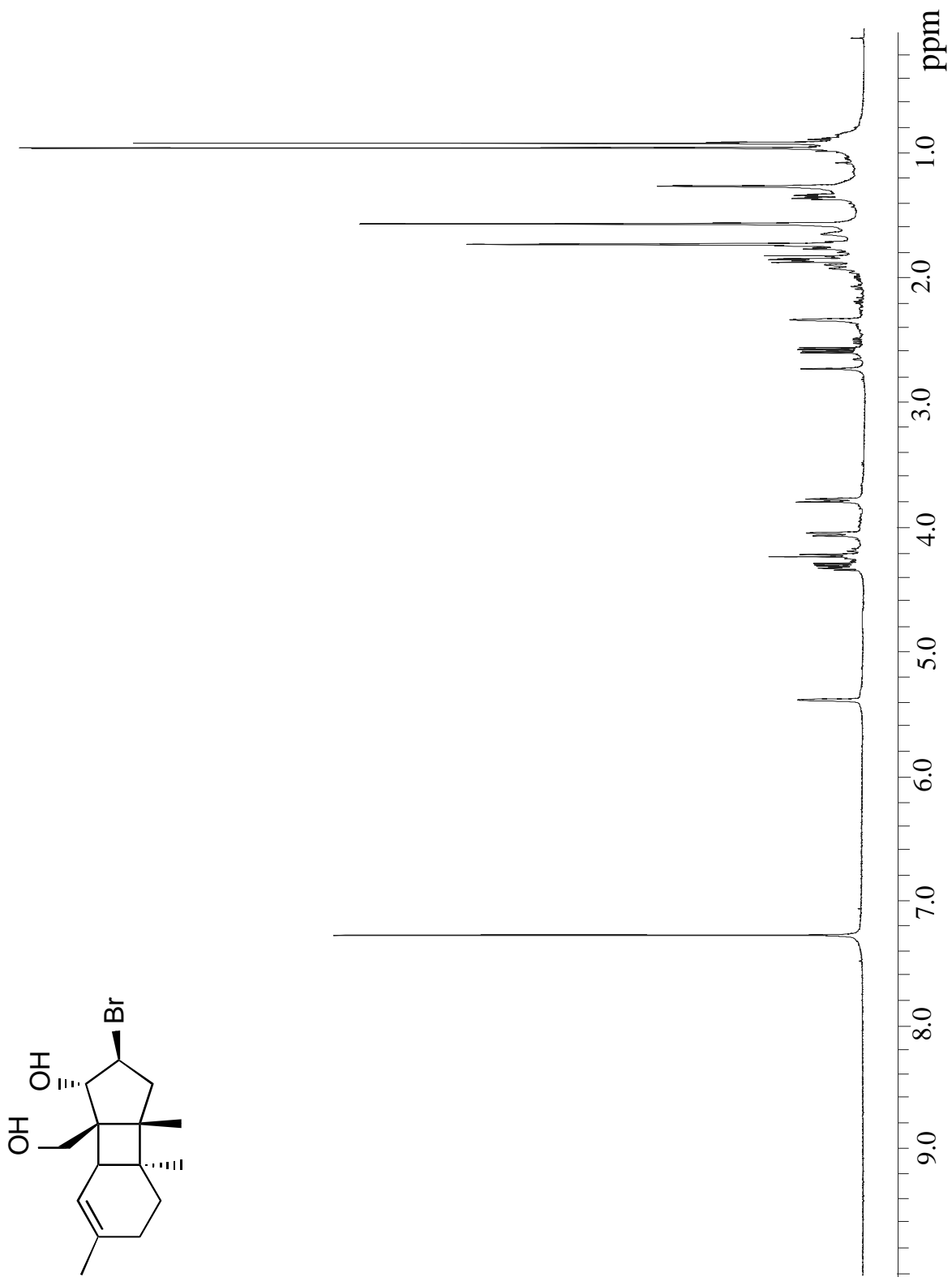


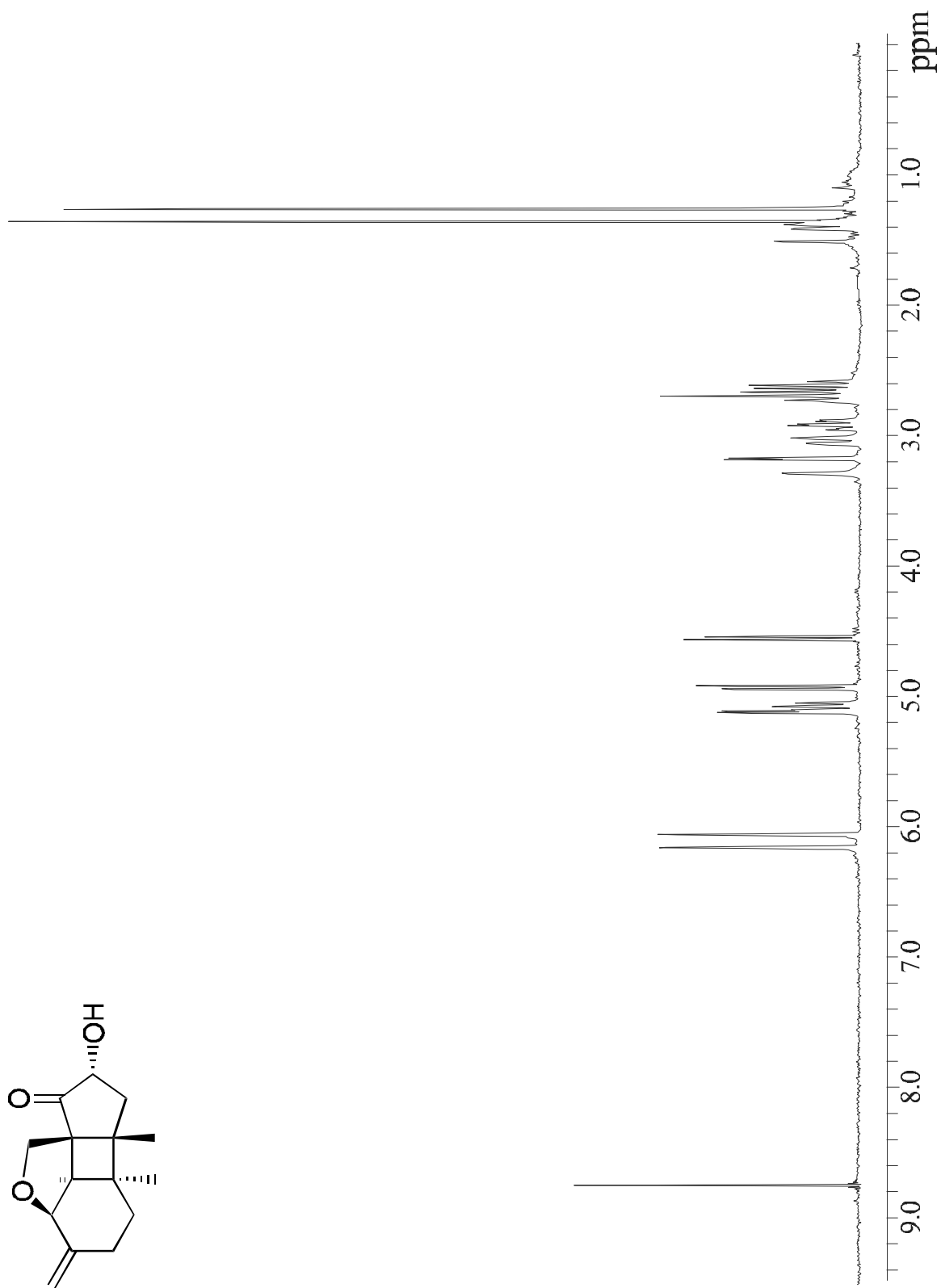


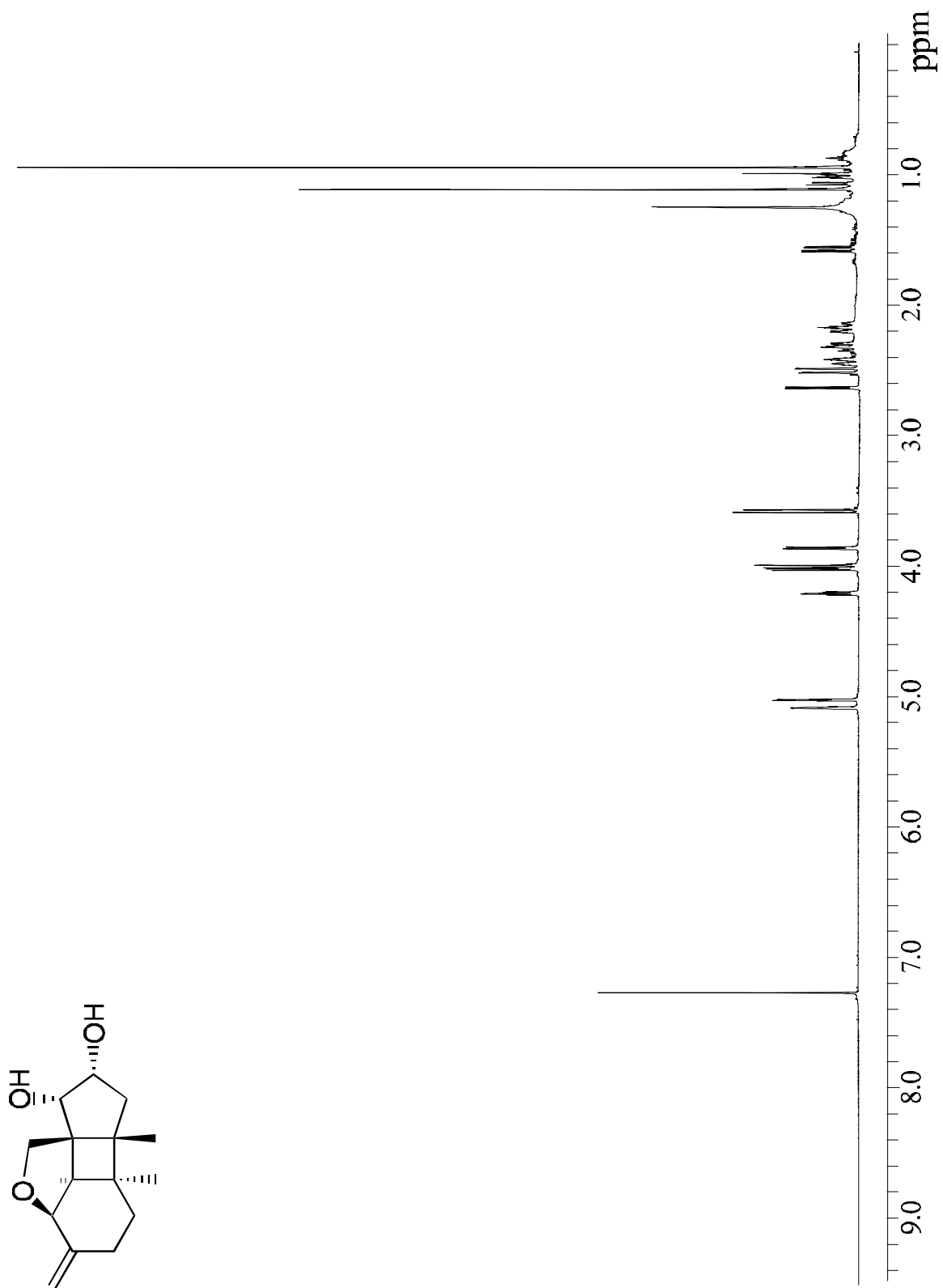


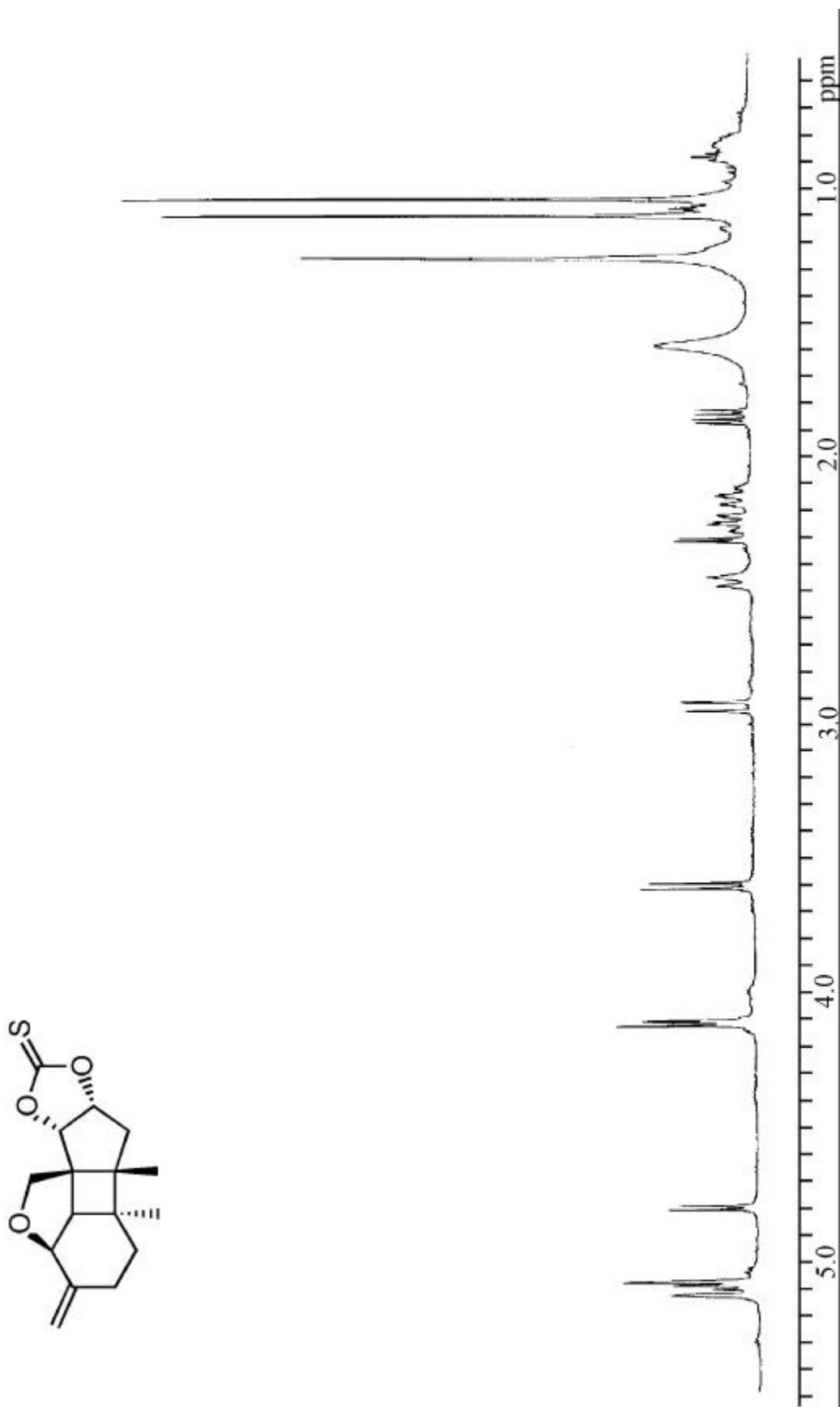


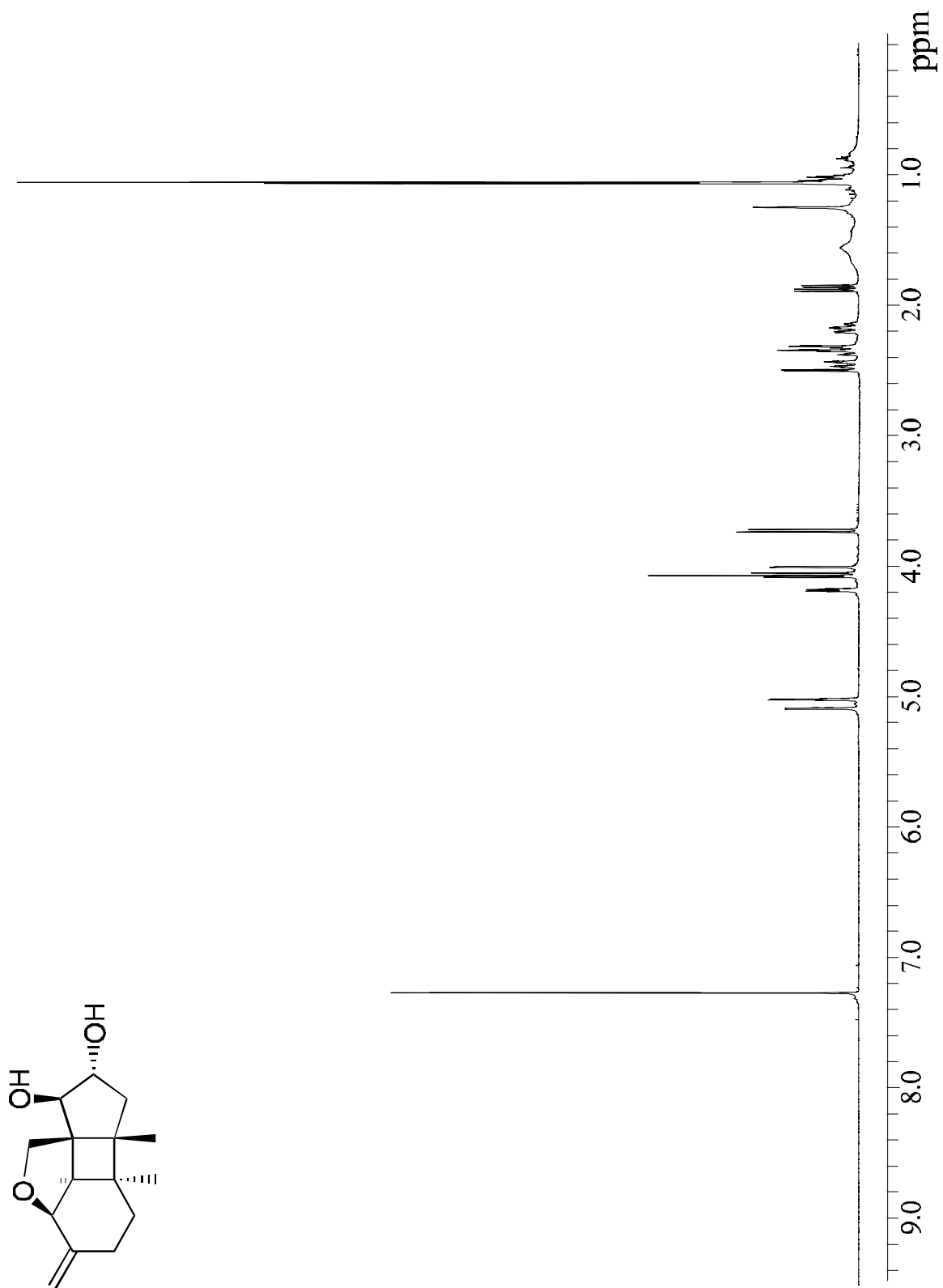






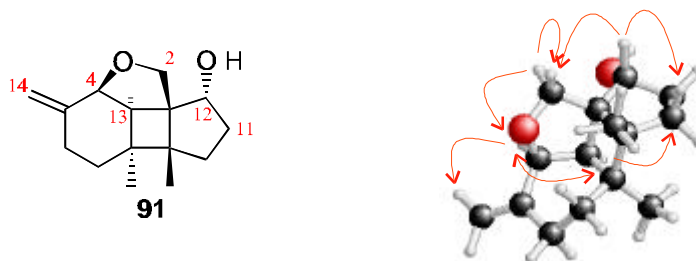






- *Results of NOE experiments Chapter 3*

