

Supplementary Information

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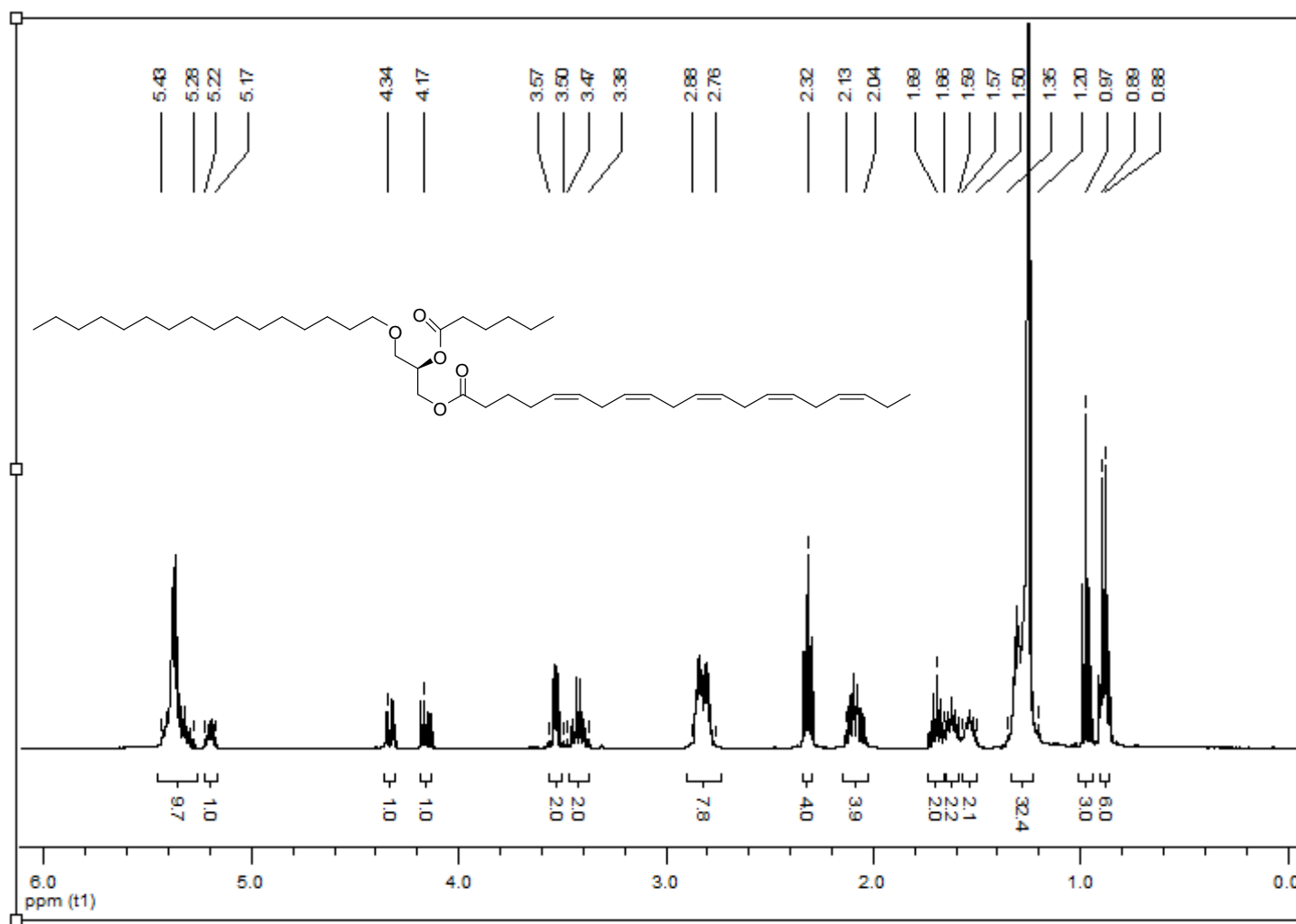


Figure S1. ¹H-NMR (CDCl₃, 400 MHz) of compound 4a.

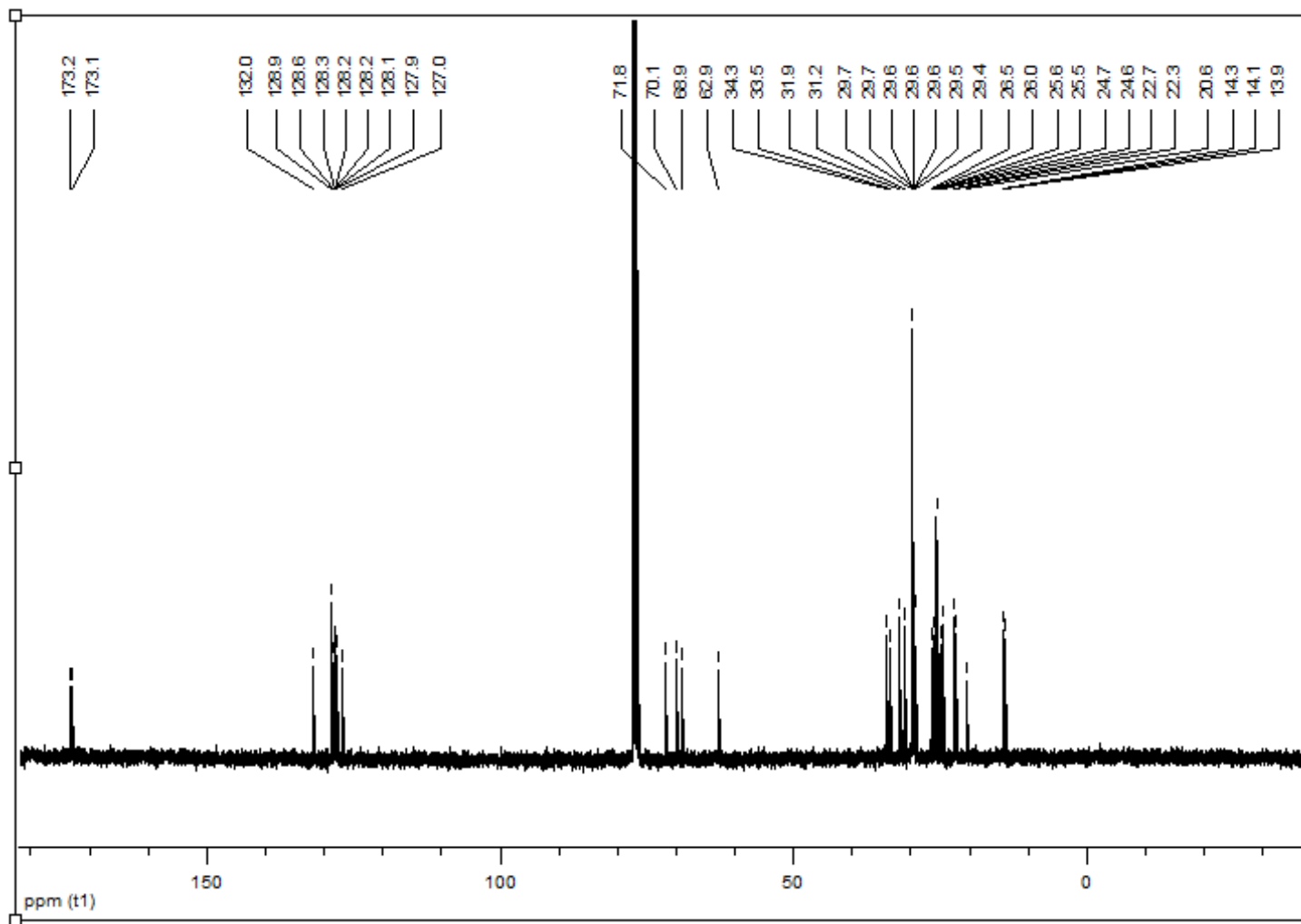


Figure S2. ^{13}C -NMR (CDCl_3 , 100 MHz) of compound 4a.

