

Supplementary File

Secondary Metabolites with Anti-Inflammatory Activities from one Actinobacteria *Amycolatopsis taiwanensis*

Yung-Shun Su ^{1,2}, Ming-Der Wu ³, Jih-Jung Chen ^{4,5,*}, Ming-Jen Cheng ^{3,*}, Yueh-Hsiung Kuo ^{6,7,8}, Chee-Yin Chai ^{1,9} and Aij-Lie Kwan ^{1,10,11,*}

¹ Graduate Institute of Medicine, College of Medicine, Kaohsiung Medical University (KMU), Kaohsiung 807, Taiwan; mariussu@gmail.com (Y.-S.S.); cychai@kmu.edu.tw (C.-Y.C.); aijiekw@kmu.edu.tw (A.-L.K.)

² Department of Dermatology, Kaohsiung Medical University Chung-Ho Memorial Hospital, Kaohsiung 807, Taiwan

³ Bioresource Collection and Research Center (BCRC), Food Industry Research and Development Institute (FIRDI), Hsinchu 300, Taiwan; wmd@firdi.org.tw

⁴ Department of Pharmacy, School of Pharmaceutical Sciences, National Yang Ming Chiao Tung University (NYCU), Taipei 112, Taiwan

⁵ Department of Medical Research, China Medical University Hospital, Taichung 404, Taiwan

⁶ Department of Chemistry, National Taiwan University, Taipei 106, Taiwan; yhkuo800@gmail.com

⁷ Department of Biotechnology, Asia University, Taichung 413, Taiwan

⁸ Department of Chinese Pharmaceutical Sciences and Chinese Medicine Resources, College of Pharmacy, China Medical University, Taichung 404, Taiwan

⁹ Department of Pathology, Kaohsiung Medical University Chung-Ho Memorial Hospital, Kaohsiung 807, Taiwan

¹⁰ Ph.D. Program in Environmental and Occupational Medicine, College of Medicine, Kaohsiung Medical University and National Health Research Institutes, Kaohsiung 807, Taiwan

¹¹ Department of Neurosurgery, Kaohsiung Medical University Chung-Ho Memorial Hospital, Kaohsiung 807, Taiwan

* Correspondence: jjungchen@nycu.edu.tw (J.-J.C.); chengfirdi@gmail.com (M.-J.C.)

Citation: Su, Y.-S.; Wu, M.-D.; Chen, J.-J.; Cheng, M.-J.; Kuo, Y.-H.; Chai, C.-Y.; Kwan, A.-L. Secondary Metabolites with Anti-Inflammatory Activities from one Actinobacteria *Amycolatopsis taiwanensis*. *Molecules* **2021**, *26*, 5765.
<https://doi.org/10.3390/molecules2615765>

Academic Editor: Bruno Botta

Received: 13 August 2021

Accepted: 10 September 2021

Published: 21 September 2021

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2021 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).

Contents

| | |
|---|----|
| Figure S1. ^1H NMR spectrum of 1 | 5 |
| Figure S2. ^{13}C NMR spectrum of 1 | 5 |
| Figure S3. ^1H - ^1H COSY spectrum of 1 | 6 |
| Figure S4. HMBC spectrum of 1 | 6 |
| Figure S5. NOESY spectrum of 1 | 7 |
| Figure S6. HSQC spectrum of 1 | 7 |
| Figure S7. EI-MS spectrum of 1 | 8 |
| Figure S8. ^1H NMR spectrum of 2 | 9 |
| Figure S9. ^{13}C NMR spectrum of 2 | 9 |
| Figure S10. ^1H - ^1H COSY spectrum of 2 | 10 |
| Figure S11. HMBC spectrum of 2 | 10 |
| Figure S12. NOESY spectrum of 2 | 11 |
| Figure S13. HSQC spectrum of 2 | 11 |
| Figure S14. EI-MS spectrum of 2 | 12 |
| Figure S15. ^1H NMR spectrum of 3 | 13 |
| Figure S16. ^{13}C NMR spectrum of 3 | 13 |
| Figure S17. ^1H - ^1H COSY spectrum of 3 | 14 |
| Figure S18. HMBC spectrum of 3 | 14 |
| Figure S19. NOESY spectrum of 3 | 15 |
| Figure S20. HSQC spectrum of 3 | 15 |
| Figure S21. EI-MS spectrum of 3 | 16 |
| Figure S22. ^1H NMR spectrum of 4 | 17 |
| Figure S23. ^{13}C NMR spectrum of 4 | 17 |
| Figure S24. ^1H - ^1H COSY spectrum of 4 | 18 |
| Figure S25. HMBC spectrum of 4 | 18 |
| Figure S26. NOESY spectrum of 4 | 19 |
| Figure S27. HSQC spectrum of 4 | 19 |
| Figure S28. EI-MS spectrum of 4 | 20 |
| Figure S29. ^1H NMR spectrum of 5 | 21 |
| Figure S30. ^{13}C NMR spectrum of 5 | 21 |
| Figure S31. ^1H - ^1H COSY spectrum of 5 | 22 |
| Figure S32. HMBC spectrum of 5 | 22 |

| | |
|---|----|
| Figure S33. NOESY spectrum of 5 | 23 |
| Figure S34. HSQC spectrum of 5 | 23 |
| Figure S35. EI-MS spectrum of 5 | 24 |
| Figure S36. ^1H NMR spectrum of 6 | 25 |
| Figure S37. ^{13}C NMR/DEPT spectra of 6 | 25 |
| Figure S38. ^1H - ^1H COSY spectrum of 6 | 26 |
| Figure S39. HMBC spectrum of 6 | 26 |
| Figure S40. NOESY spectrum of 6 | 27 |
| Figure S41. HSQC spectrum of 6 | 27 |
| Figure S42. EI-MS spectrum of 6 | 28 |
| Figure S43. ^1H NMR spectrum of 7 | 29 |
| Figure S44. ^{13}C NMR/DEPT spectra of 7 | 29 |
| Figure S45. ^1H - ^1H COSY spectrum of 7 | 30 |
| Figure S46. HMBC spectrum of 7 | 30 |
| Figure S47. NOESY spectrum of 7 | 31 |
| Figure S48. HSQC spectrum of 7 | 31 |
| Figure S49. EI-MS spectrum of 7 | 32 |
| Figure S50. ^1H NMR spectrum of 8 | 33 |
| Figure S51. ^{13}C NMR/DEPT spectra of 8 | 33 |
| Figure S52. ^1H - ^1H COSY spectrum of 8 | 34 |
| Figure S53. HMBC spectrum of 8 | 34 |
| Figure S54. NOESY spectrum of 8 | 35 |
| Figure S55. HSQC spectrum of 8 | 35 |
| Figure S56. EI-MS spectrum of 8 | 36 |
| Figure S57. ^1H NMR spectrum of 9 | 37 |
| Figure S58. ^{13}C NMR/DEPT spectra of 9 | 37 |
| Figure S59. ^1H - ^1H COSY spectrum of 9 | 38 |
| Figure S60. HMBC spectrum of 9 | 38 |
| Figure S61. NOESY spectrum of 9 | 39 |
| Figure S62. HSQC spectrum of 9 | 39 |
| Figure S63. EI-MS spectrum of 9 | 40 |
| Figure S64. ^1H NMR spectrum of 10 | 41 |
| Figure S65. ^{13}C NMR/DEPT spectra of 10 | 41 |

| | |
|--|----|
| Figure S66. ^1H - ^1H COSY spectrum of 10 | 42 |
| Figure S67. HMBC spectrum of 10 | 42 |
| Figure S68. NOESY spectrum of 10 | 43 |
| Figure S69. HSQC spectrum of 10 | 43 |
| Figure S70. EI-MS spectrum of 10 | 44 |