1. Compound 91

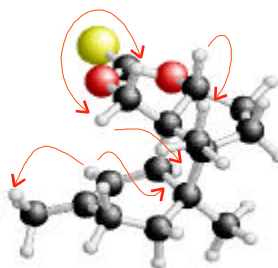
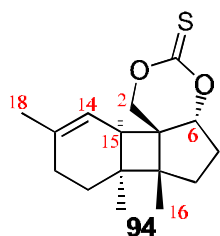


1D-proton difference NOE experiments were conducted. The T^1 relaxation times for the protons involved in the experiment were calculated via inverse recovery experiments. The mixing times for the NOE experiments were maximized in order to observe maximum NOE to about 2/3 of the T^1 relaxation measured.

NOEs observed: H-2 α (δ 3.95 ppm) to H-2 β (δ 3.57 ppm), H-2 α (δ 3.95 ppm) to H-4 (δ 4.02 ppm), H-4 (δ 4.02 ppm) to H-14 (δ 5.09 ppm), H-4 (δ 4.02 ppm) to H-13 (δ 2.20 ppm), H-13 (δ 2.20 ppm) to H-4 (δ 4.02 ppm), H-13 (δ 2.20 ppm) to H-11 (δ 2.15 ppm), H-12 (δ 3.88 ppm) to H-11 (δ 2.15 ppm), H-12 (δ 3.88 ppm) to H-2 β (δ 3.57 ppm).

The absence of an NOE between H-12 and H-13, which was seen for compound **100**, confirms the R relative stereochemistry of the hydroxyl at C-12.

2. Compound 94

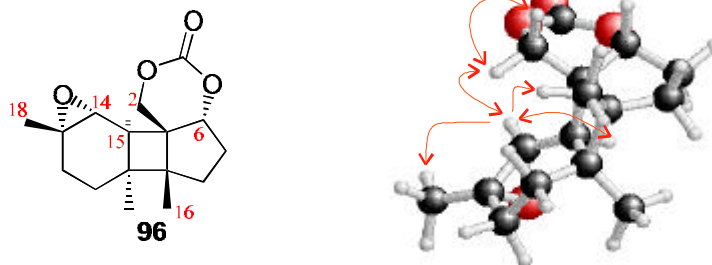


1D-proton difference NOE experiments were conducted. The T^1 relaxation times for the protons involved in the experiment were calculated via inverse recovery experiments. The mixing times for the NOE experiments were maximized in order to observe maximum NOE to about 2/3 of the T^1 relaxation measured.