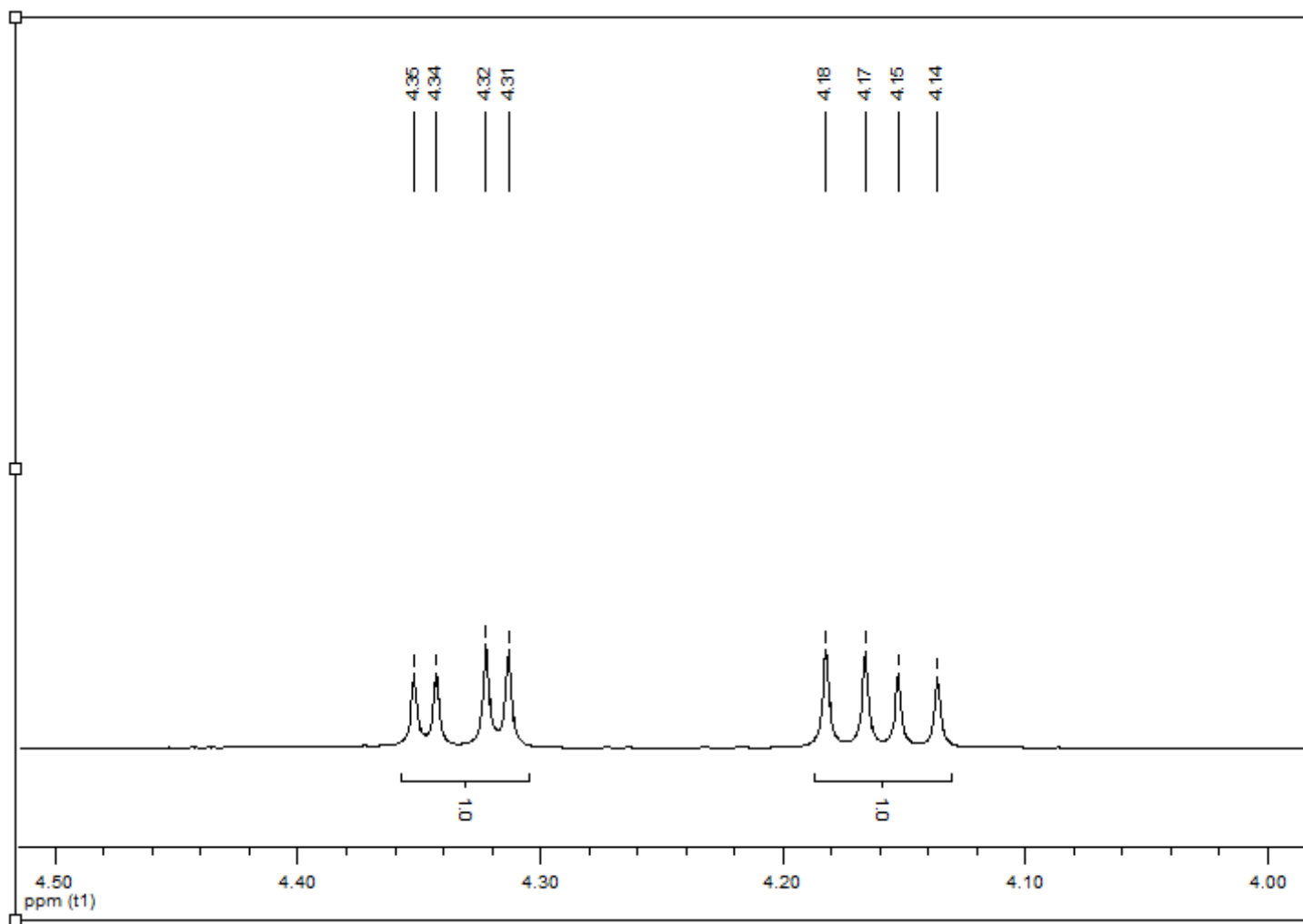


Figure S3. Cont.

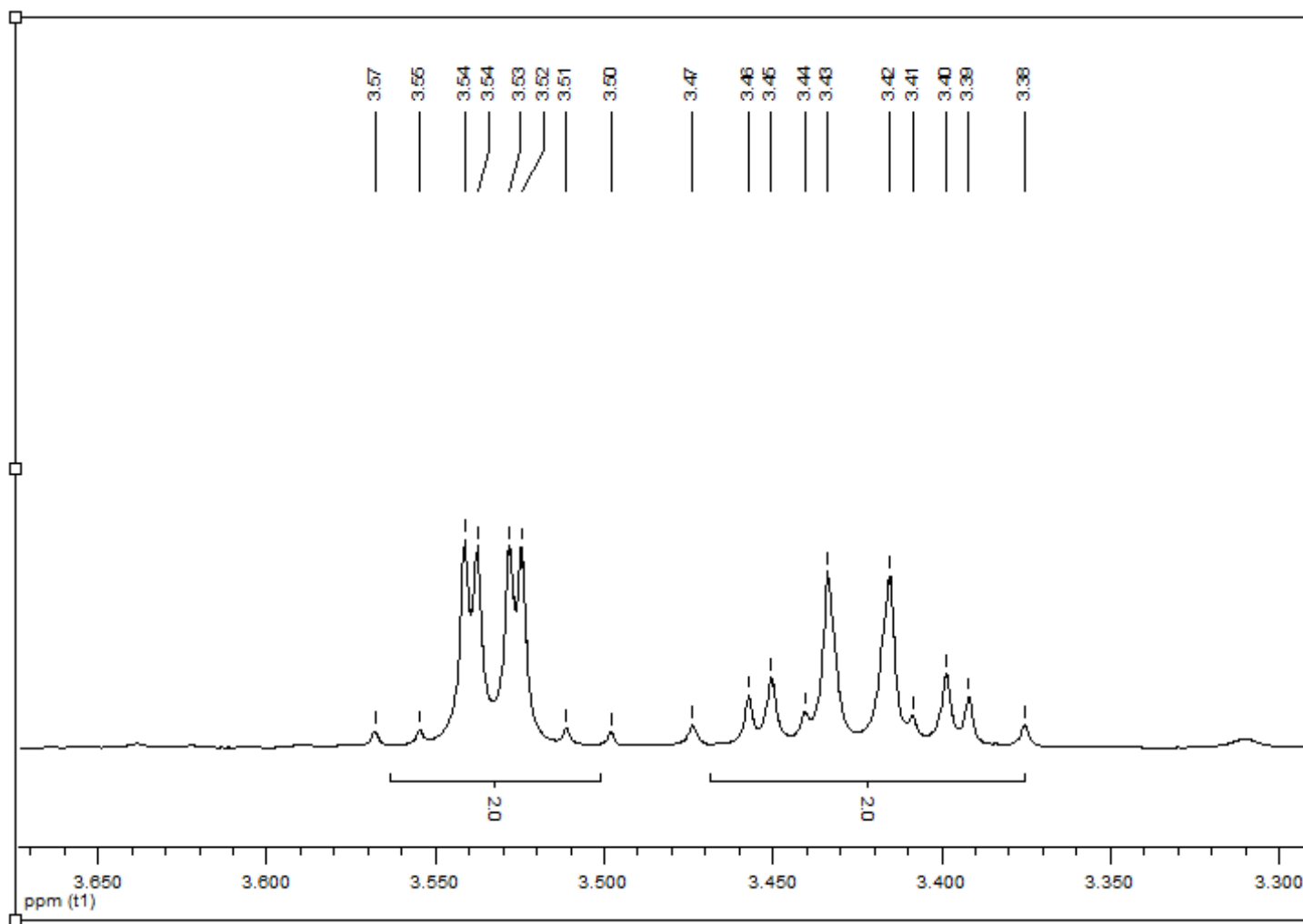


Figure S3. Cont.

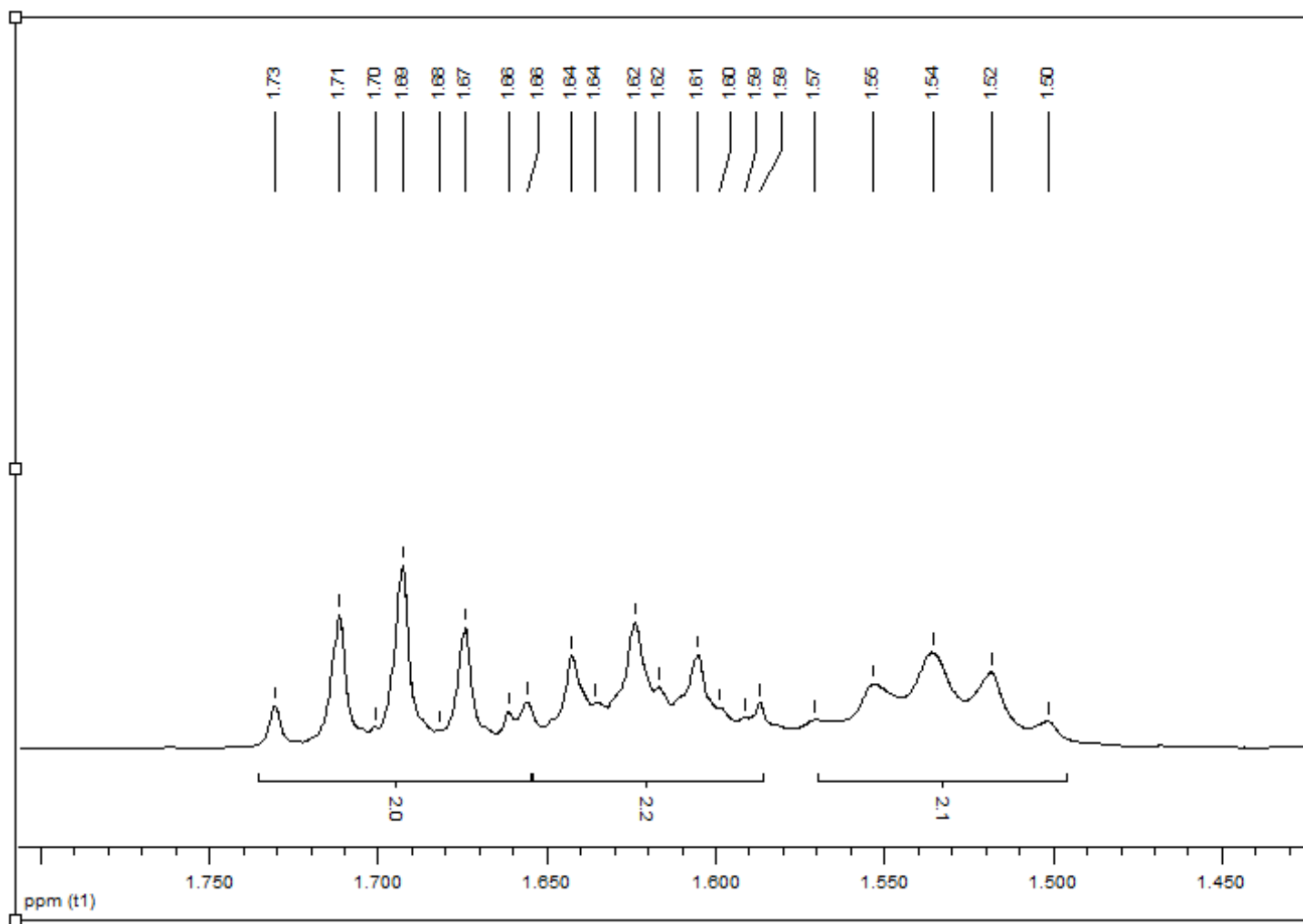


Figure S3. Cont.