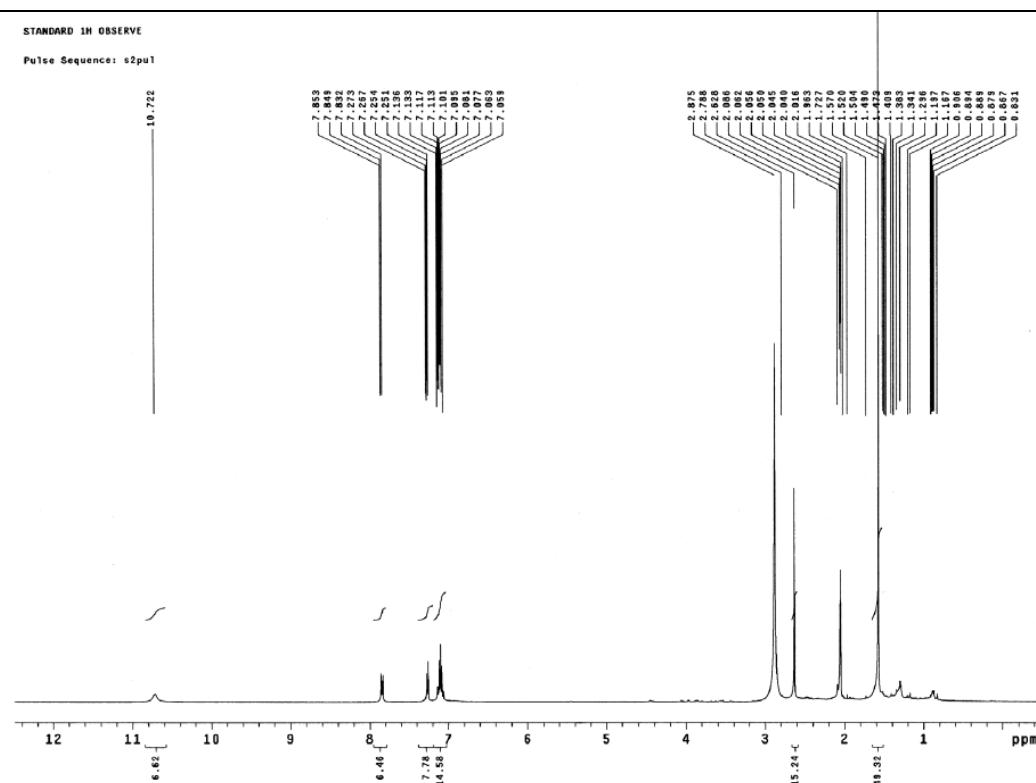


Figure S1. ^1H NMR spectrum of **1**

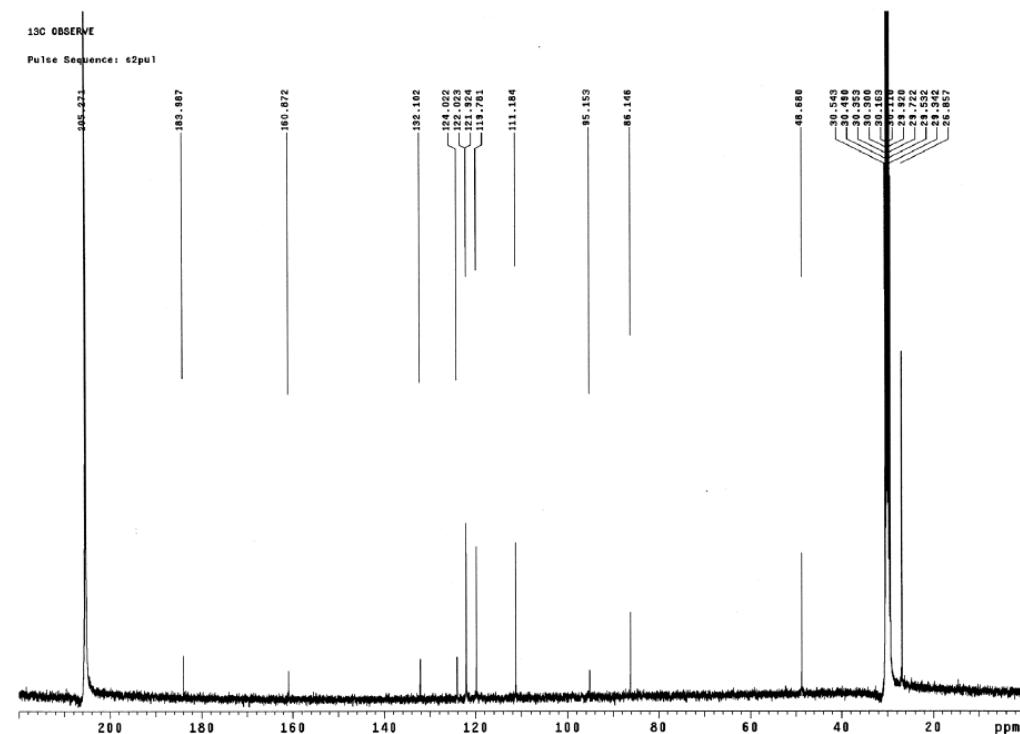


Figure S2. ^{13}C NMR spectrum of **1**

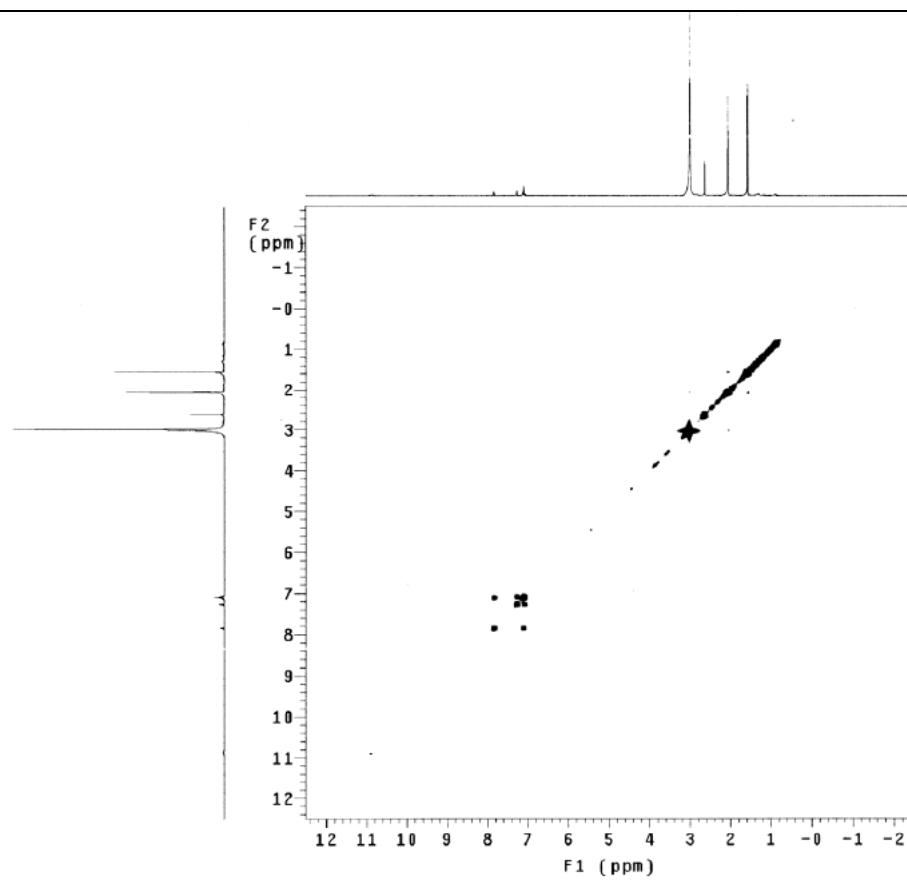


Figure S3. COSY spectrum of 1

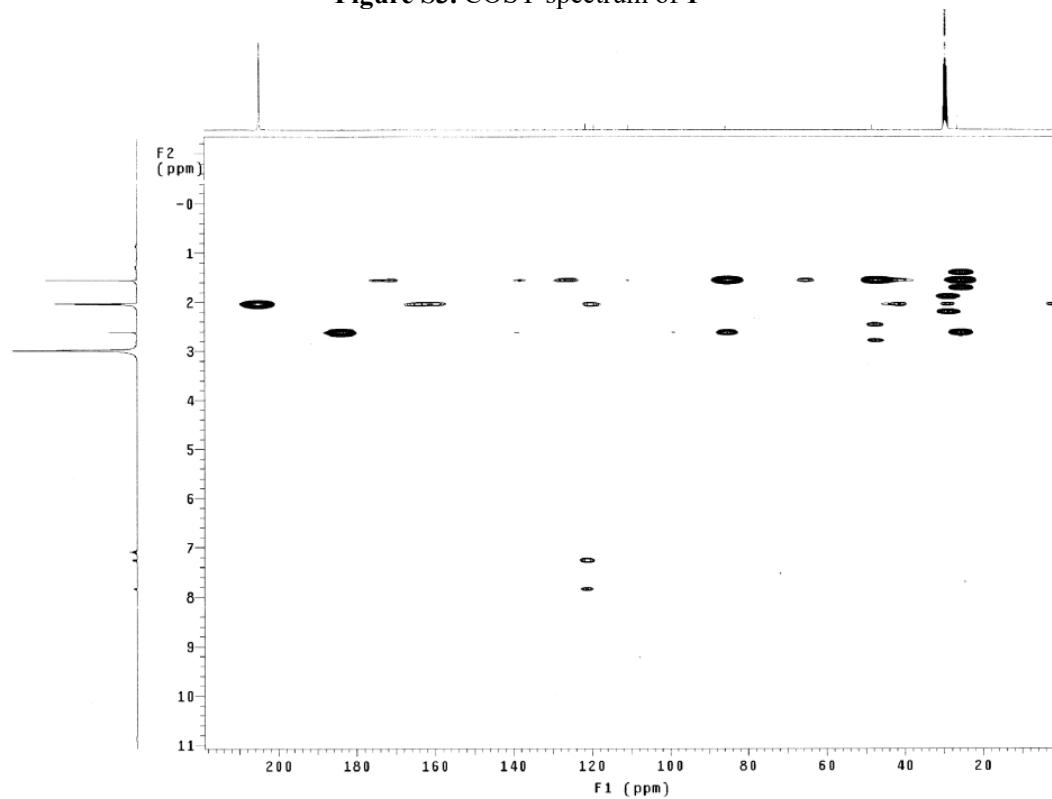
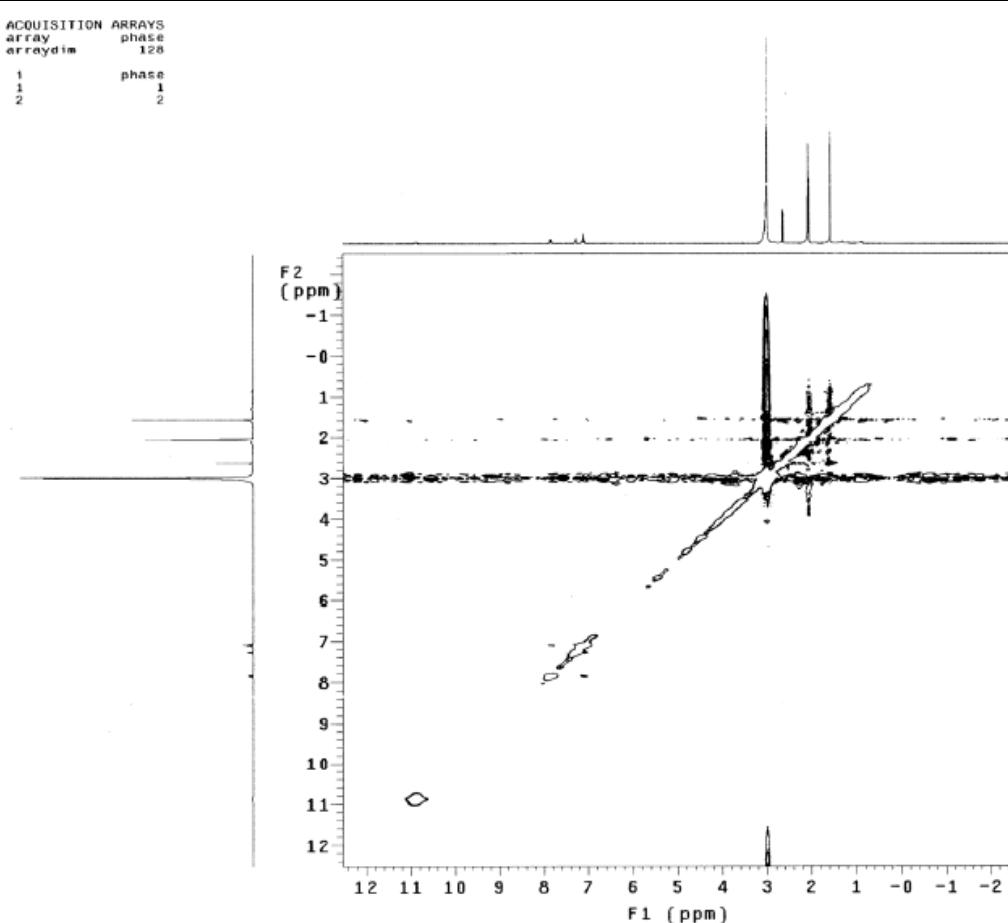
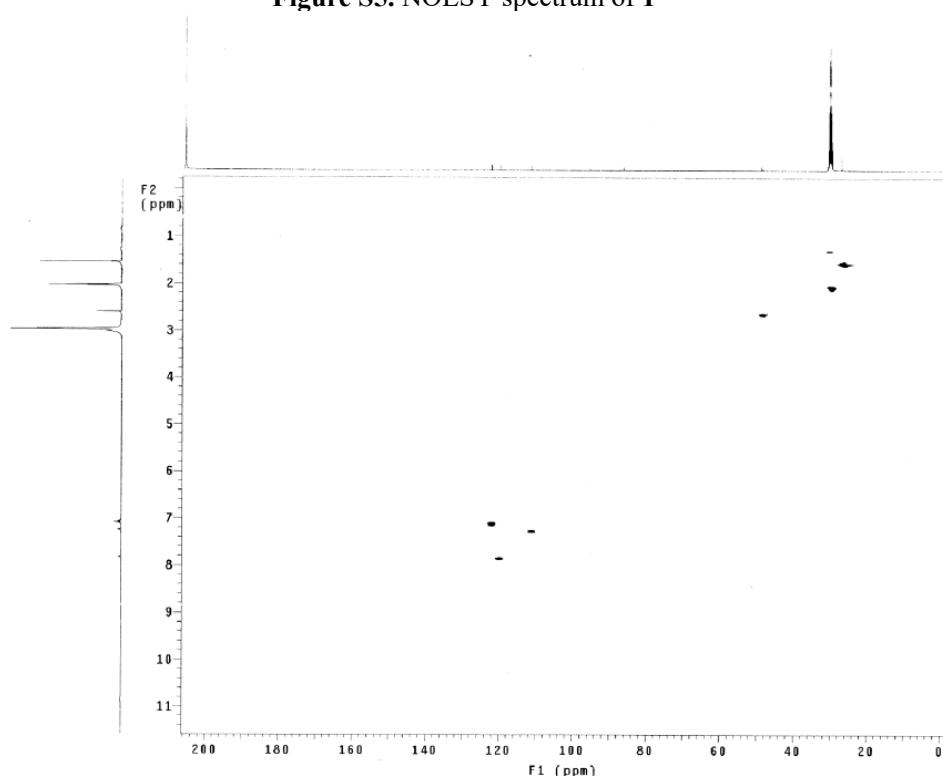