NOEs observed: H-2 α (δ 4.82 ppm) to H-2 β (δ 4.52 ppm), H-2 β (δ 4.52 ppm) to H-2 α (δ 4.82 ppm), H-2 α (δ 4.82 ppm) to H-15 (δ 2.39 ppm), H-14 (δ 5.17 ppm) to H-15 (δ 2.39 ppm), H-14 (δ 5.17 ppm) to H-18 (δ 1.72 ppm), H-6 (δ 4.35 ppm) to H-16 (δ 0.92 ppm).

The absence of an NOE from H-6 to H-15 confirms the R relative stereochemistry at C-6.

3. Compound 96

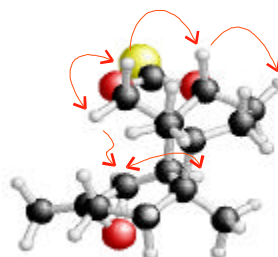
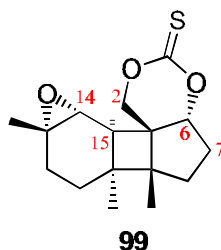


1D-proton difference NOE experiments were conducted. The T^1 relaxation times for the protons involved in the experiment were calculated via inverse recovery experiments. The mixing times for the NOE experiments were maximized in order to observe maximum NOE to about 2/3 of the T^1 relaxation measured.

NOEs observed: H-2 α (δ 4.01 ppm) to H-2 β (δ 3.64 ppm), H-2 β (δ 3.64 ppm) to H-2 α (δ 4.01 ppm), H-2 α (δ 4.01 ppm) to H-14 (δ 2.83 ppm), H-14 (δ 2.83 ppm) to H-2 α (δ 4.01 ppm), H-14 (δ 2.83 ppm) to H-15 (δ 2.25 ppm), H-15 (δ 2.25 ppm) to H-14 (δ 2.83 ppm), H-14 (δ 2.83 ppm) to H-18 (δ 1.03 ppm), H-14 (δ 2.83 ppm) to H-16 (δ 0.57 ppm).

An NOE observed between H-2 α and H-14 confirms the R relative stereochemistry at C-14. The absence of an NOE between H-6 and H-15 supports the assignment of the R relative stereochemistry for C-6.

4. Compound 99

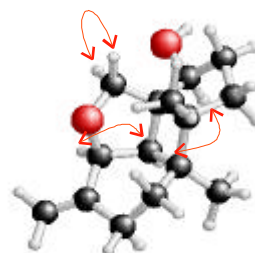
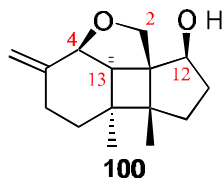


1D-proton difference NOE experiments were conducted. The T^1 relaxation times for the protons involved in the experiment were calculated via inverse recovery experiments. The mixing times for the NOE experiments were maximized in order to observe maximum NOE to about 2/3 of the T^1 relaxation measured.

NOEs observed: H-2 α (δ 5.67 ppm) to H-2 β (δ 4.51 ppm), H-2 β (δ 4.51 ppm) to H-2 α (δ 5.67 ppm), H-2 β (δ 4.51 ppm) to H-6 (δ 4.30 ppm), H-6 (δ 4.30 ppm) to H-7 β (δ 1.41 ppm), H-2 α (δ 5.67 ppm) to H-14 (δ 2.93 ppm), H-14 (δ 2.93 ppm) to H-15 (δ 2.20 ppm), H-15 (δ 2.20 ppm) to H-14 (δ 2.93 ppm).

An NOE observed between H-2 α and H-14 confirms the R relative stereochemistry for the C-14 at the epoxide functionality. The absence of an NOE between H-6 and H-15 supports the R relative stereochemistry assignment at C-6.

5. Compound 100



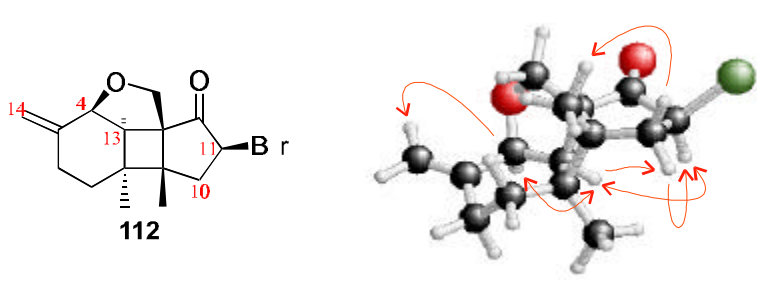
1D-proton difference NOE experiments were conducted. The T^1 relaxation times for the protons involved in the experiment were calculated via inverse recovery experiments. The mixing times for the NOE experiments were maximized in order to observe maximum NOE to about 2/3 of the T^1 relaxation measured.