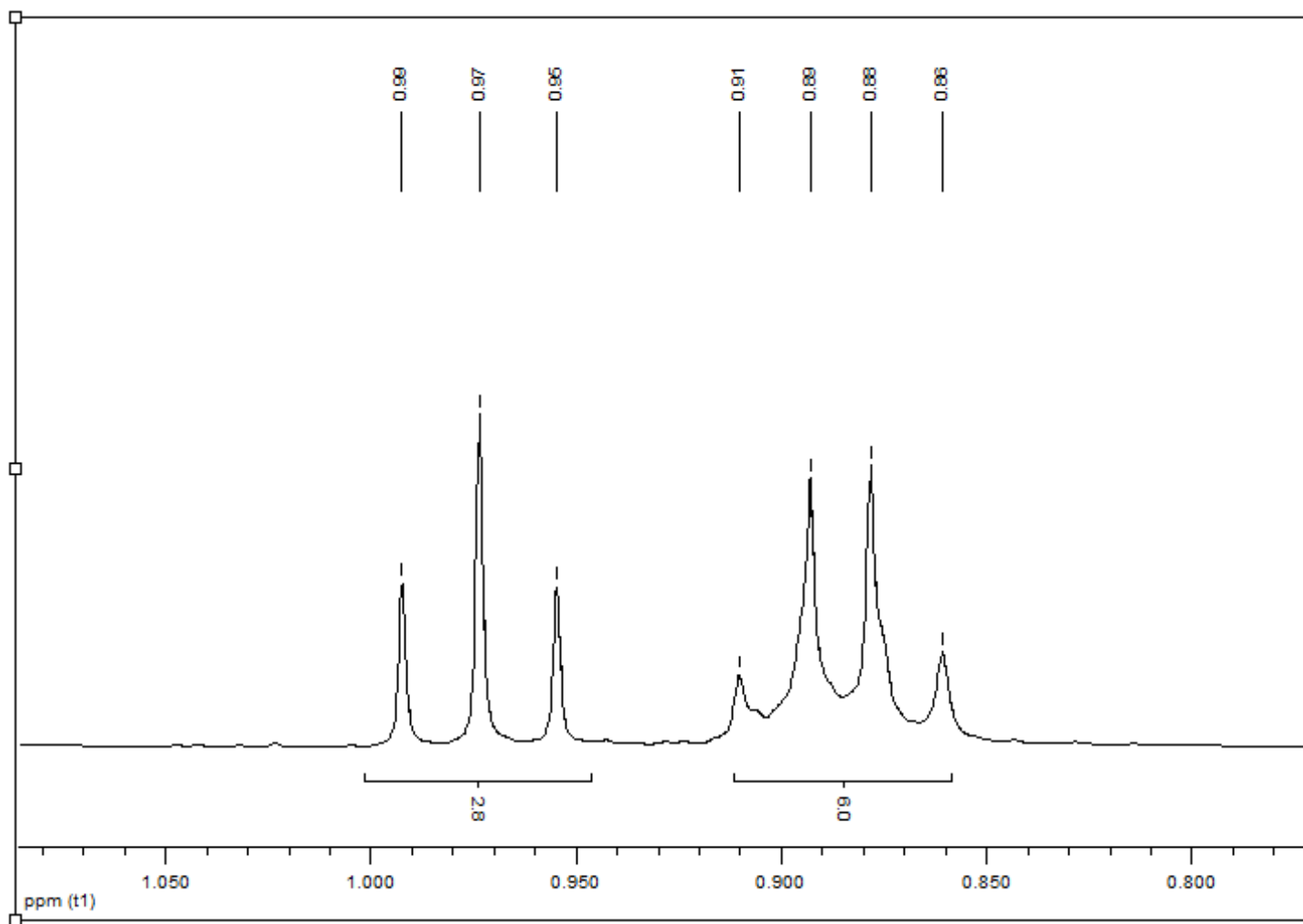


Figure S3. Expanded ¹H-NMR of compound **4a**.

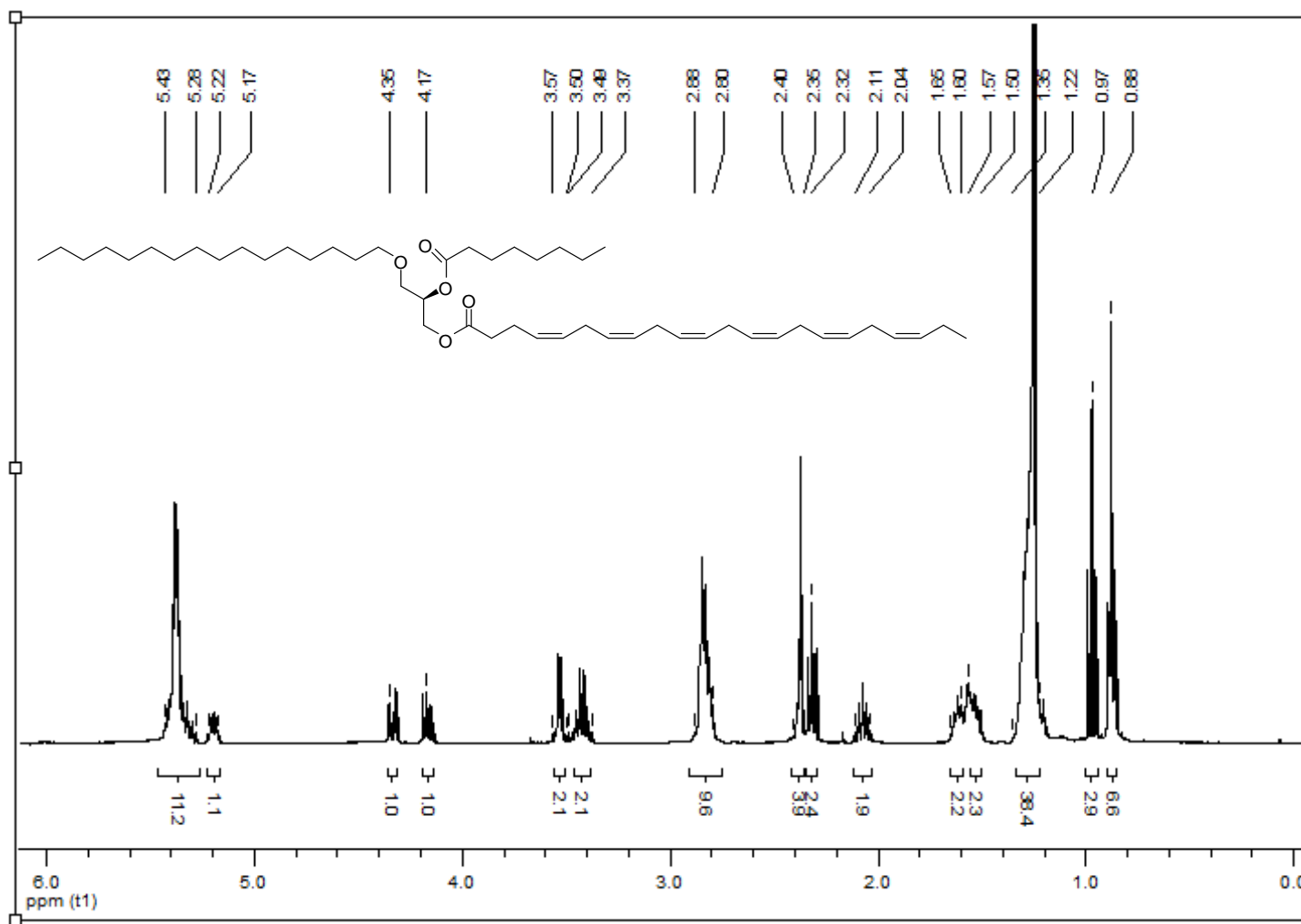


Figure S4. ¹H-NMR (CDCl₃, 400 MHz) of compound 5b.