Figure S4. HMBC spectrum of 1

Figure S5. NOESY spectrum of **1**Figure S6. HSQC spectrum of **1**

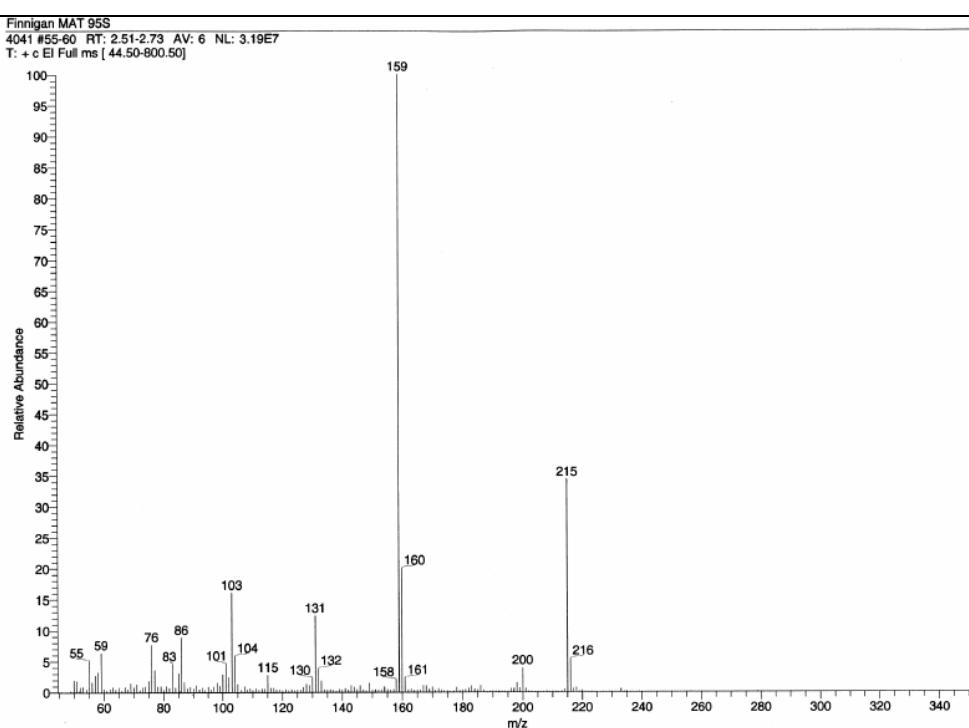


Figure S7. EIMS spectrum of **1**

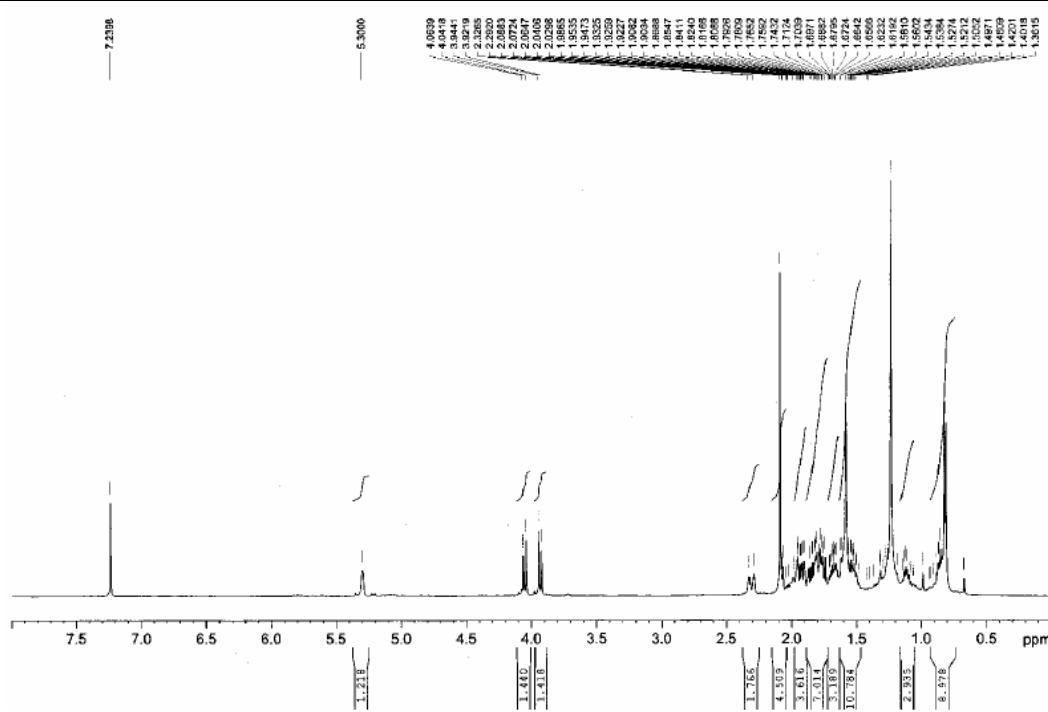


Figure S8. ^1H NMR spectrum of **2**

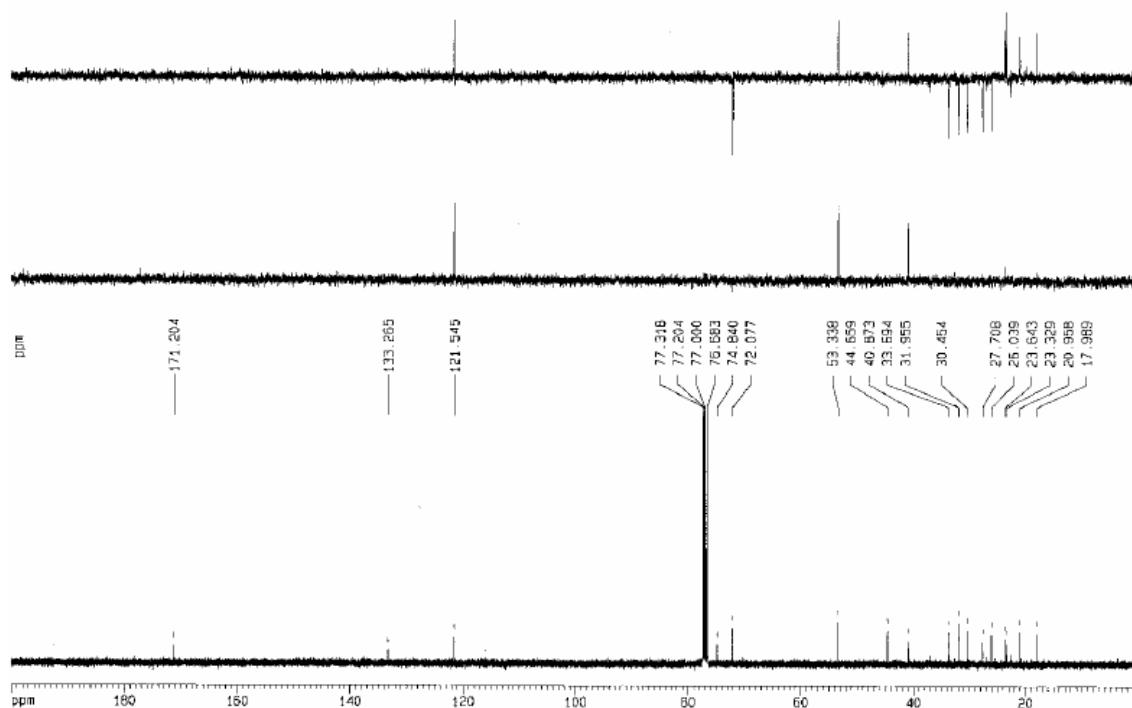


Figure S9. ^{13}C spectrum of **2**

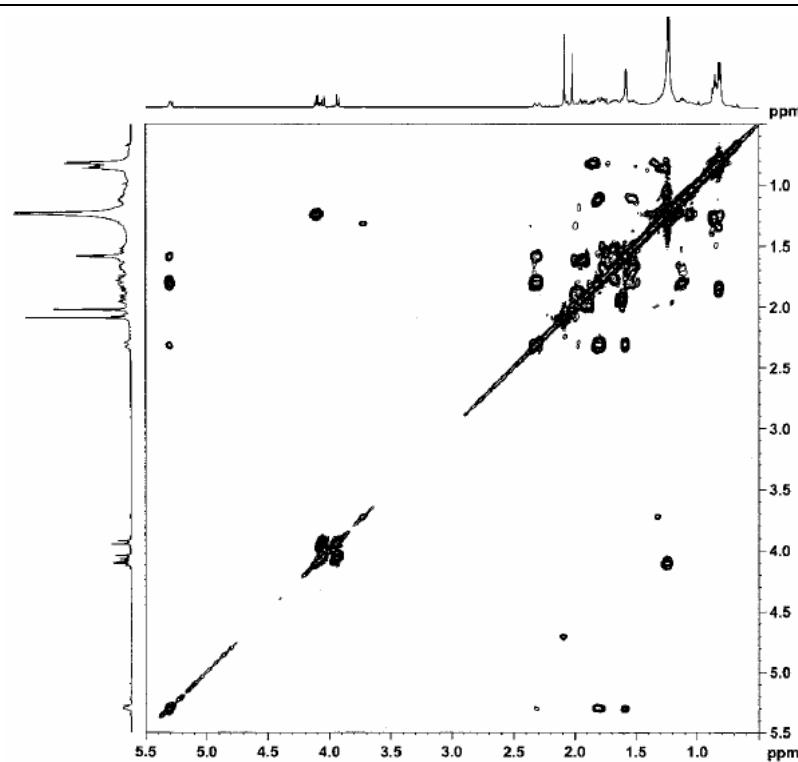


Figure S10. COSY spectrum of 2