Observed NOEs: H-2 α (δ 4.05 ppm) to H-2 β (δ 3.69 ppm), H-2 β (δ 3.69 ppm) to H-2 α (δ 4.05 ppm), H-4 (δ 4.10 ppm) to H-13 (δ 2.11 ppm), H-13 (δ 2.11 ppm) to H-4 (δ 4.10 ppm), H-12 (δ 4.08 ppm) to H-13 (δ 2.11 ppm), H-13 (δ 2.11 ppm) to H-12 (δ 4.08 ppm).

An NOE observed between H-12 and H-13, which was absent on compound **91**, confirms the S relative stereochemistry assignment for C-12.

- Results of NOE experiments Chapter 4

1. Compound 112

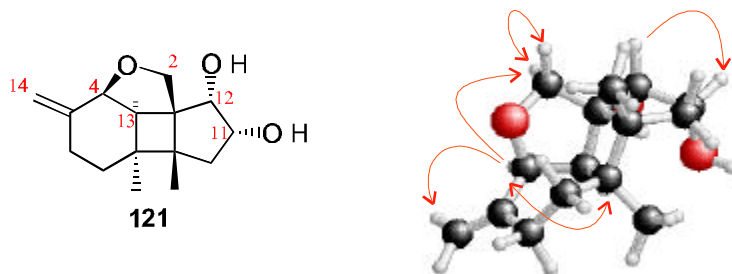


1D-proton difference NOE experiments were conducted. The T^1 relaxation times for the protons involved in the experiment were calculated via inverse recovery experiments. The mixing times for the NOE experiments were maximized in order to observe maximum NOE to about 2/3 of the T^1 relaxation measured.

Observed NOEs: H-4 (δ 4.16 ppm) to H-14 (δ 5.14 ppm), H-4 (δ 4.16 ppm) to H-13 (δ 2.39 ppm), H-13 (δ 2.39 ppm) to H-4 (δ 4.16 ppm), H-13 (δ 2.39 ppm) to H-10 α (δ 1.98 ppm), H-13 (δ 2.39 ppm) to H-11 (δ 4.83 ppm), H-11 (δ 4.83 ppm) to H-13 (δ 2.39 ppm), H-10 α (δ 1.98 ppm) to H-11 (δ 4.83 ppm), H-10 β (δ 3.06 ppm) to H-16 (δ 1.23 ppm).

An NOE observed between H-3 and H-11, which was not seen for compound **124**, confirms the *S* relative stereochemistry assignment for C-11. This assignment is further supported by the observation of NOEs between H-10 α and H-13 and between H-10 α and H-11.

2. Compound 121

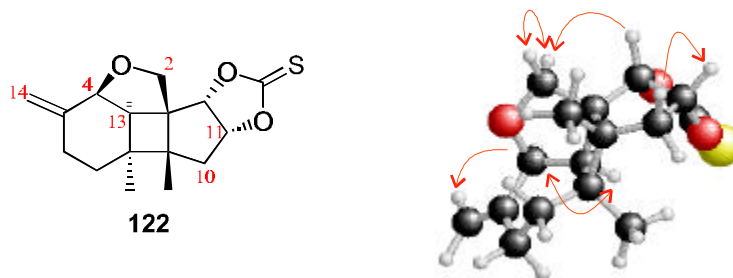


1D-proton difference NOE experiments were conducted. The T^1 relaxation times for the protons involved in the experiment were calculated via inverse recovery experiments. The mixing times for the NOE experiments were maximized in order to observe maximum NOE to about $2/3$ of the T^1 relaxation measured.

NOEs observed: H-2 α (δ 4.01 ppm) to H-2 β (δ 3.58 ppm), H-2 β (δ 3.58 ppm) to H-2 α (δ 4.01 ppm), H-4 (δ 4.03 ppm) to H-2 α (δ 4.01 ppm), H-4 (δ 4.03 ppm) to H-14 (δ 5.09 ppm), H-4 (δ 4.03 ppm) to H-13 (δ 2.64 ppm), H-13 (δ 2.64 ppm) to H-4 (δ 4.03 ppm), H-12 (δ 3.86 ppm) to H-11 (δ 4.21 ppm).

An NOE observed between H-11 and H-12 confirms the *cis* relative stereochemistry assigned for the diol and the absence of NOEs between H-13 and H-11 or between H-13 and H-12 supports the S* assignment for C-12 and the R* relative stereochemistry assignment for C-11. These assignments are further supported by comparison with the results for the NOE experiments conducted on the *trans* diol **126**.