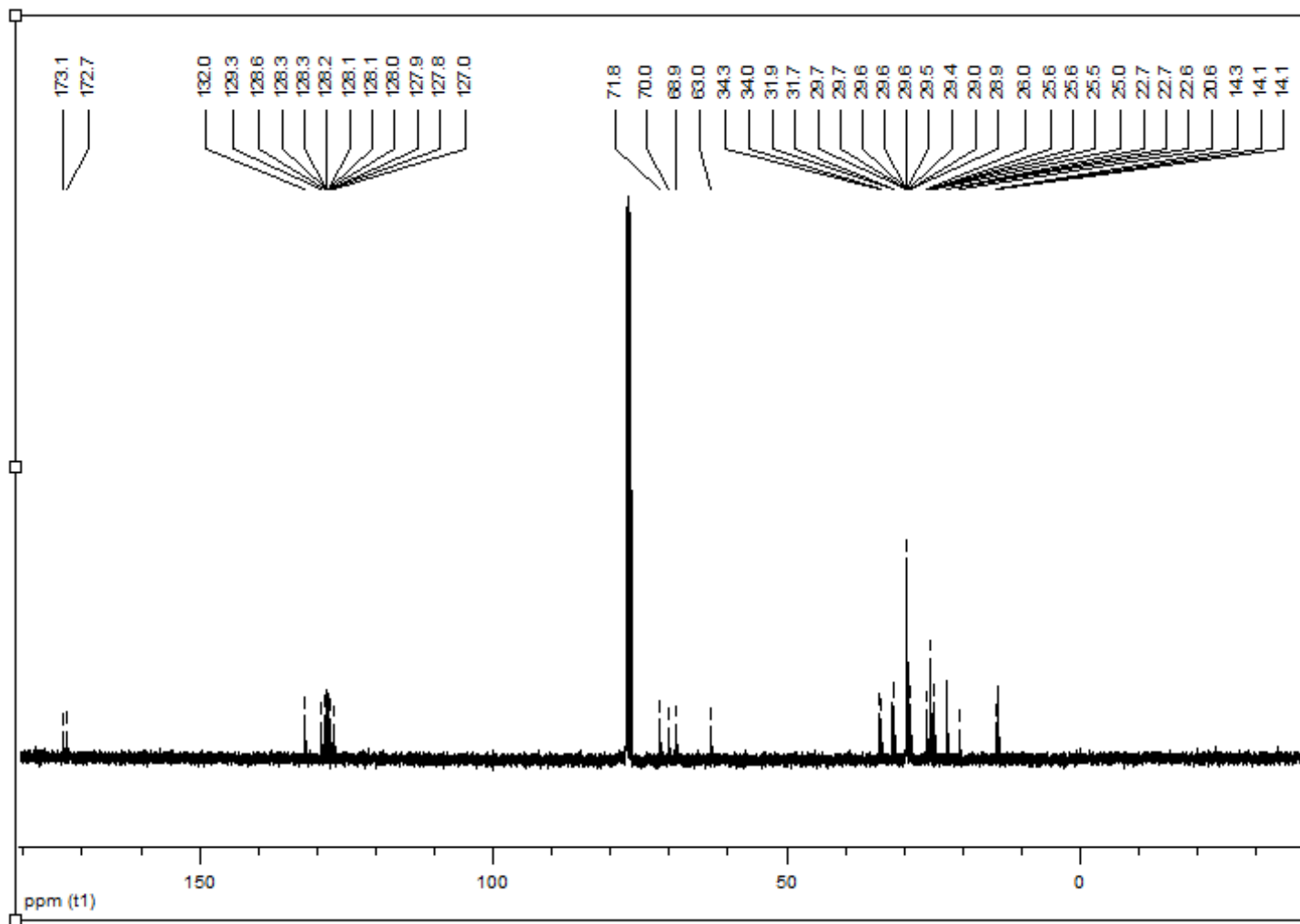


Figure S5. ^{13}C -NMR (CDCl_3 , 100 MHz) of compound **5b**.

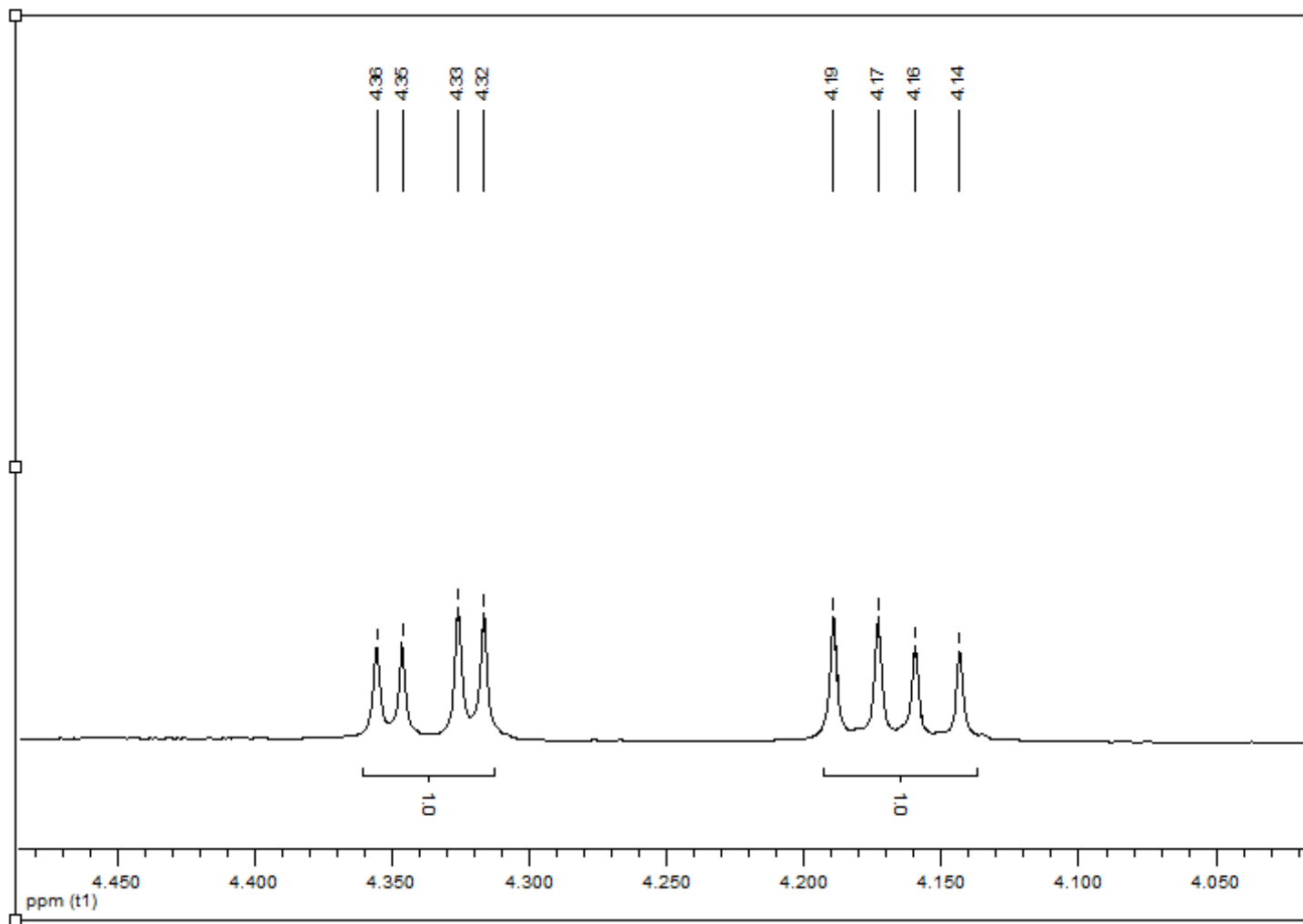


Figure S6. Cont.

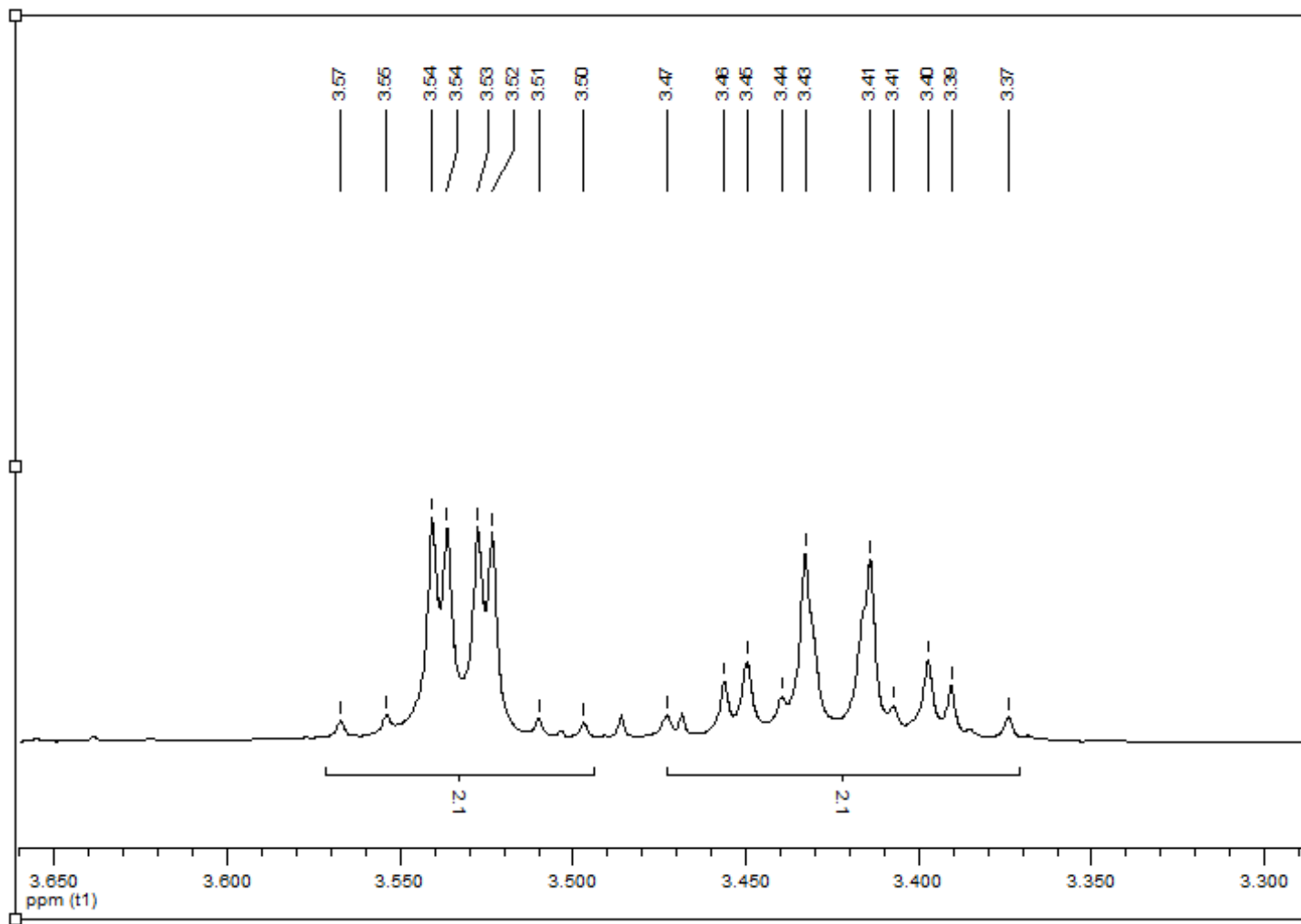


Figure S6. Cont.