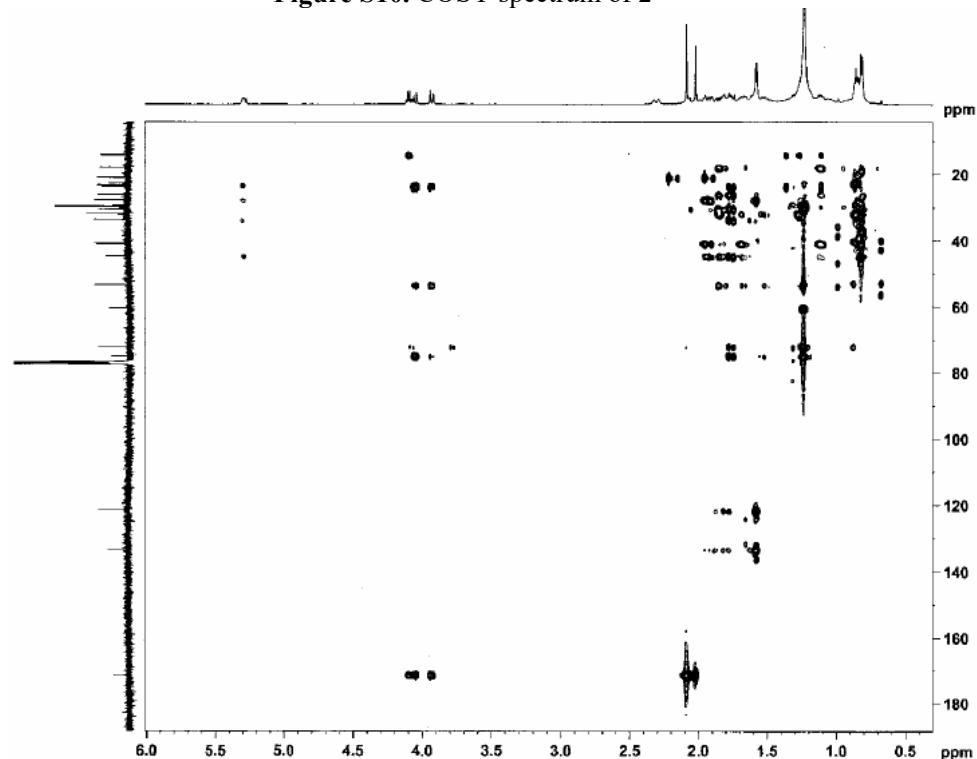


Figure S11. HMBC spectrum of 2

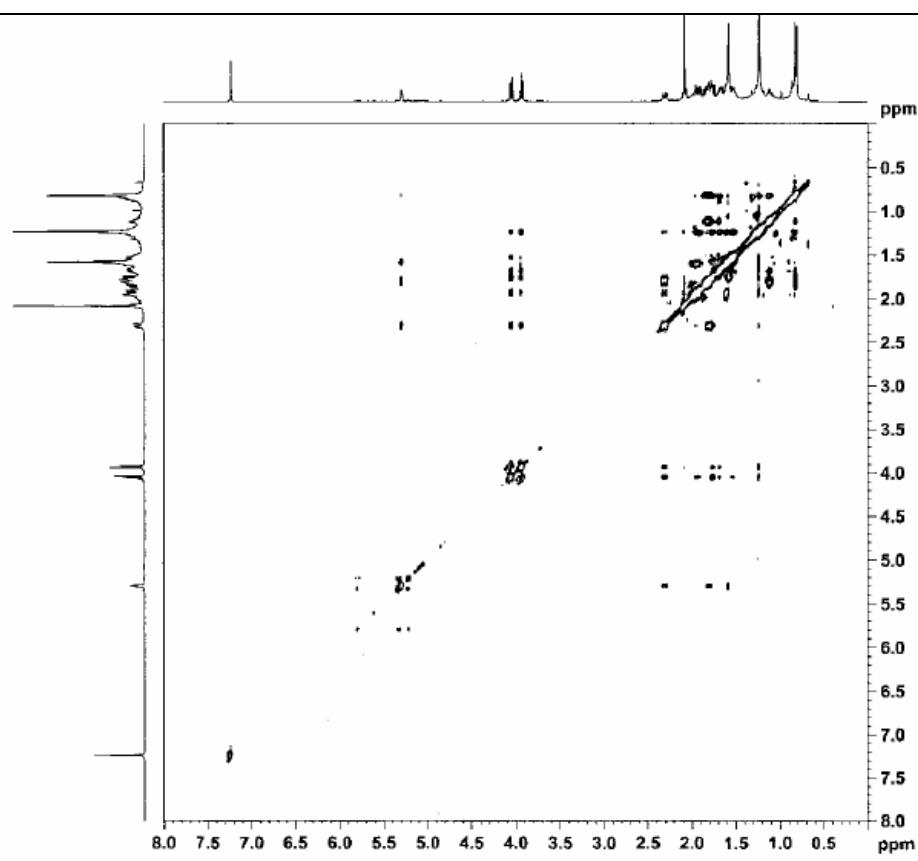


Figure S12. NOESY spectrum of 2

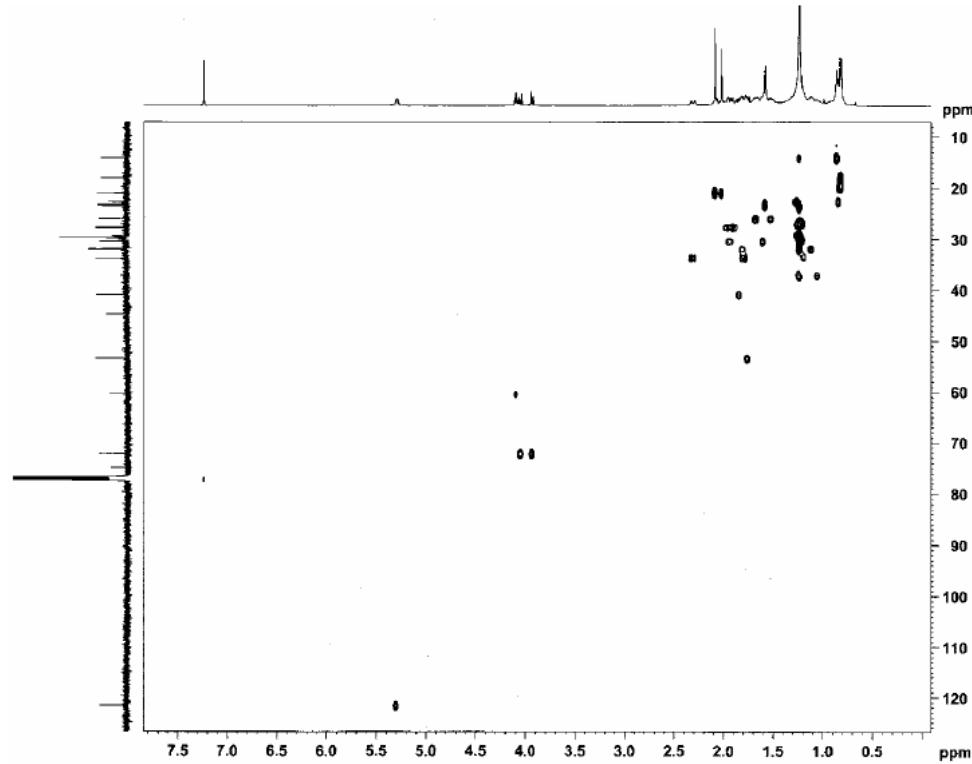


Figure S13. HSQC spectrum of 2

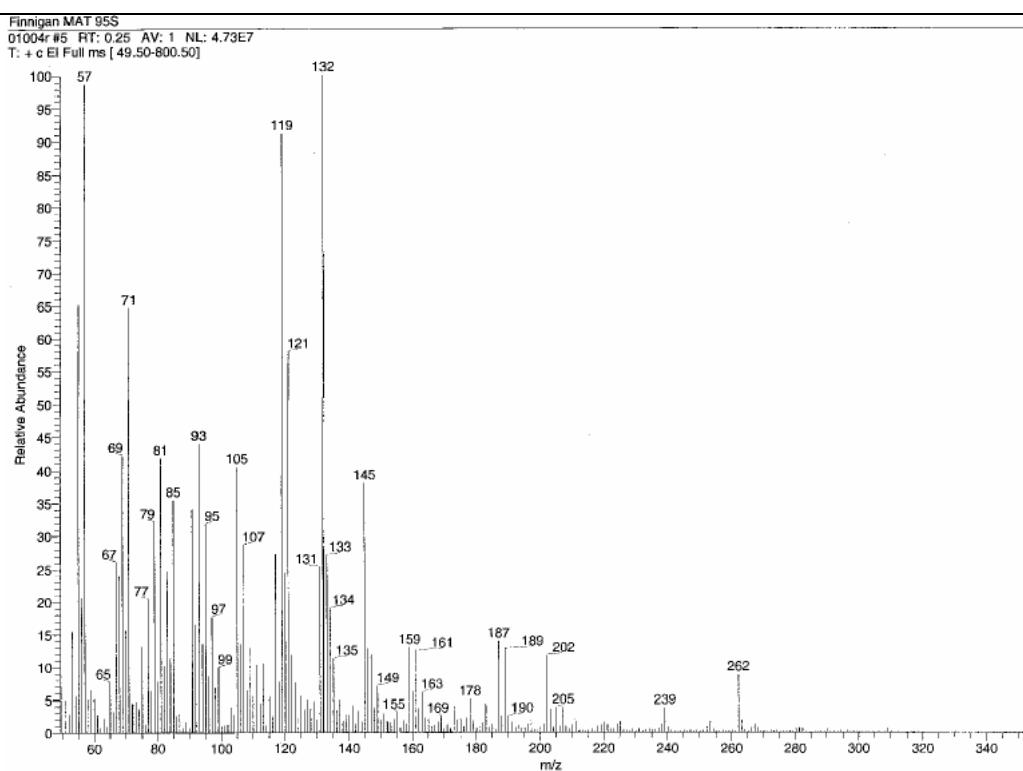


Figure S14. EI-MS spectrum of 2

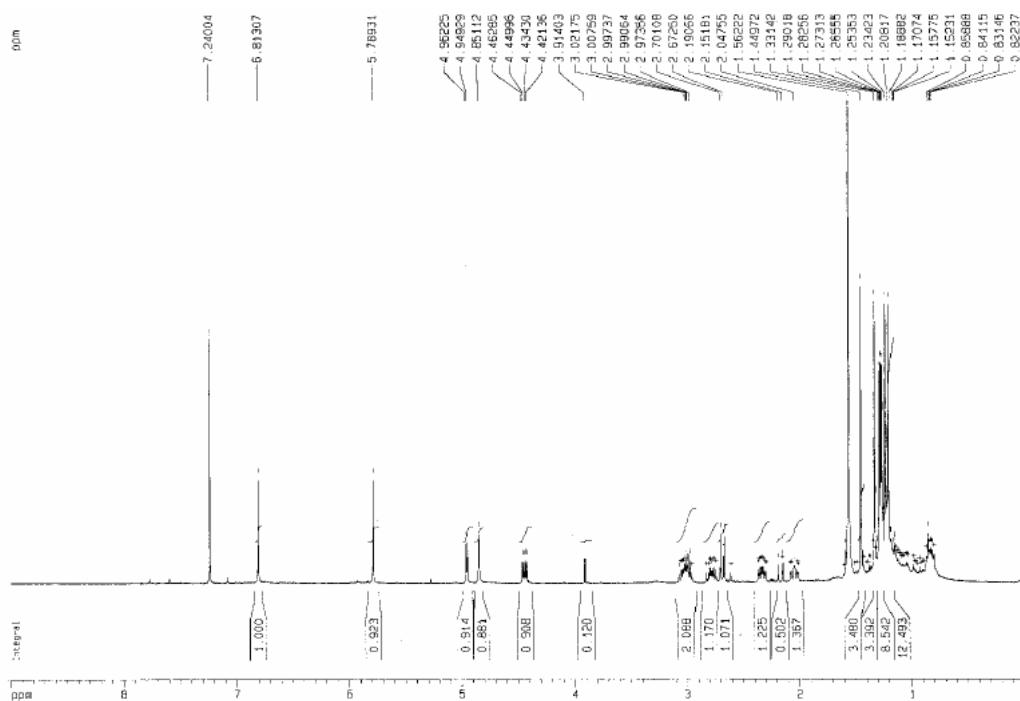


Figure S15. ¹H NMR spectrum of **3**

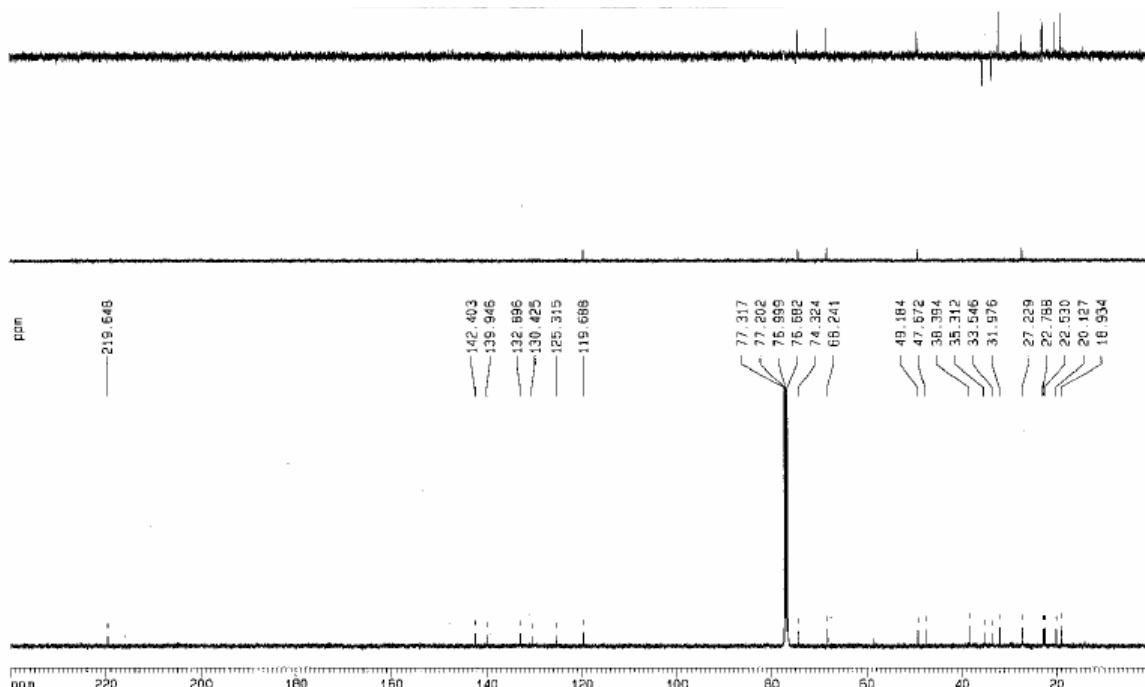


Figure S16. ¹³C NMR spectrum of **3**