3. Compound 122

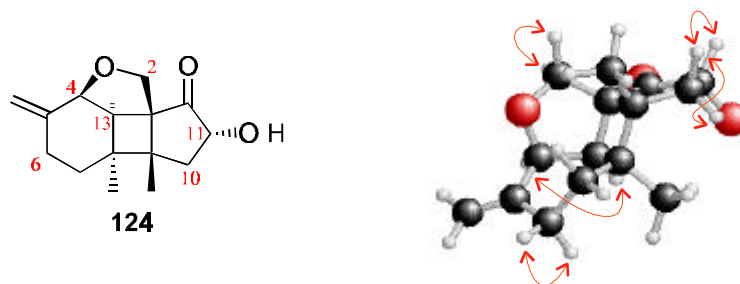


1D-proton difference NOE experiments were conducted. The T^1 relaxation times for the protons involved in the experiment were calculated via inverse recovery experiments. The mixing times for the NOE experiments were maximized in order to observe maximum NOE to about 2/3 of the T^1 relaxation measured.

NOEs observed: H-2 α (δ 4.12 ppm) to H-2 β (δ 3.42 ppm), H-2 β (δ 3.42 ppm) to H-2 α (δ 4.12 ppm), H-4 (δ 4.14 ppm) to H-14 (δ 5.18 ppm), H-4 (δ 4.14 ppm) to H-13 (δ 2.31 ppm), H-13 (δ 2.31 ppm) to H-4 (δ 4.14 ppm), H-10 β (δ 1.85 ppm) to H-11 (δ 5.10 ppm), H-12 (δ 4.81 ppm) to H-2 α (δ 4.12 ppm).

An NOE observed between H-2 and H-12 confirms the *S* relative stereochemistry assigned for C-12. The absence of NOEs between H-12 and H-13 and between H-11 and H-13 further supports the assignment.

4. Compound 124

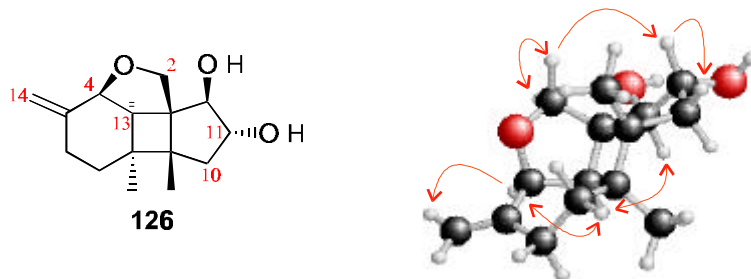


A 2D-proton-proton NOESY experiment was conducted on compound **124**. NOEs reported are those corresponding to the cross peaks observed on the 2D-experiment.

NOEs observed (cross peaks): H-2 α (δ 4.10 ppm) to H-2 β (δ 3.79 ppm), H-4 (δ 4.25 ppm) to H-13 (δ 2.64 ppm), H-6 α (δ 2.25 ppm) to H-6 β (δ 2.53 ppm), H-10 β (δ 2.17 ppm) to H-11 (δ 4.23 ppm), H-10 α (δ 2.20 ppm) to H-10 β (δ 2.17 ppm).

The absence of a cross peak between H-11 and H-13 supports the R relative stereochemistry assignment at C-11. This assignment was further supported by comparison with the results obtained for compound **112**.

5. Compound 126



1D-proton difference NOE experiments were conducted. The T^1 relaxation times for the protons involved in the experiment were calculated via inverse recovery experiments. The mixing times for the NOE experiments were maximized in order to observe maximum NOE to about 2/3 of the T^1 relaxation measured.

Observed NOEs: H-2 α (δ 3.73 ppm) to H-2 β (δ 4.05 ppm), H-2 β (δ 4.05 ppm) to H-2 α (δ 3.73 ppm), H-2 β (δ 4.05 ppm) to H-11 (δ 4.19 ppm), H-4 (δ 4.07 ppm) to H-13 (δ 2.51 ppm), H-13 (δ 2.51 ppm) to H-4 (δ 4.07 ppm), H-11 (δ 4.19 ppm) to H-10 β (δ 1.88 ppm), H-12 (δ 4.03 ppm) to H-13 (δ 2.51 ppm), H-13 (δ 2.51 ppm) to H-12 (δ 4.03 ppm), H-4 (δ 4.07 ppm) to H-14 (δ 5.09 ppm).

An NOE observed between H-2 β and H-11 confirms the R relative stereochemistry assignment at C-11 and an NOE observed between H-12 and H-13 confirms the R relative stereochemistry assignment at C-12. These assignments are further supported by comparison with the results obtained for compound **121**.