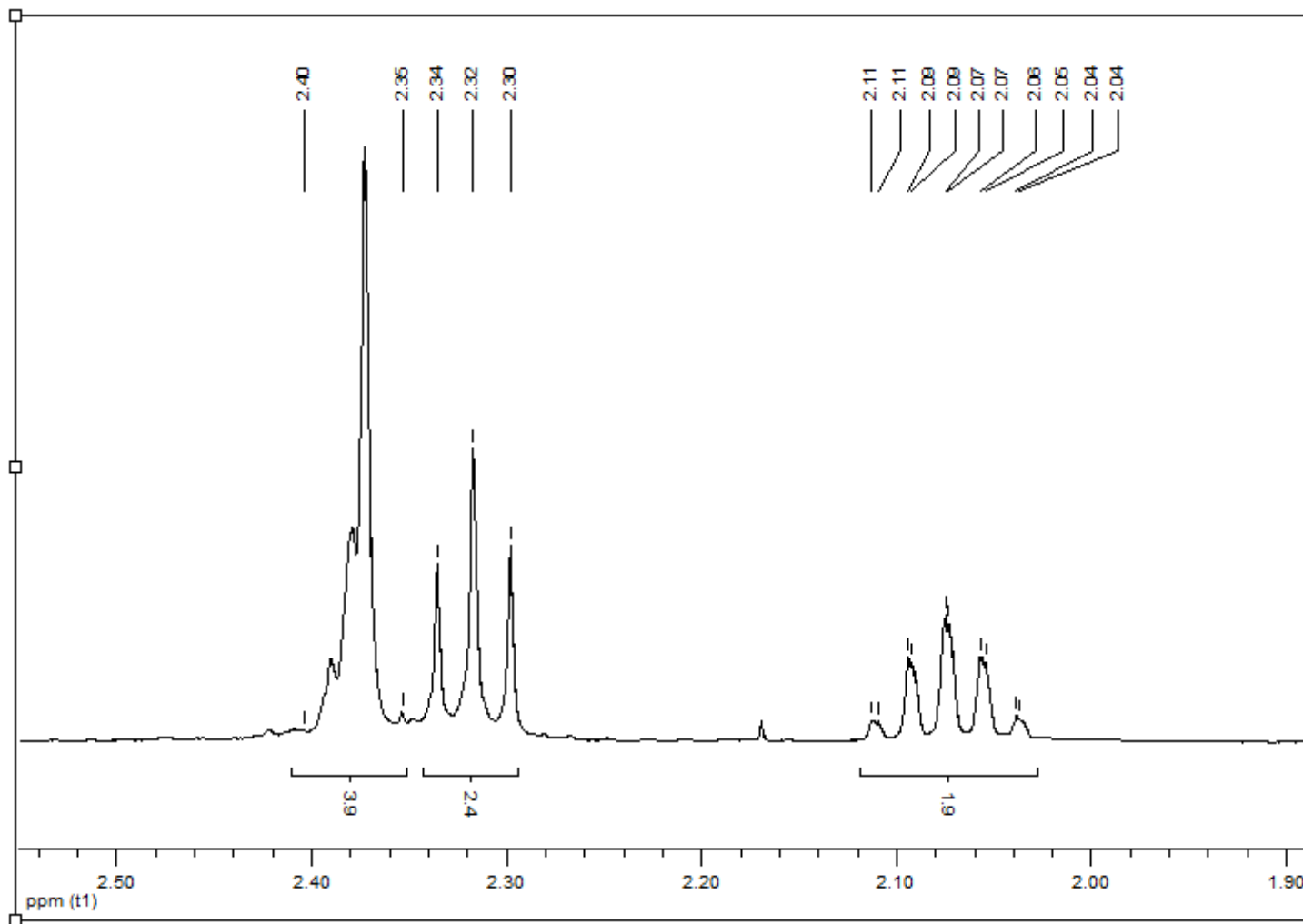


Figure S6. Cont.

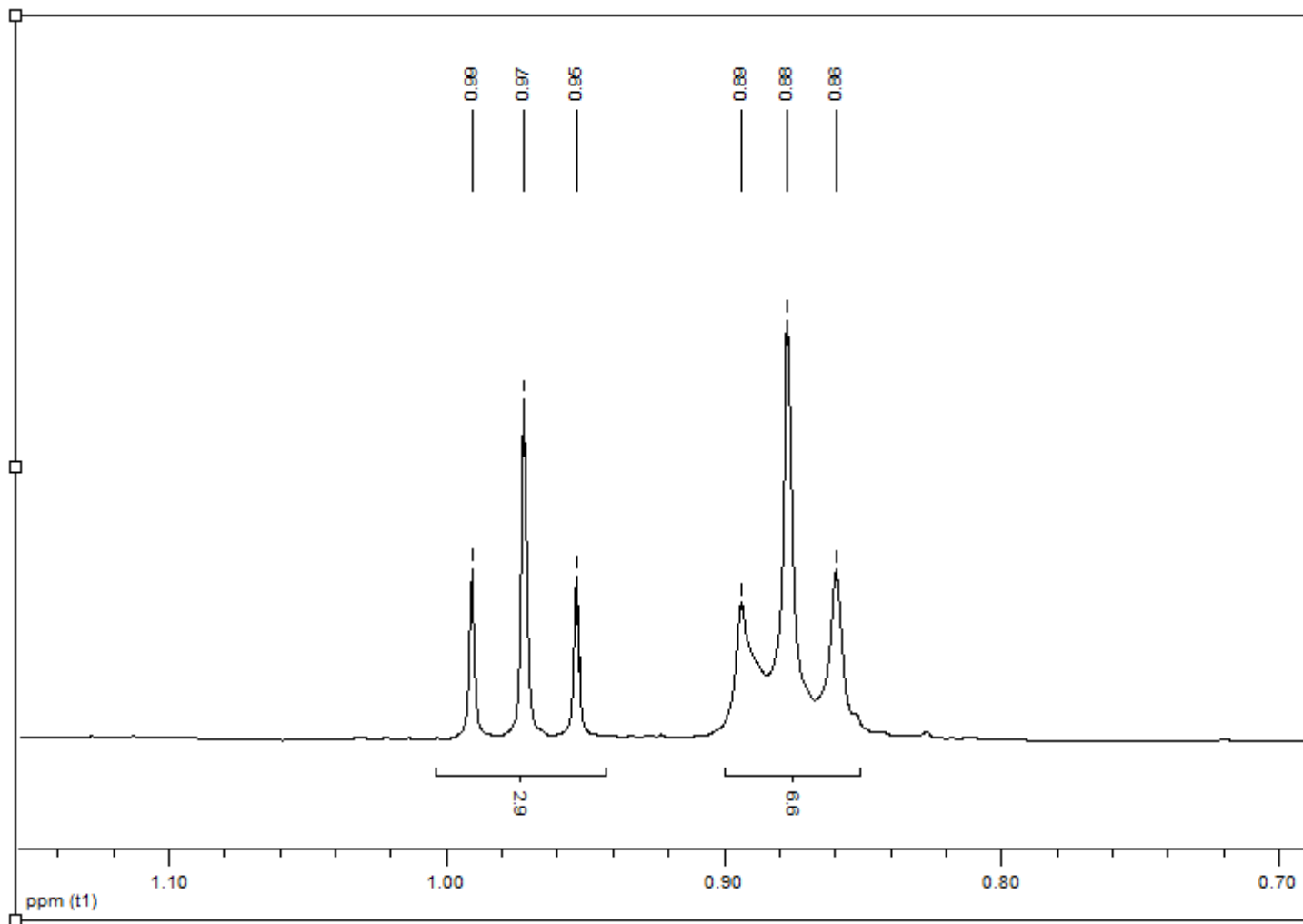


Figure S6. Expanded ¹H-NMR of compound 5b.