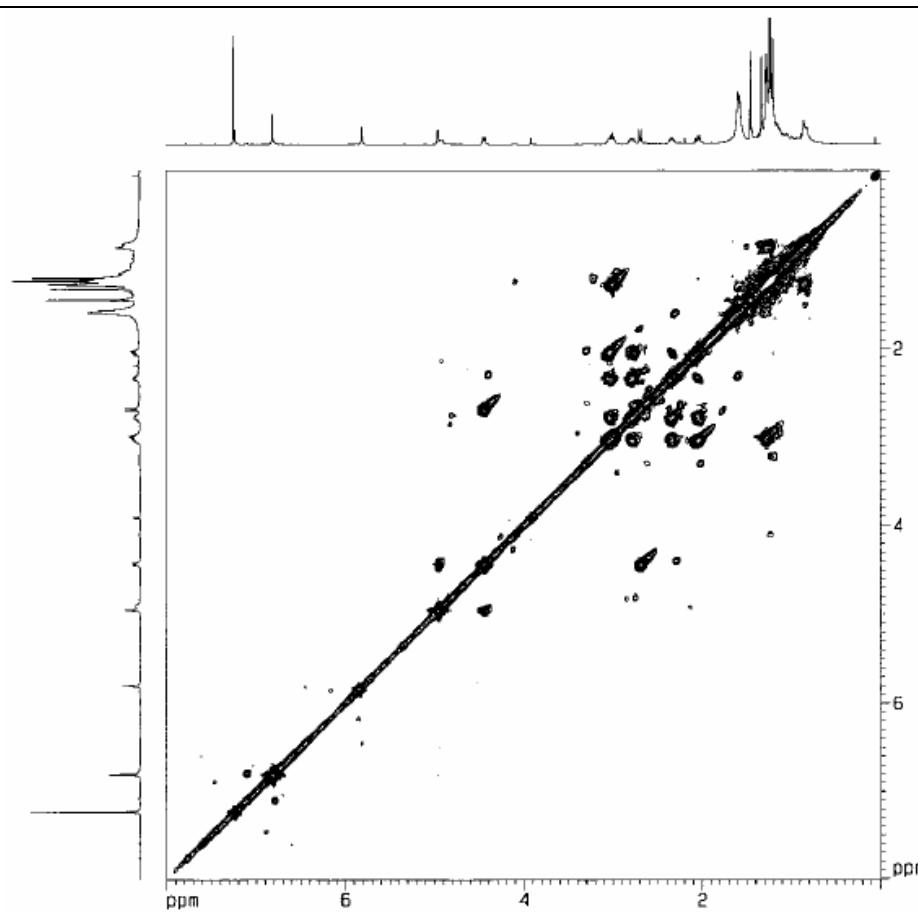


Figure S17. COSY spectrum of 3

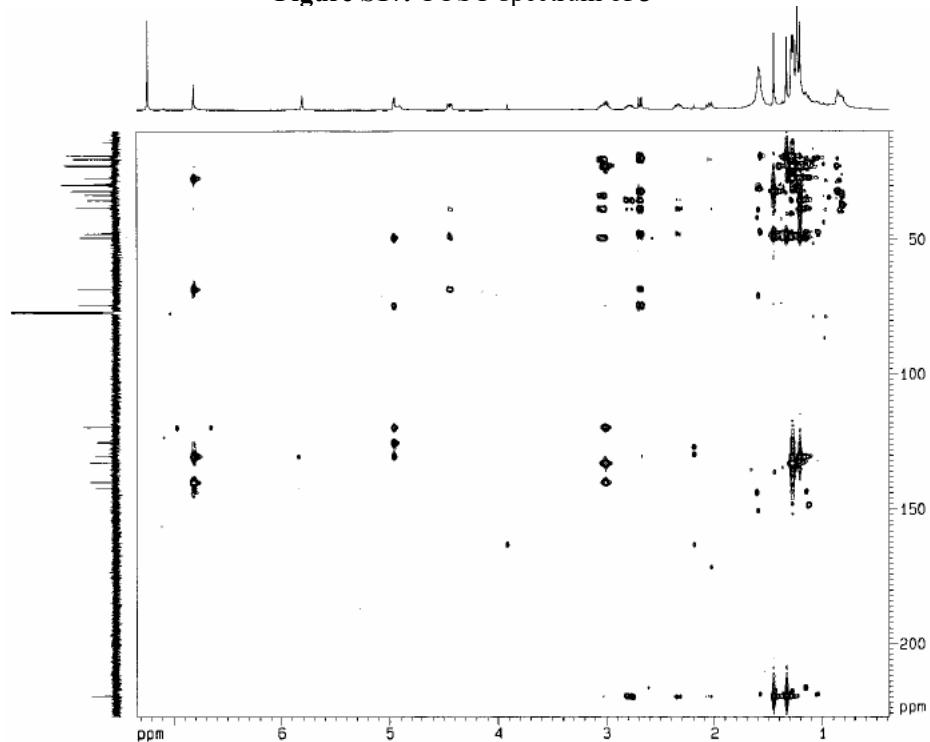


Figure S18. HMBC spectrum of 3

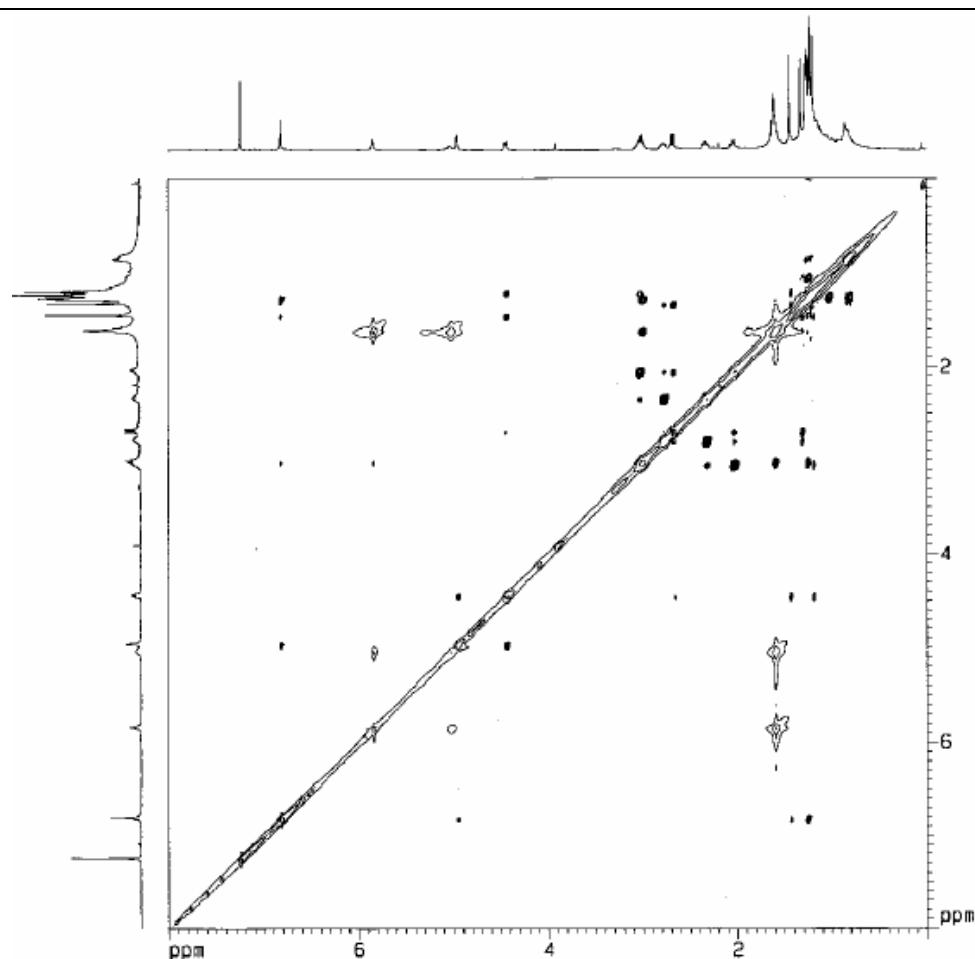


Figure S19. NOESY spectrum of 3

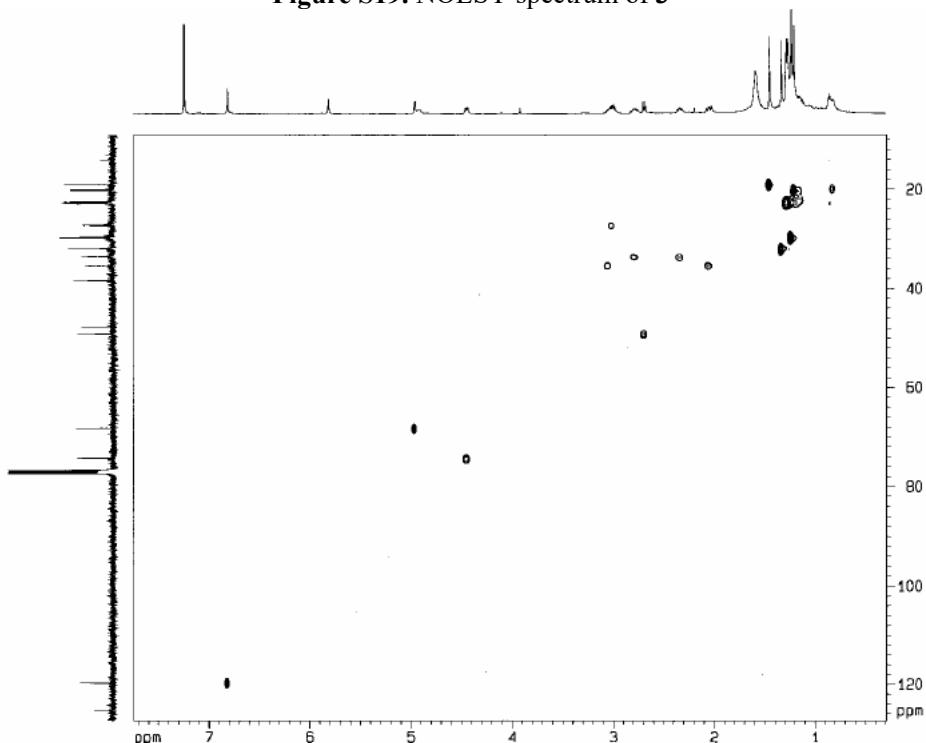


Figure S20. HSQC spectrum of 3

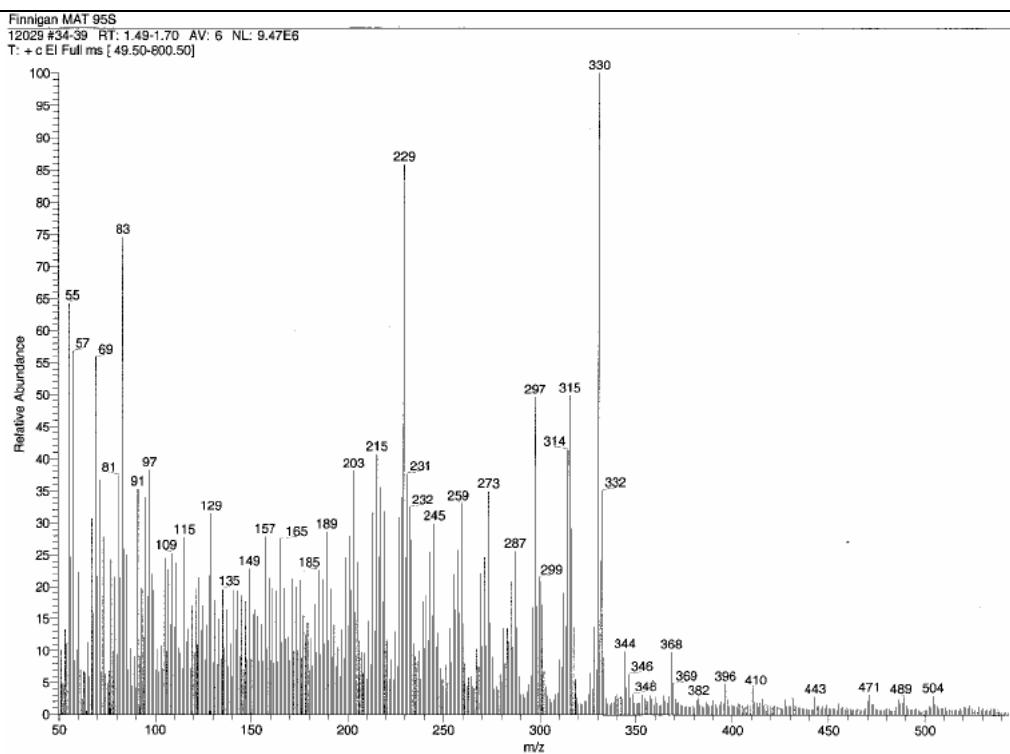
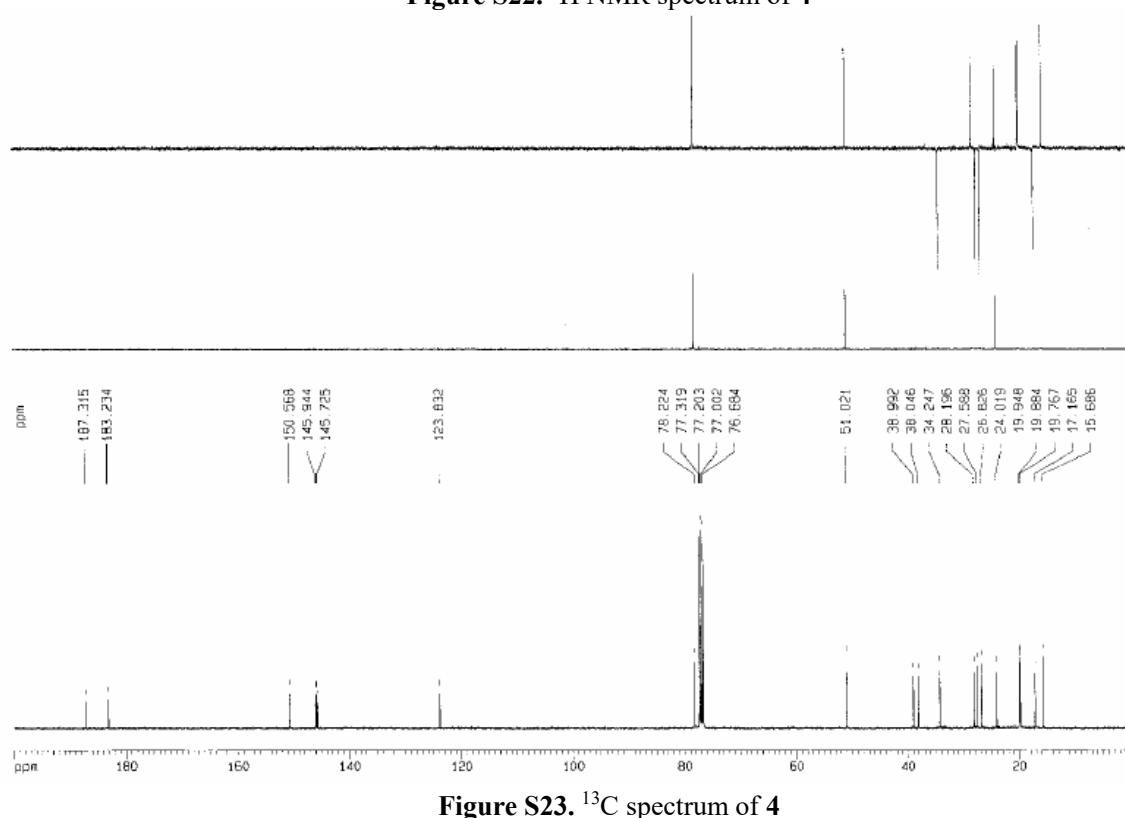
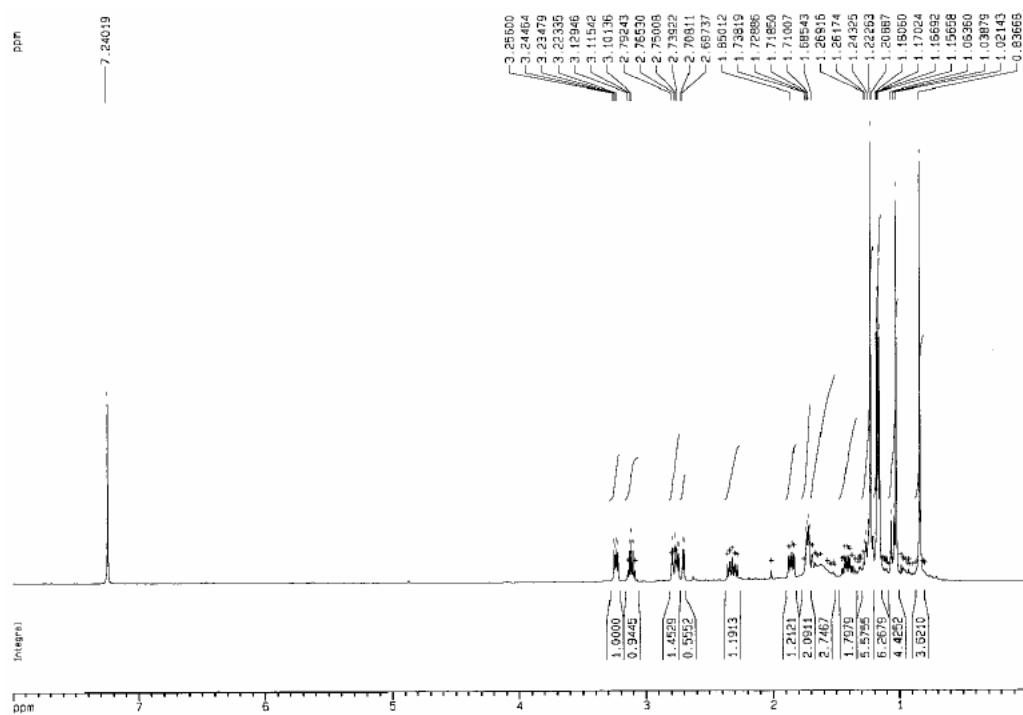