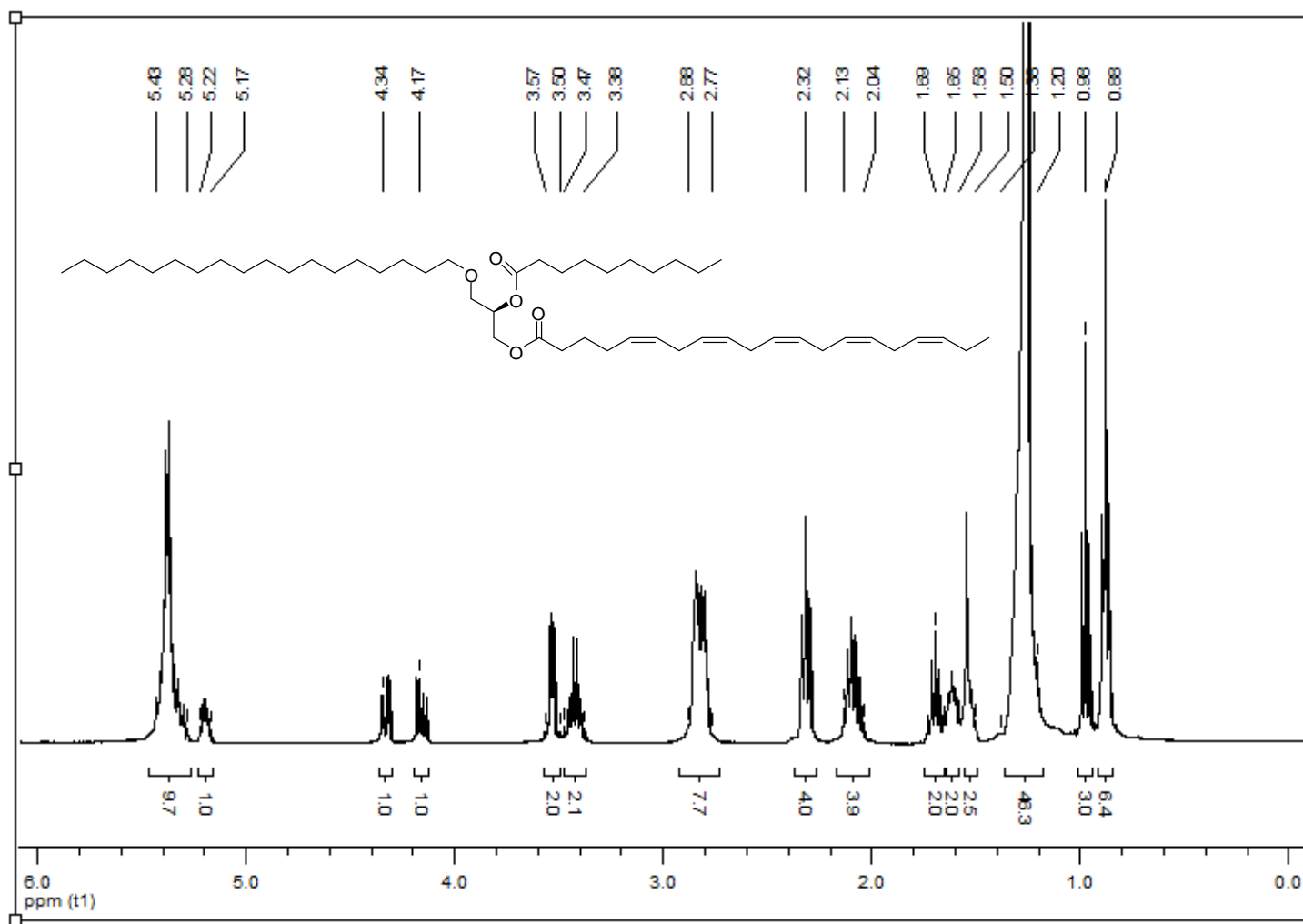


Figure S7. ¹H-NMR (CDCl₃, 400 MHz) of compound **6c**.

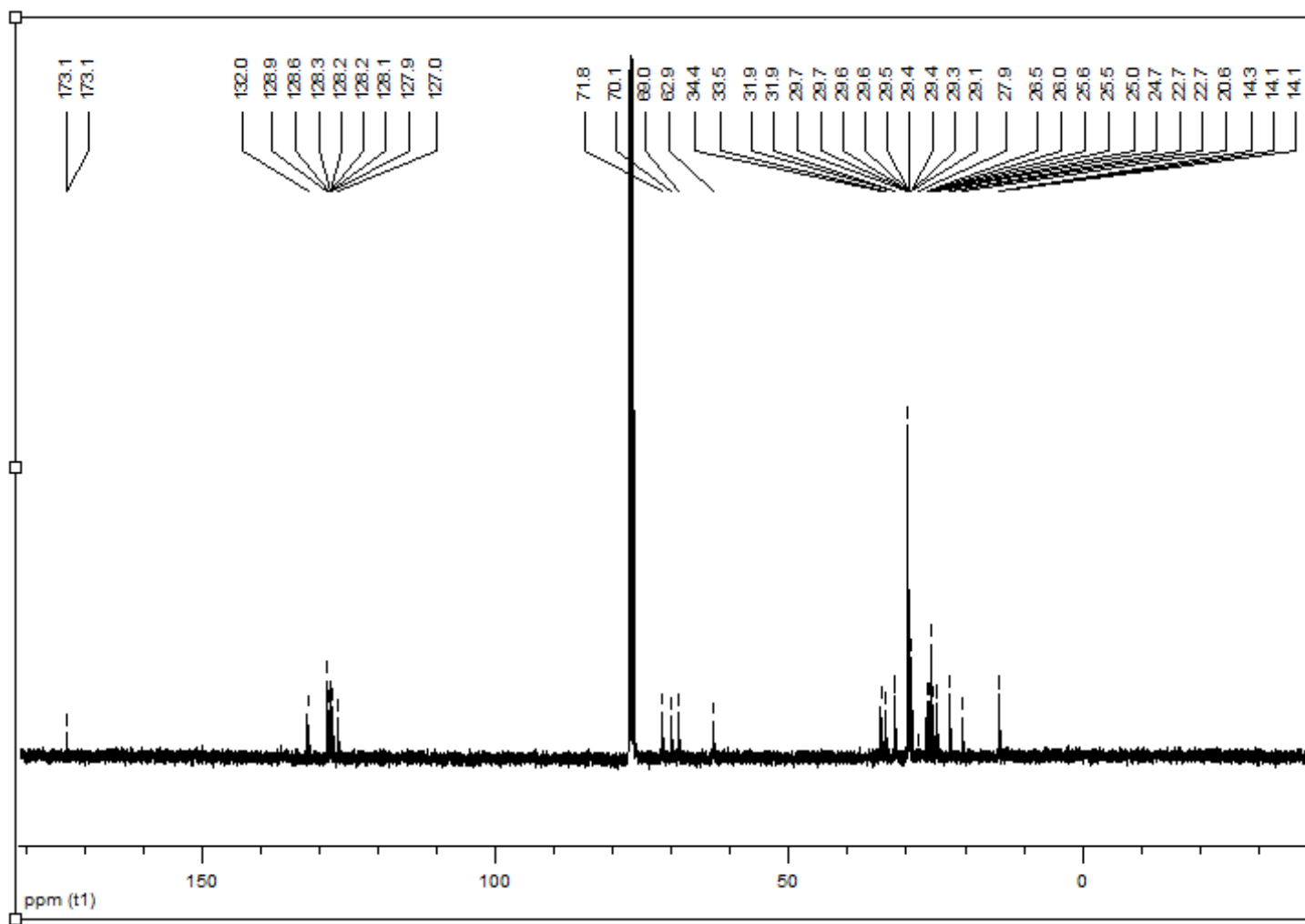


Figure S8. ¹³C-NMR (CDCl₃, 100 MHz) of compound 6c.

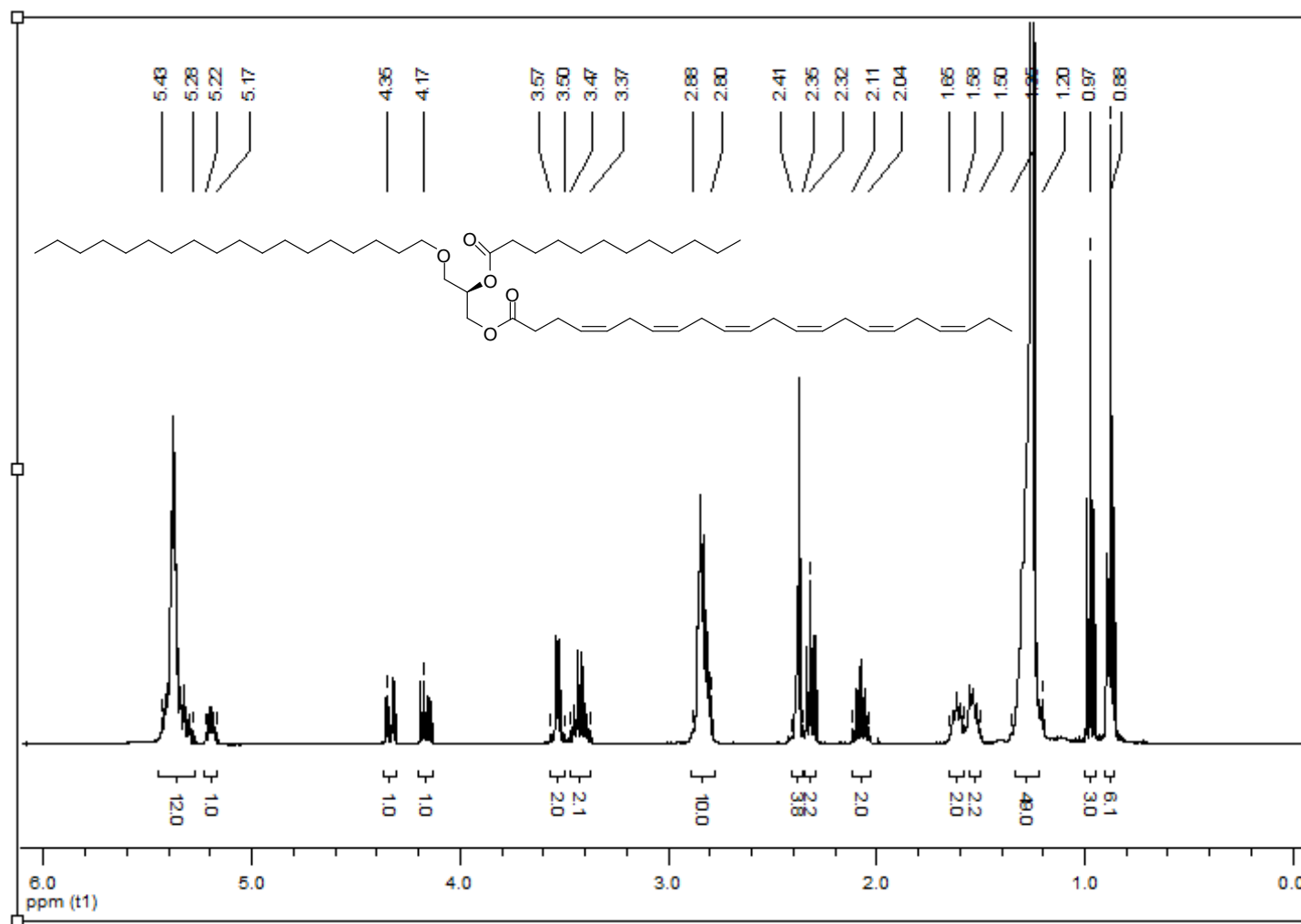


Figure S9. ¹H-NMR (CDCl₃, 400 MHz) of compound 7d.