Figure S21. EI-MS spectrum of **3**



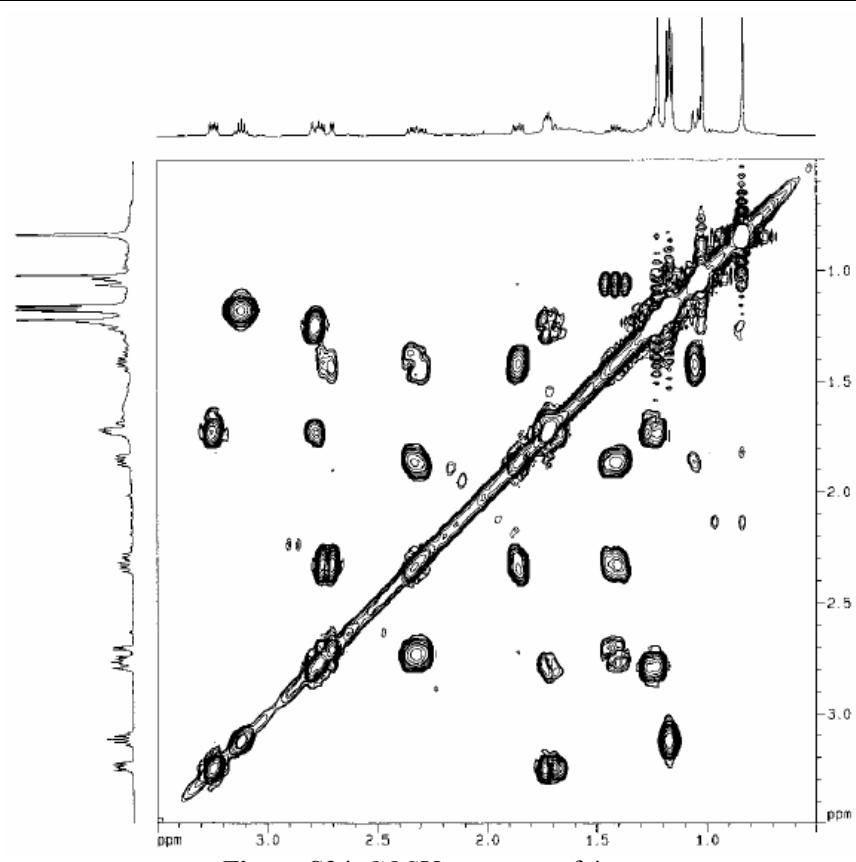


Figure S24. COSY spectrum of 4

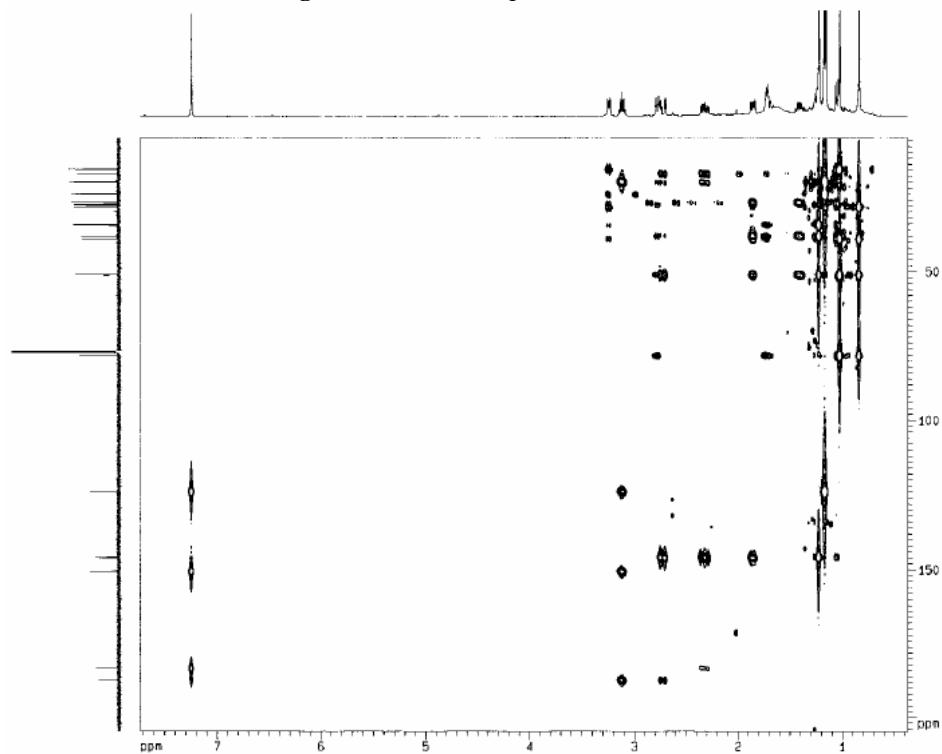


Figure S25. HMBC spectrum of 4

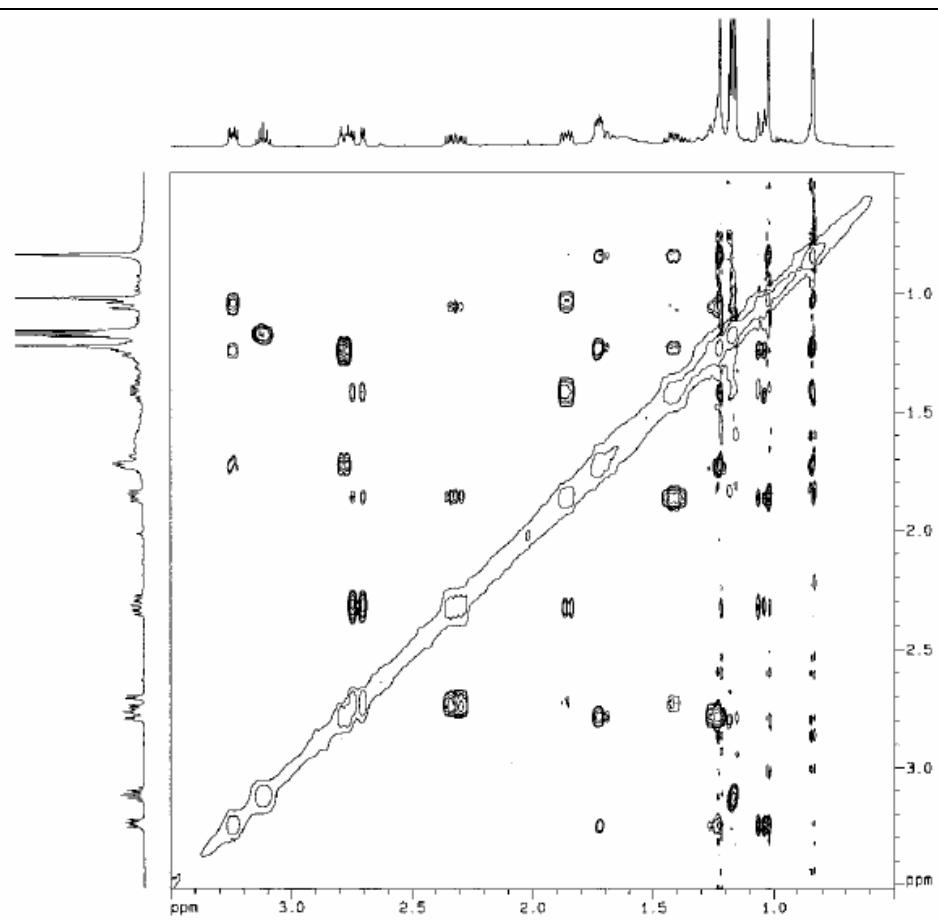


Figure S26. NOESY spectrum of 4

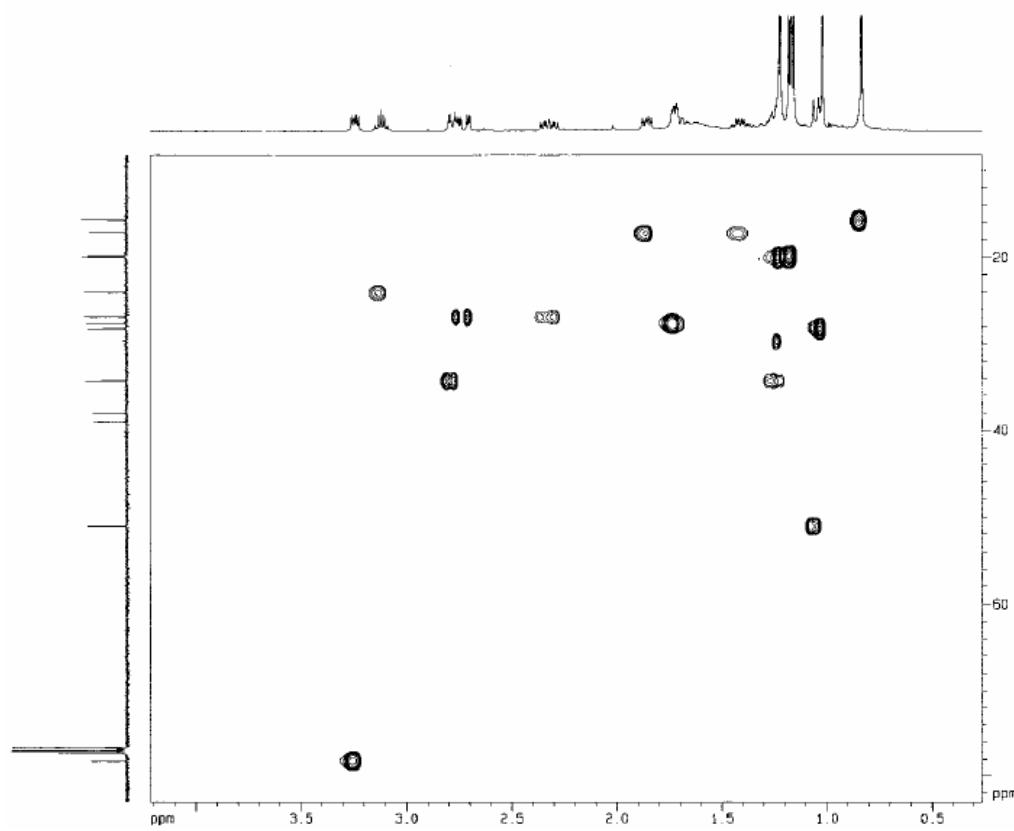
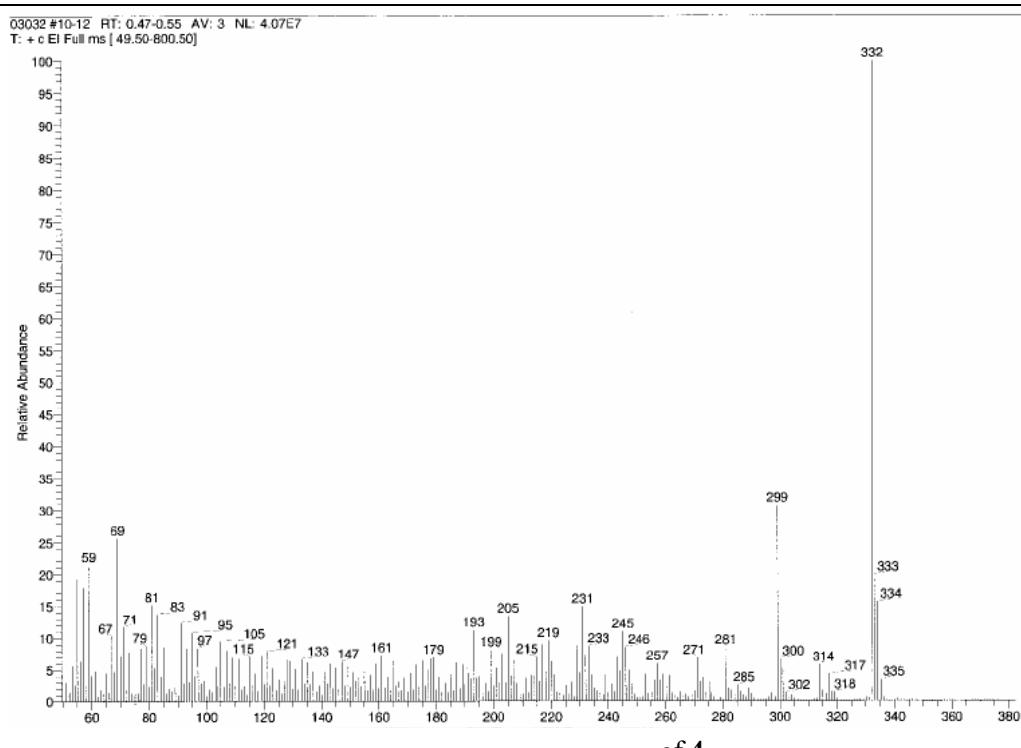
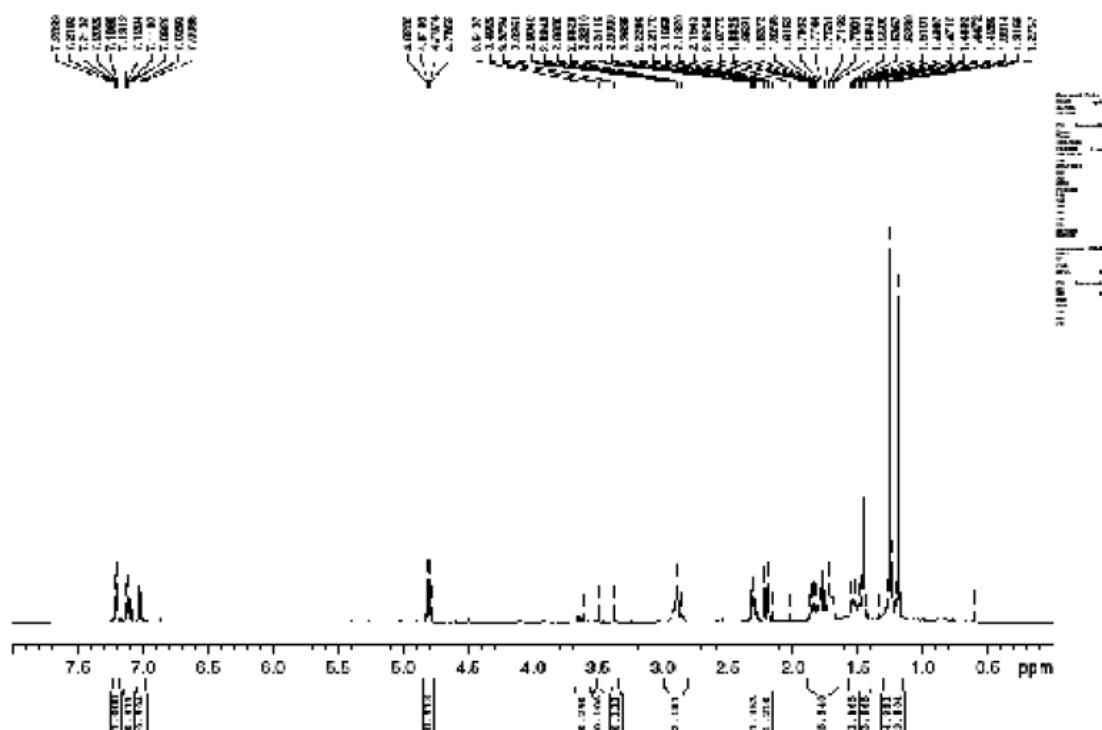
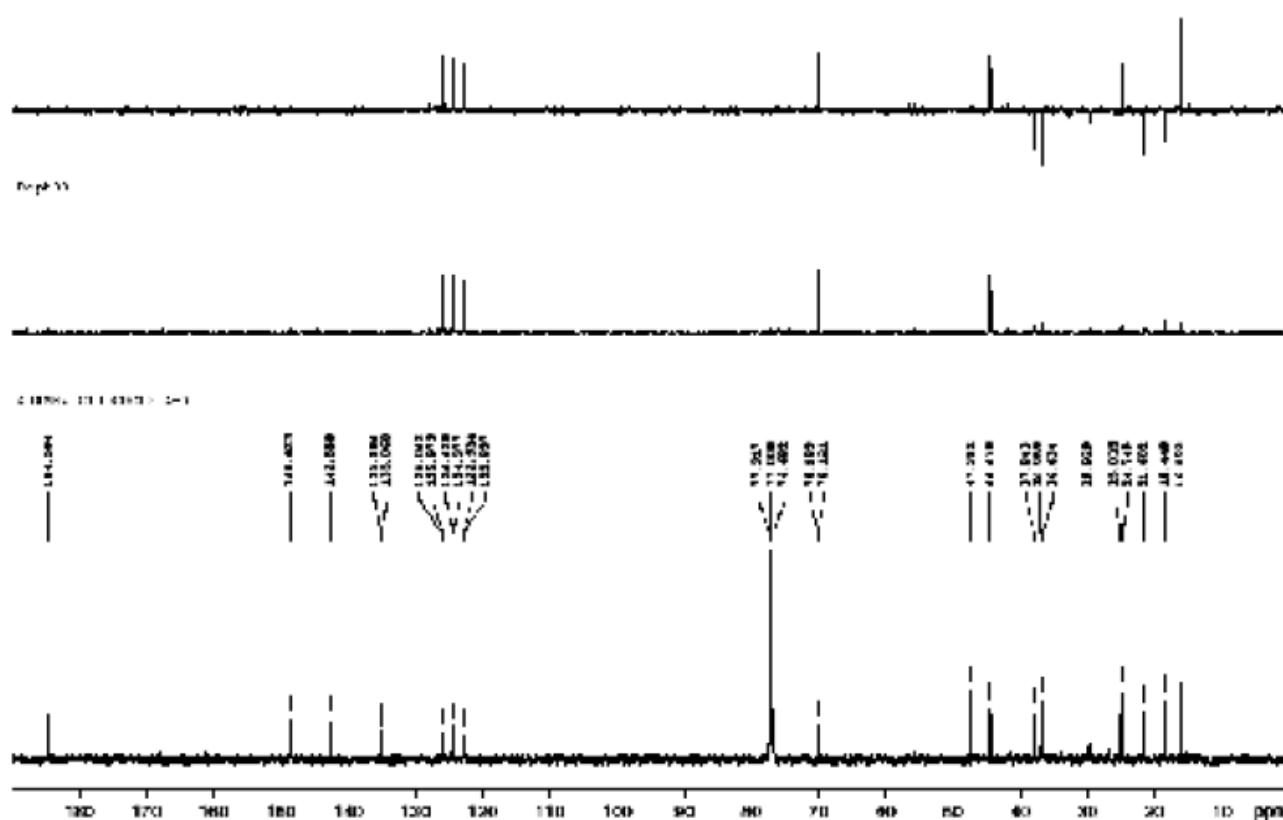


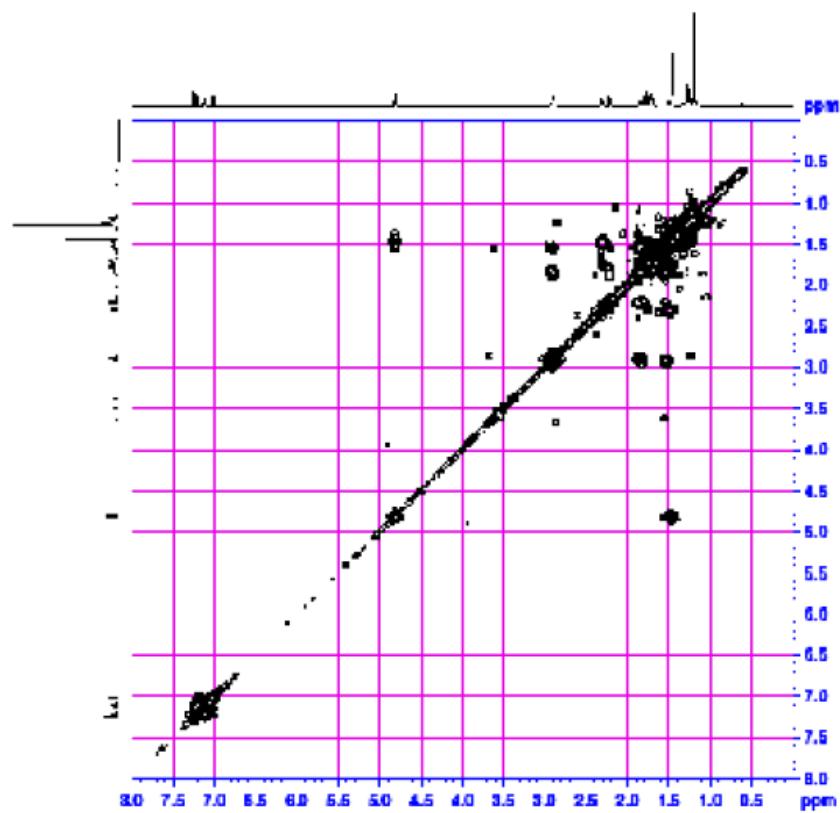
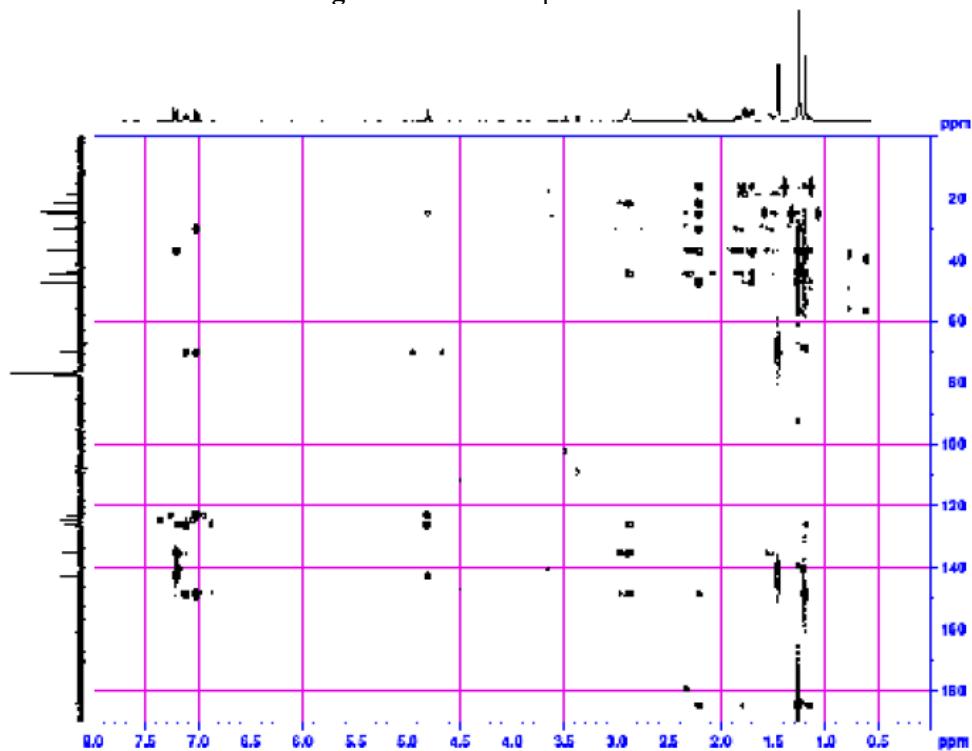
Figure S27. HSQC spectrum of 4



of 4

Figure S28. EI-MS spectrum

Figure S29. ^1H NMR spectrum of **5**Figure S30. ^{13}C spectrum of **5**

Figure S31. COSY spectrum of **5**Figure S32. HMBC spectrum of **5**

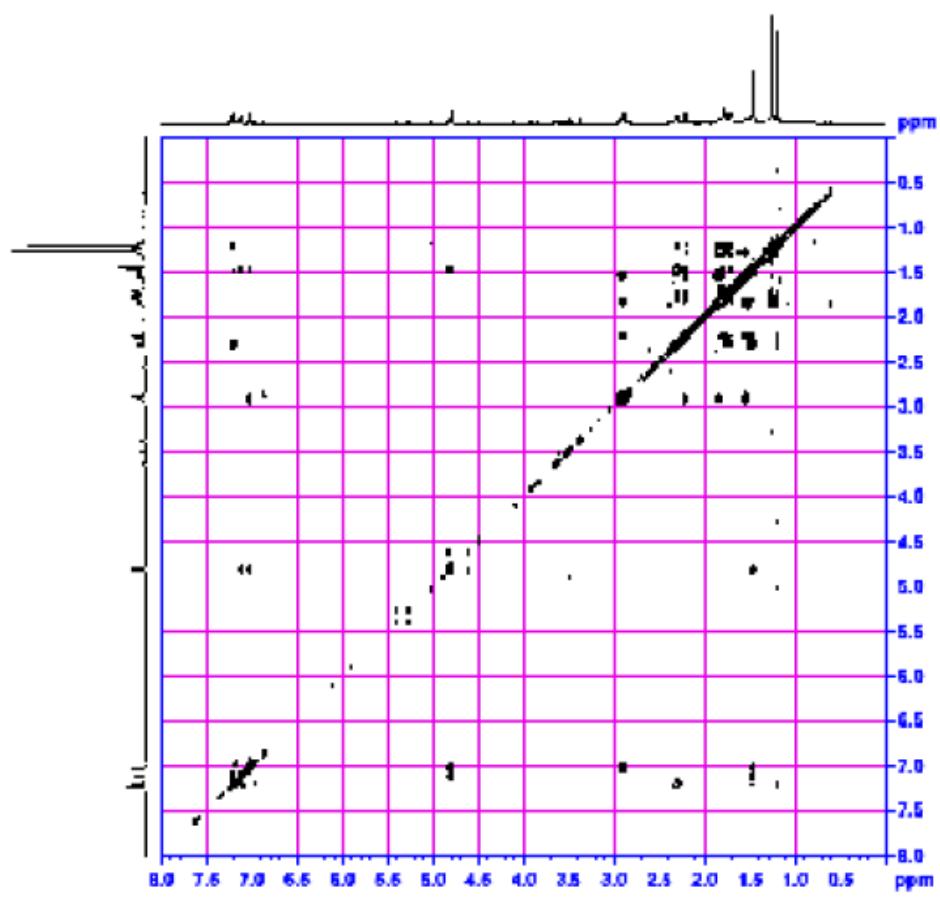


Figure S33. NOESY spectrum of **5**

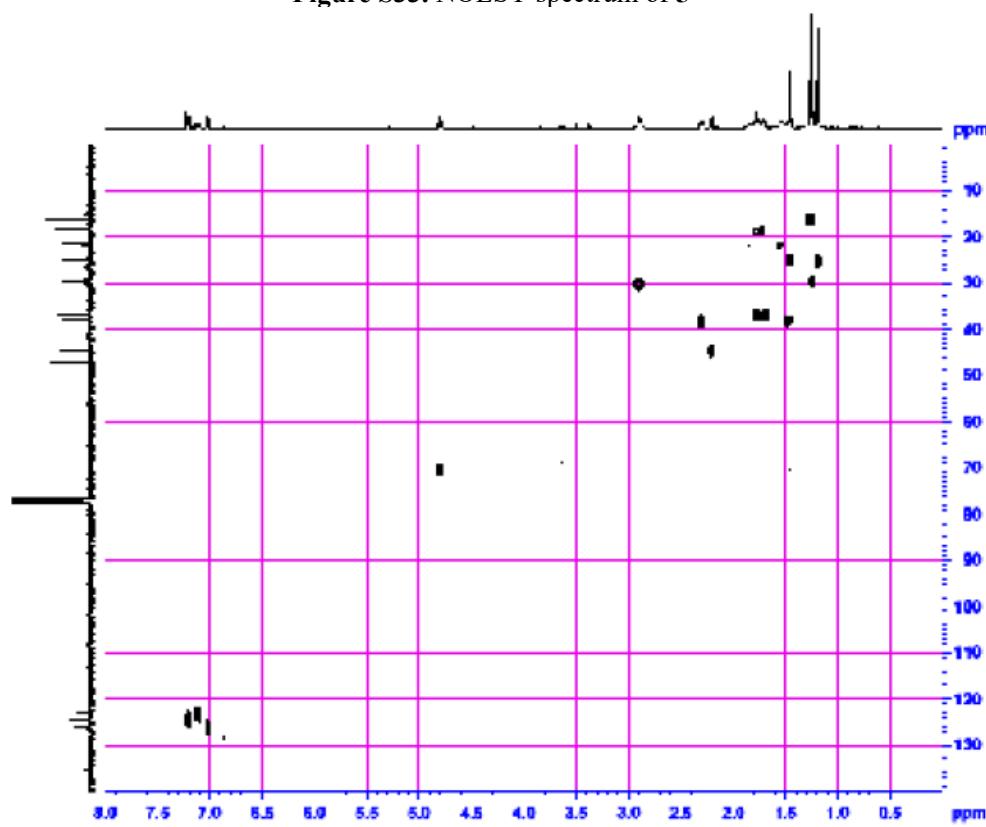
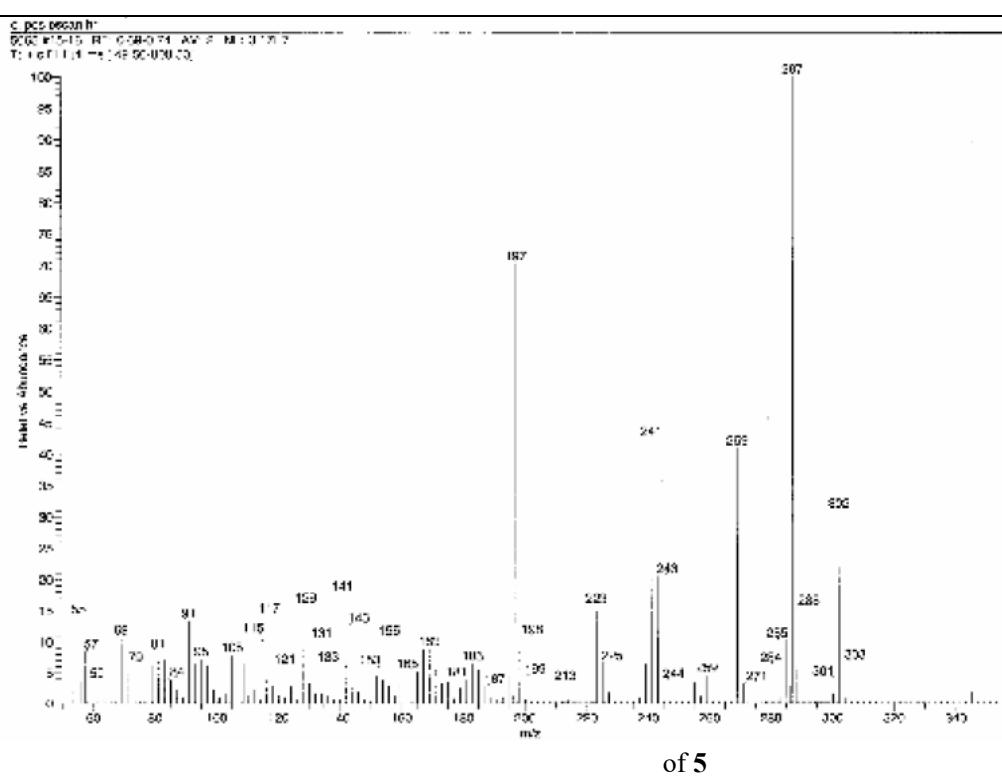
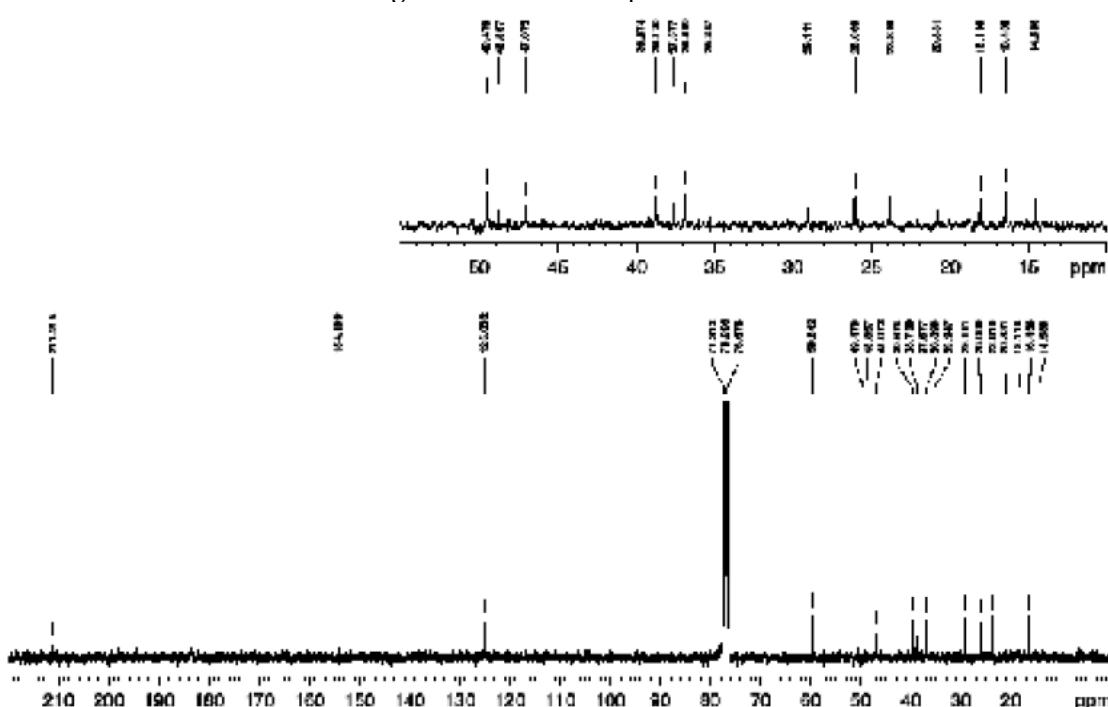
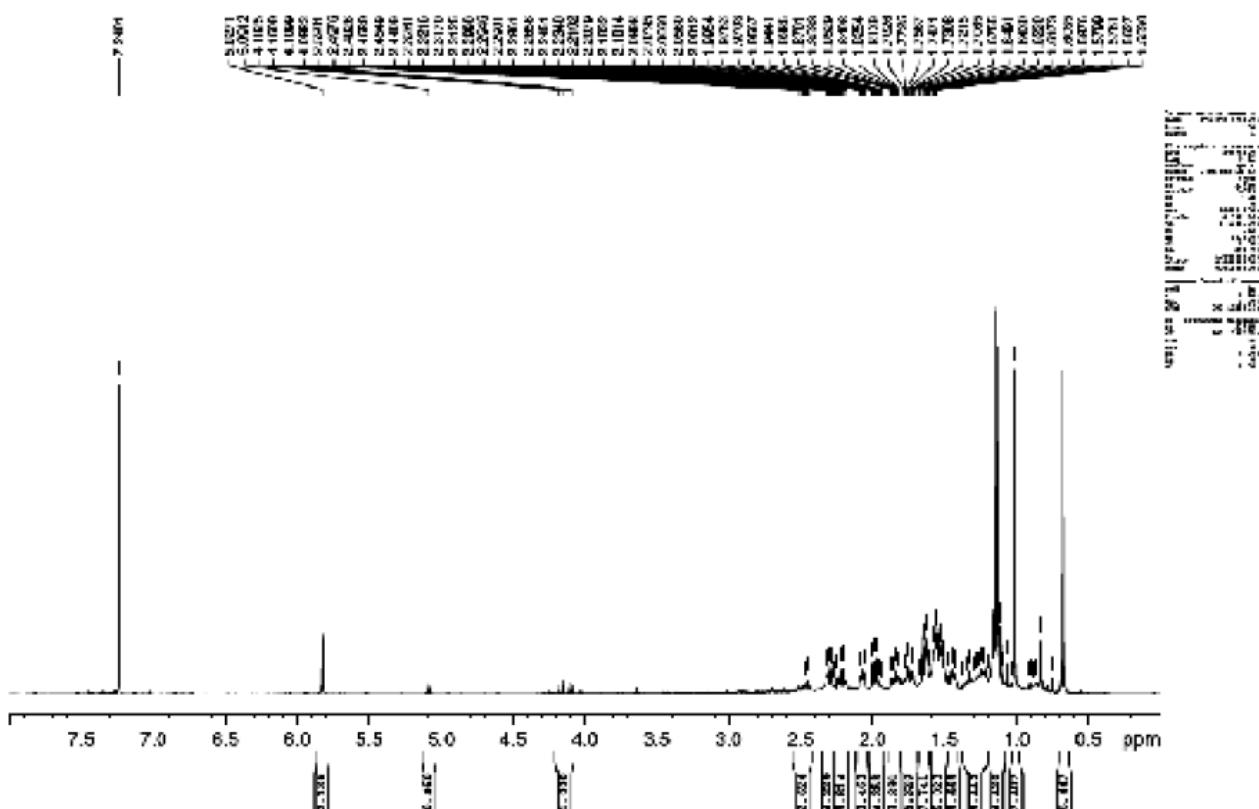