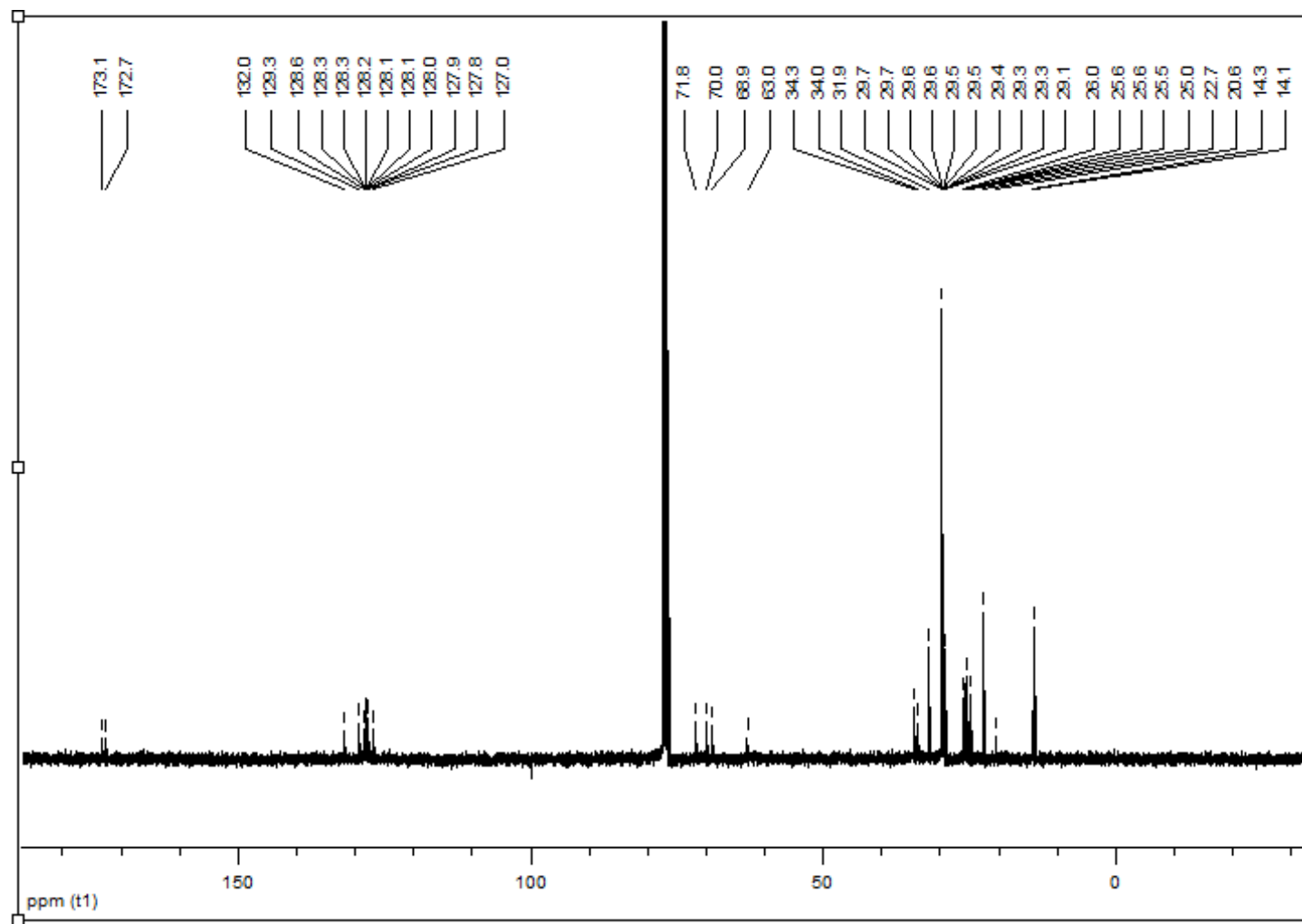


Figure S10. ¹³C-NMR (CDCl₃, 100 MHz) of compound 7d.

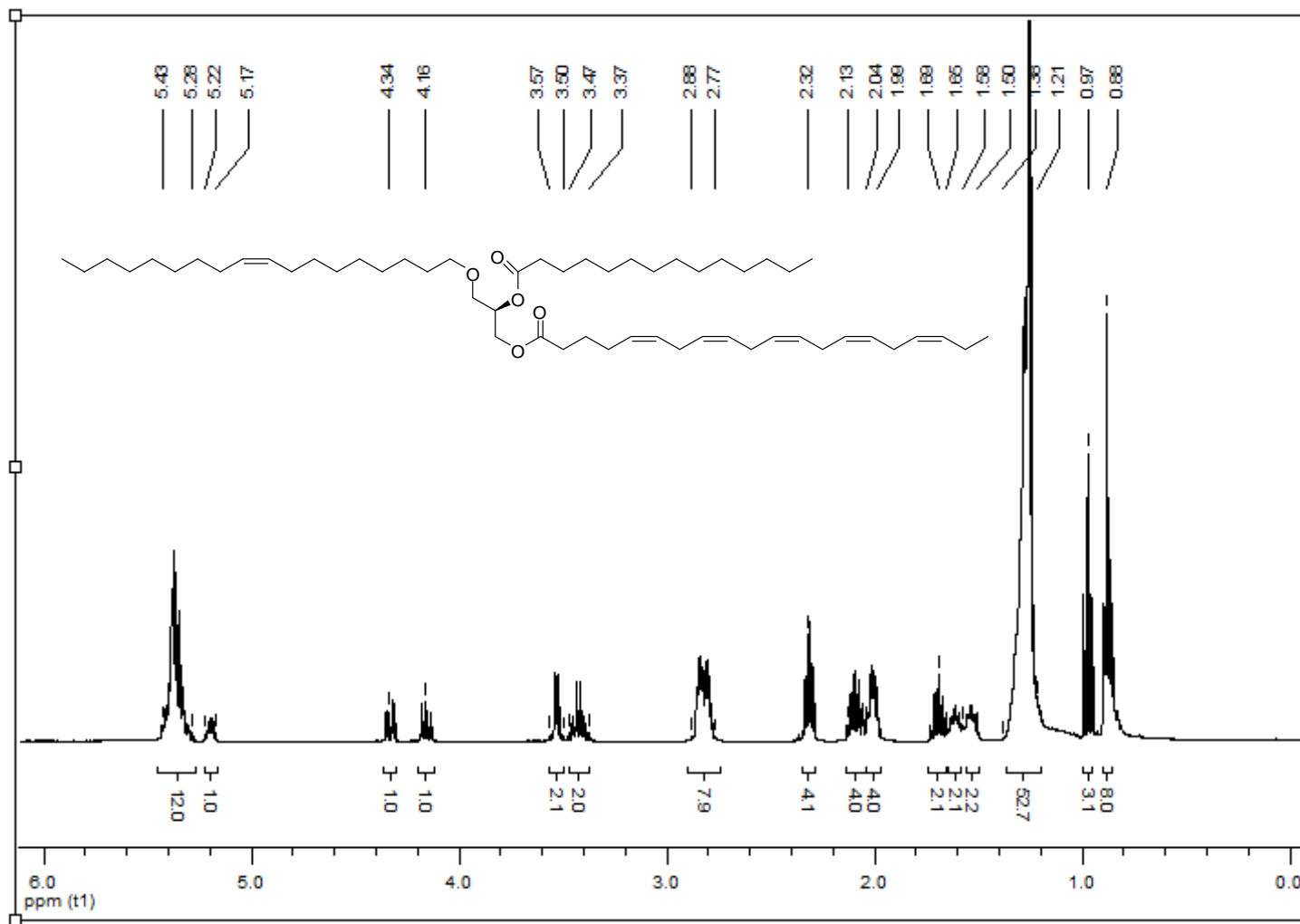


Figure S11. $^1\text{H-NMR}$ (CDCl_3 , 400 MHz) of compound **8e**.

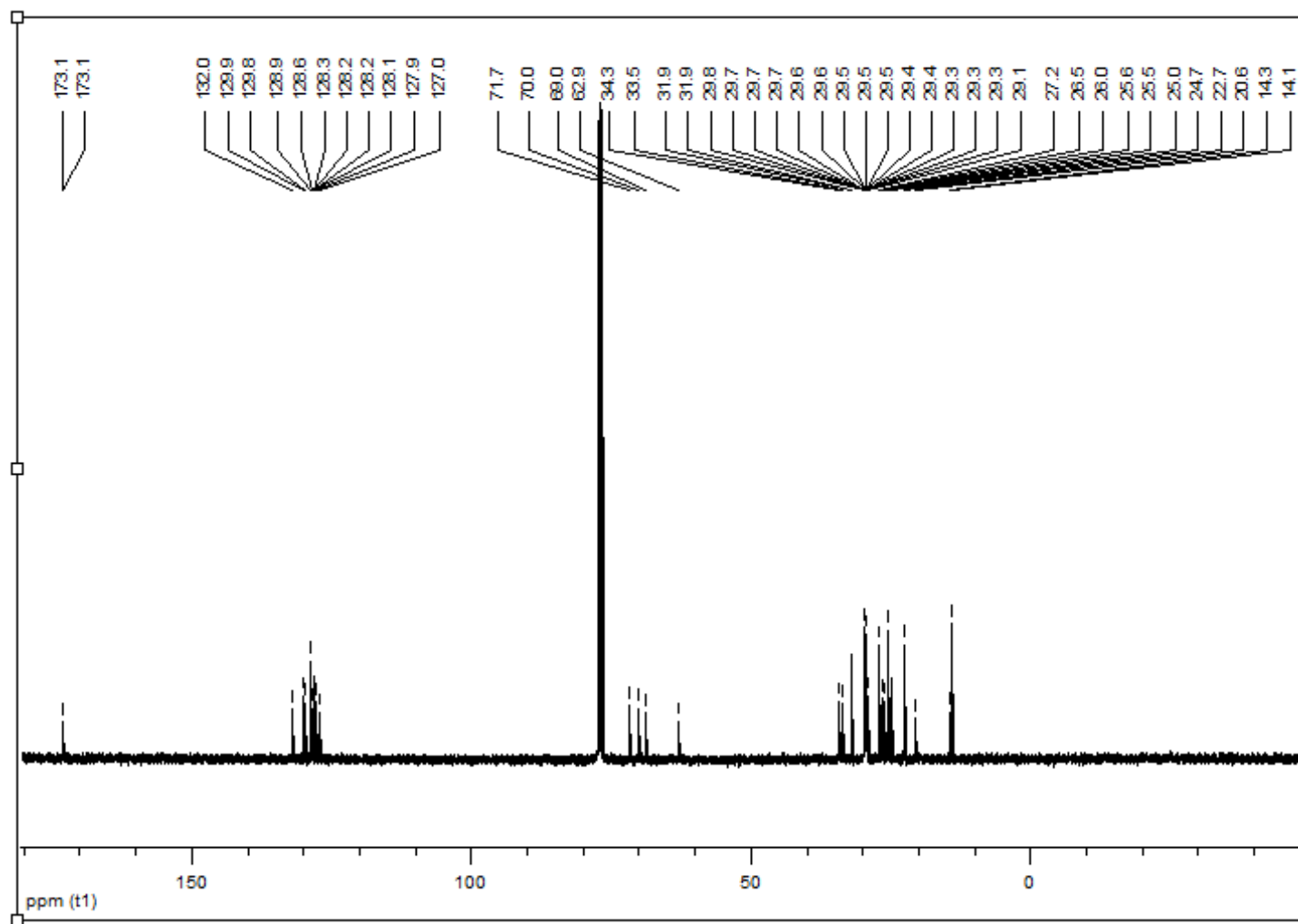


Figure S12. ^{13}C -NMR (CDCl_3 , 100 MHz) of compound **8e**.

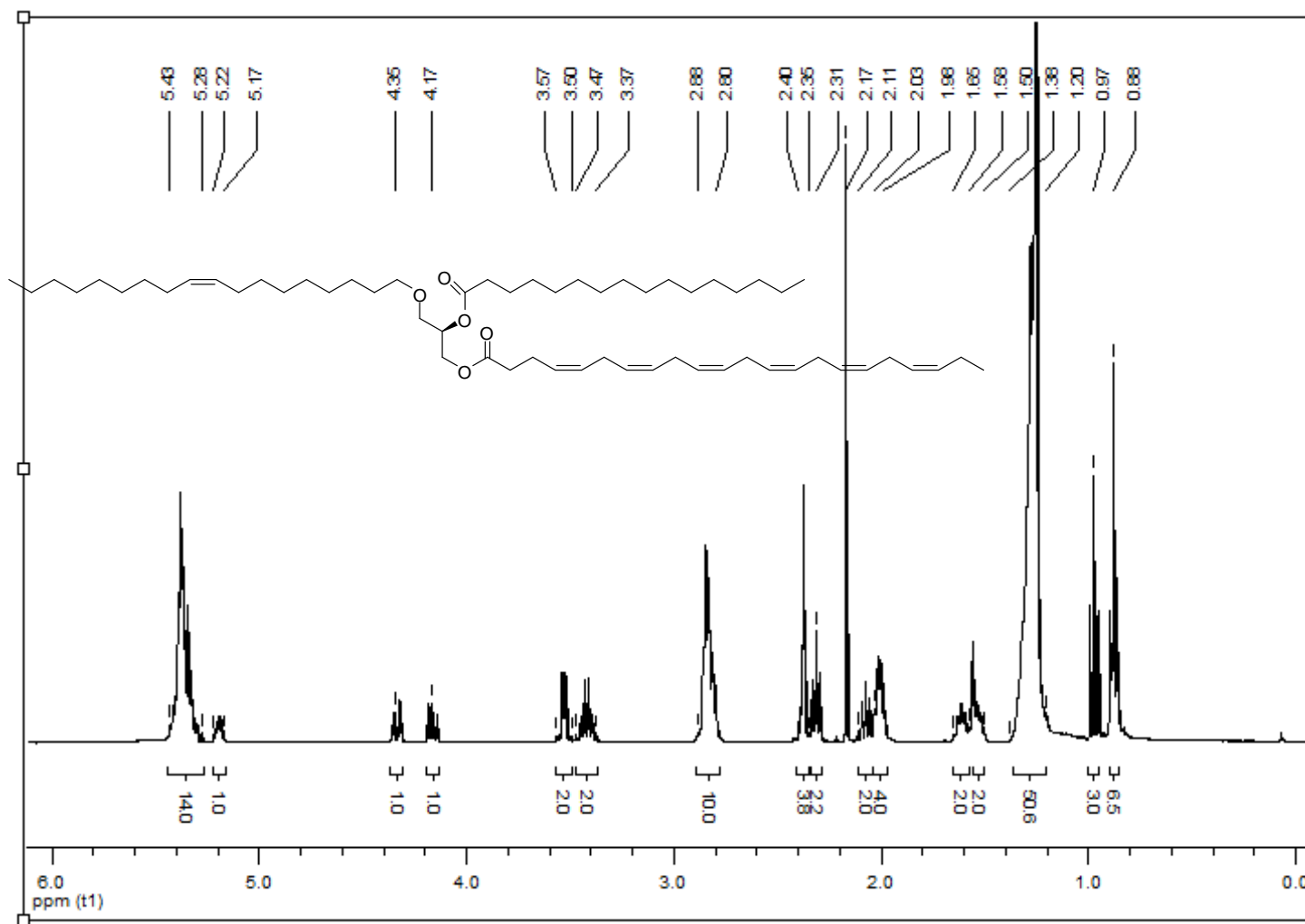


Figure S13. ¹H-NMR (CDCl₃, 400 MHz) of compound 9f.

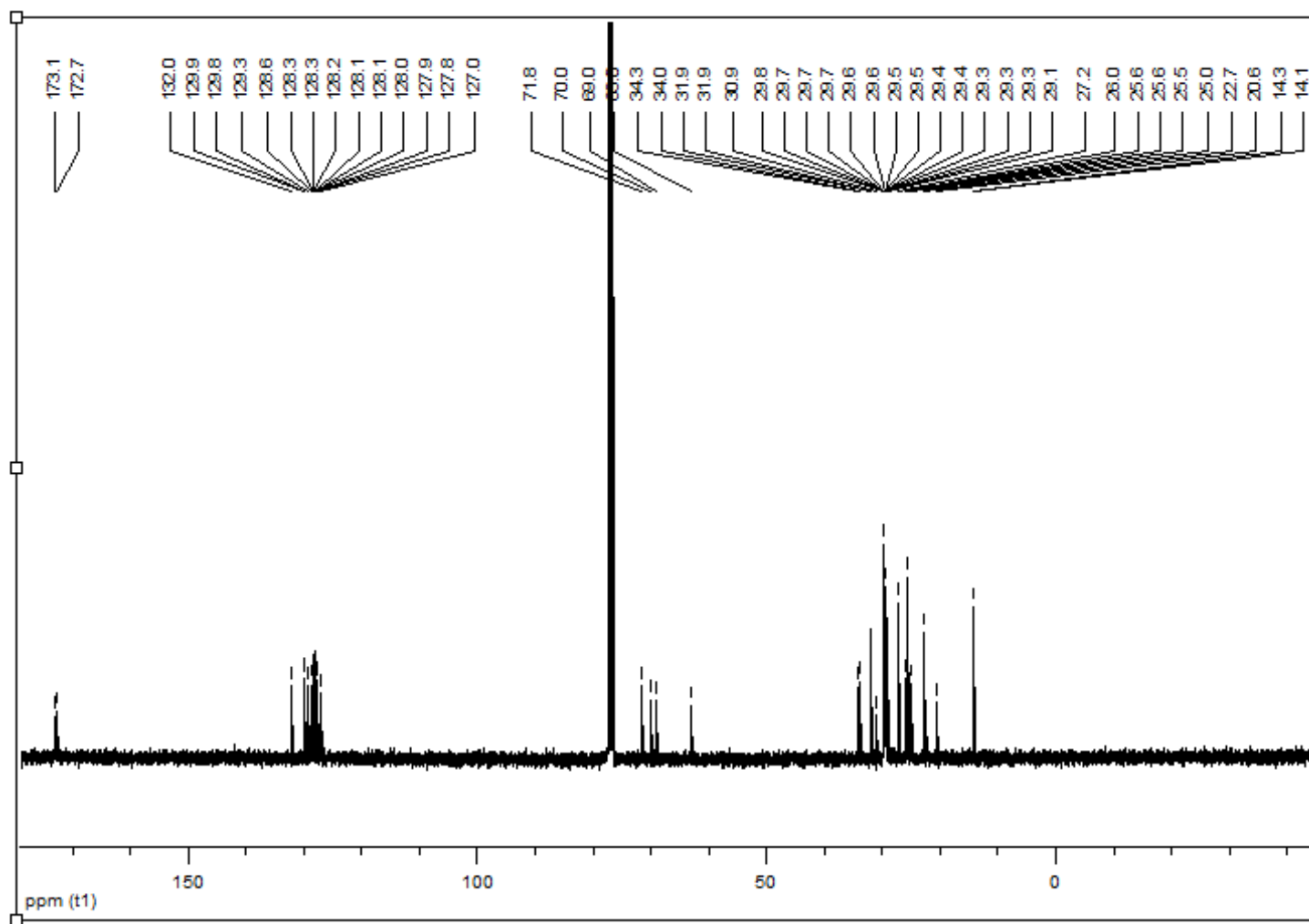


Figure S14. ^{13}C -NMR (CDCl_3 , 100 MHz) of compound **9f**.