Figure S34. HSQC spectrum of **5**





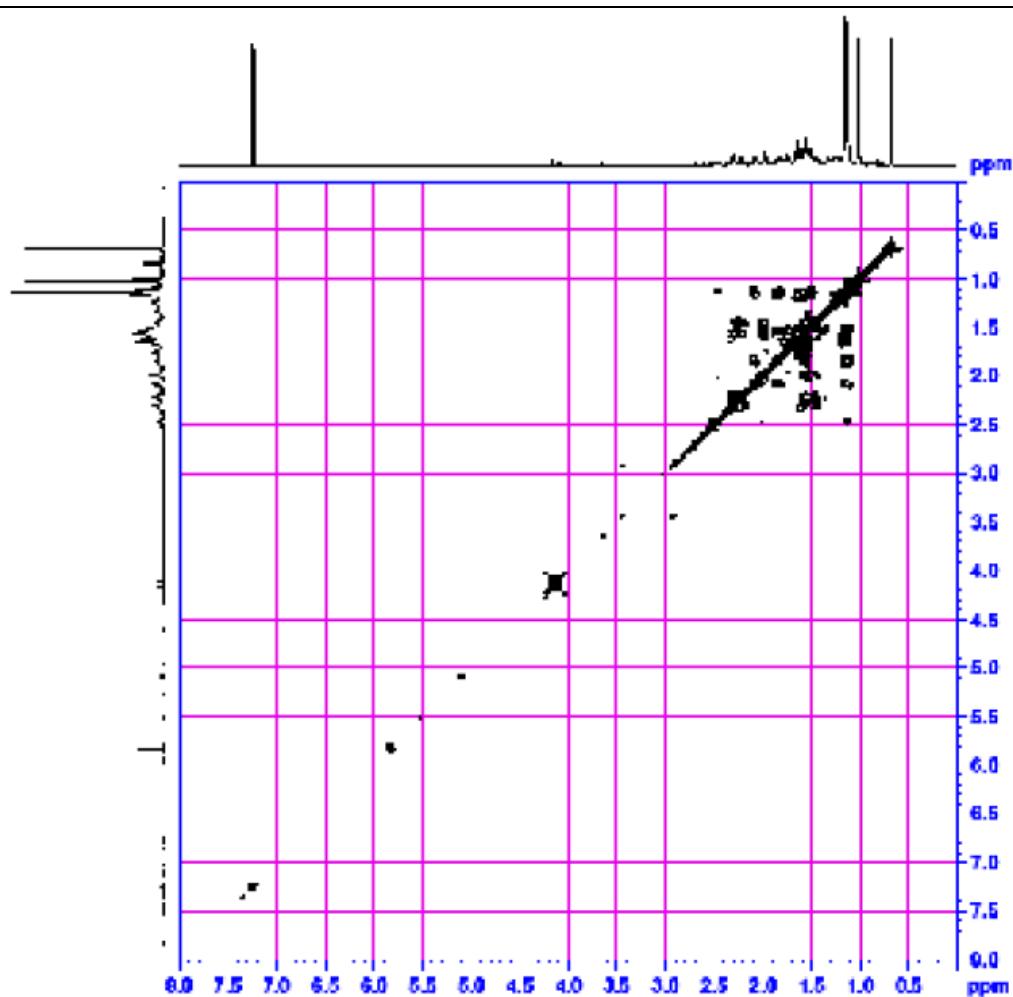


Figure S38. COSY spectrum of 6

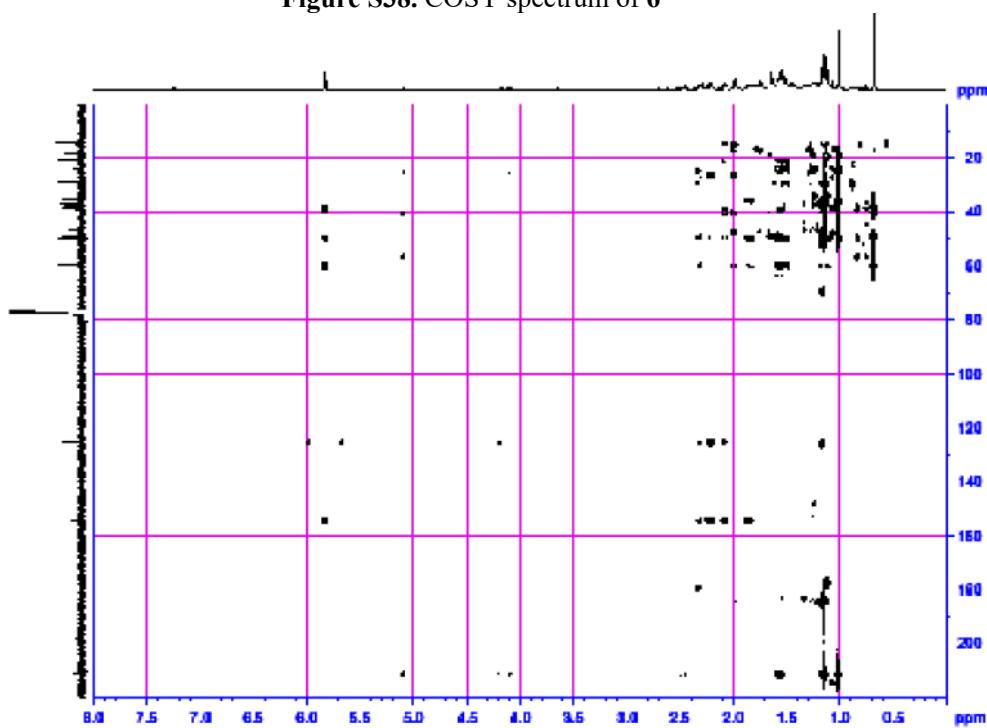


Figure S39. HMBC spectrum of 6

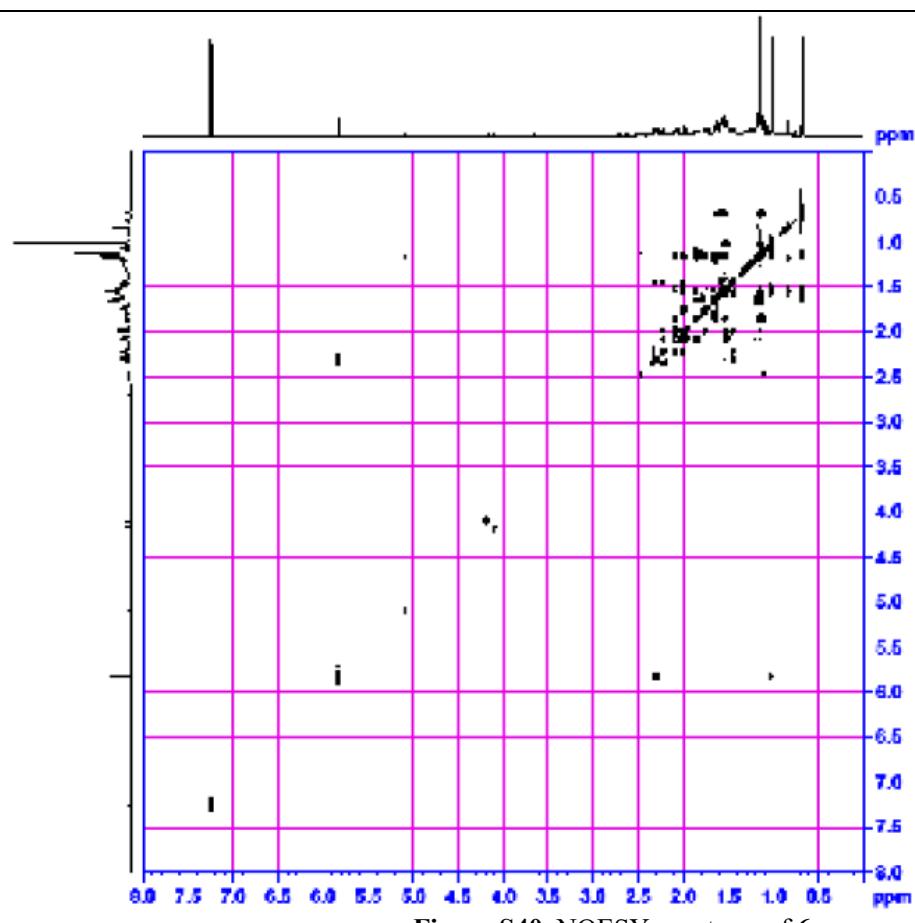


Figure S40. NOESY spectrum of 6

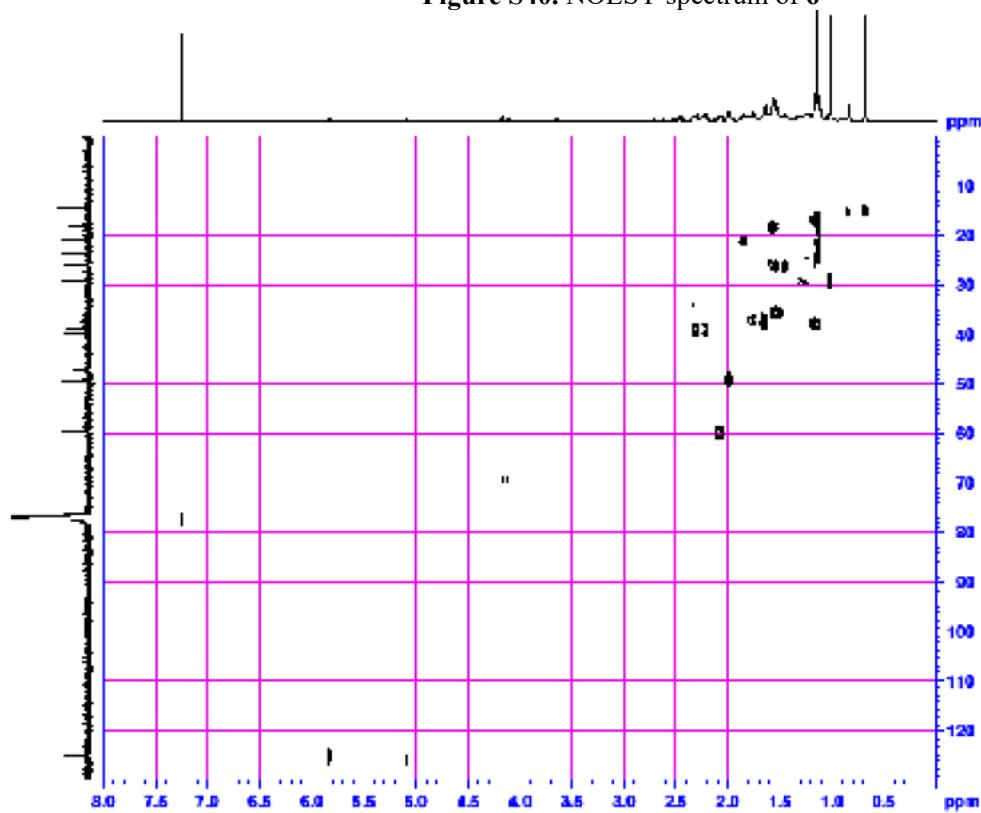


Figure S41. HSQC spectrum of 6

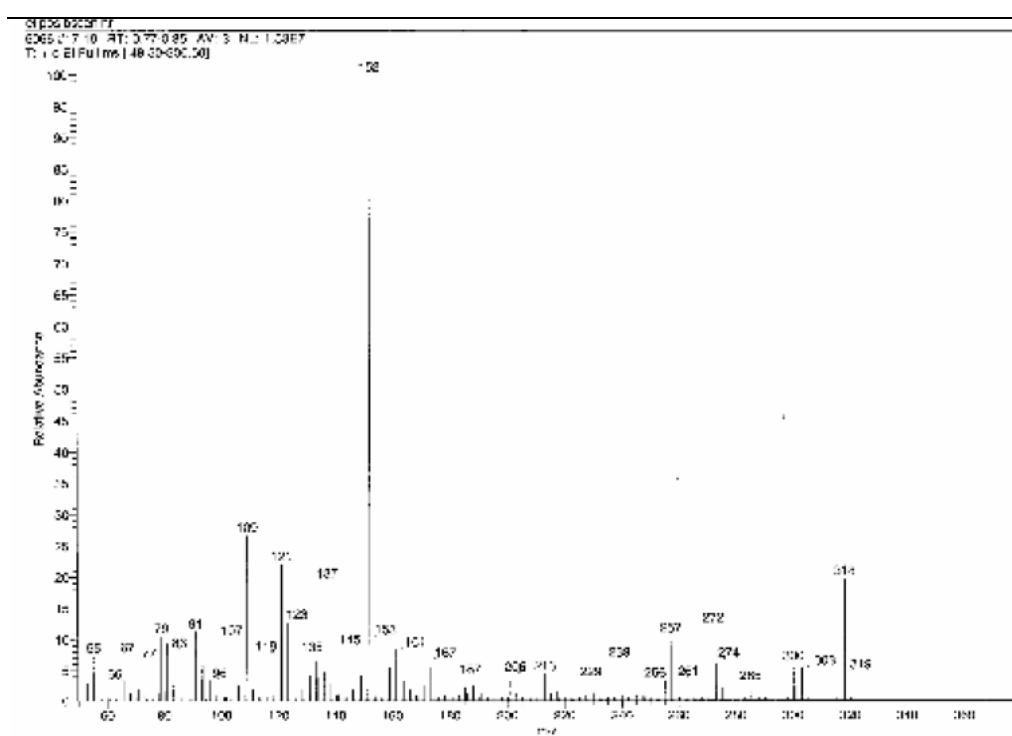


Figure S42. EI-MS spectrum of 6

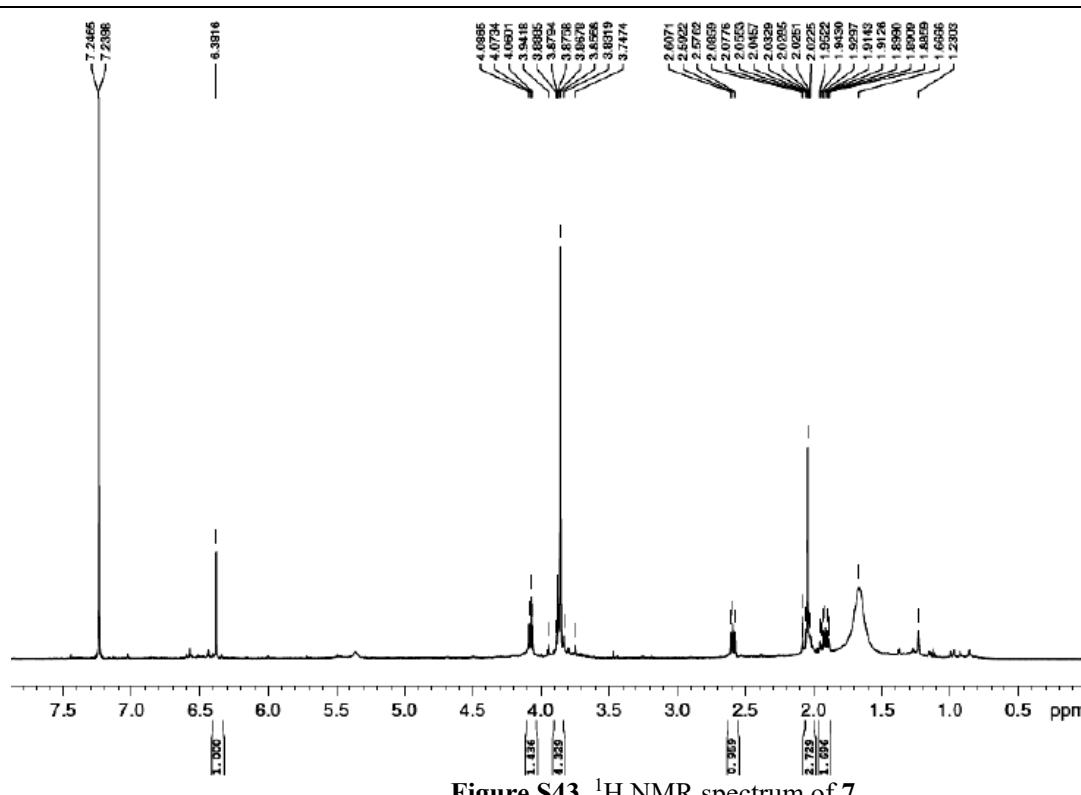


Figure S43. ¹H NMR spectrum of 7

Dept:135

Dept:90

500MHz C13 CDCl₃ 680-3-1

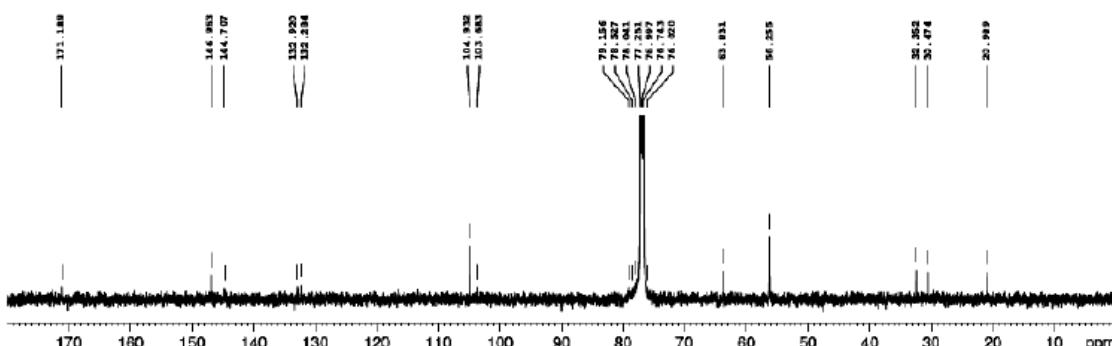


Figure S44. ¹³C NMR/DEPT spectra of 7

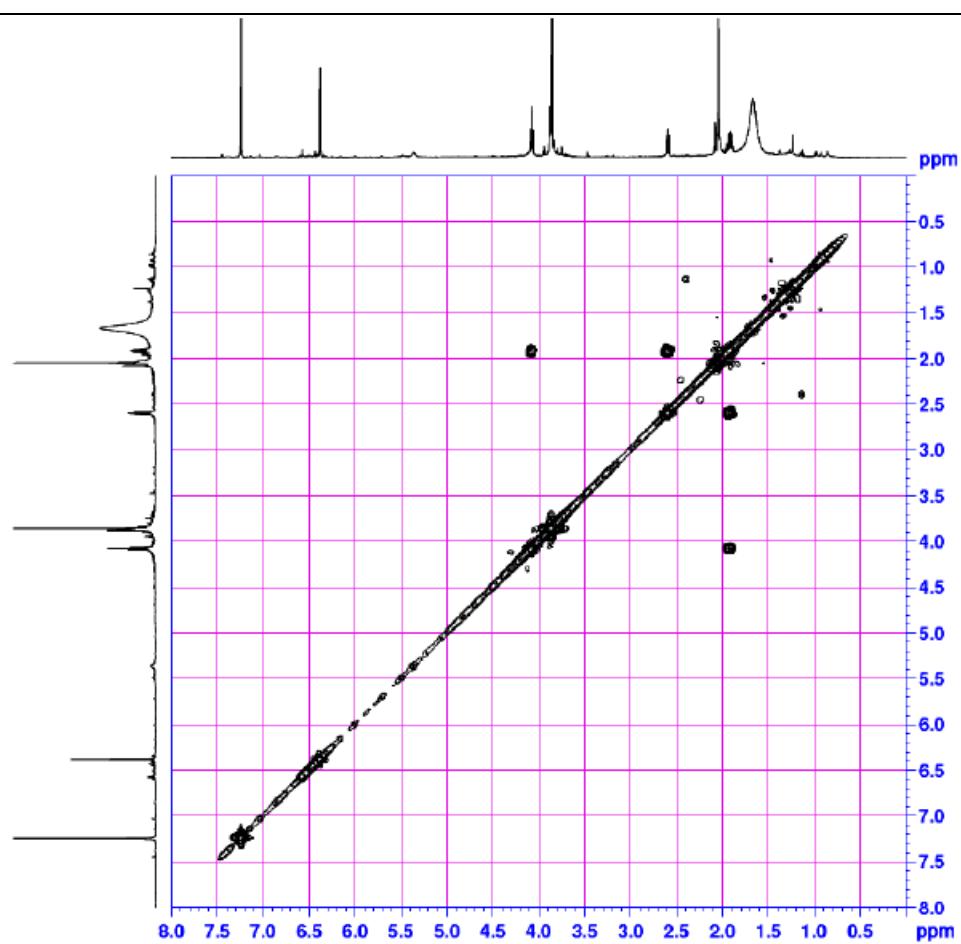


Figure S45. COSY spectrum of 7

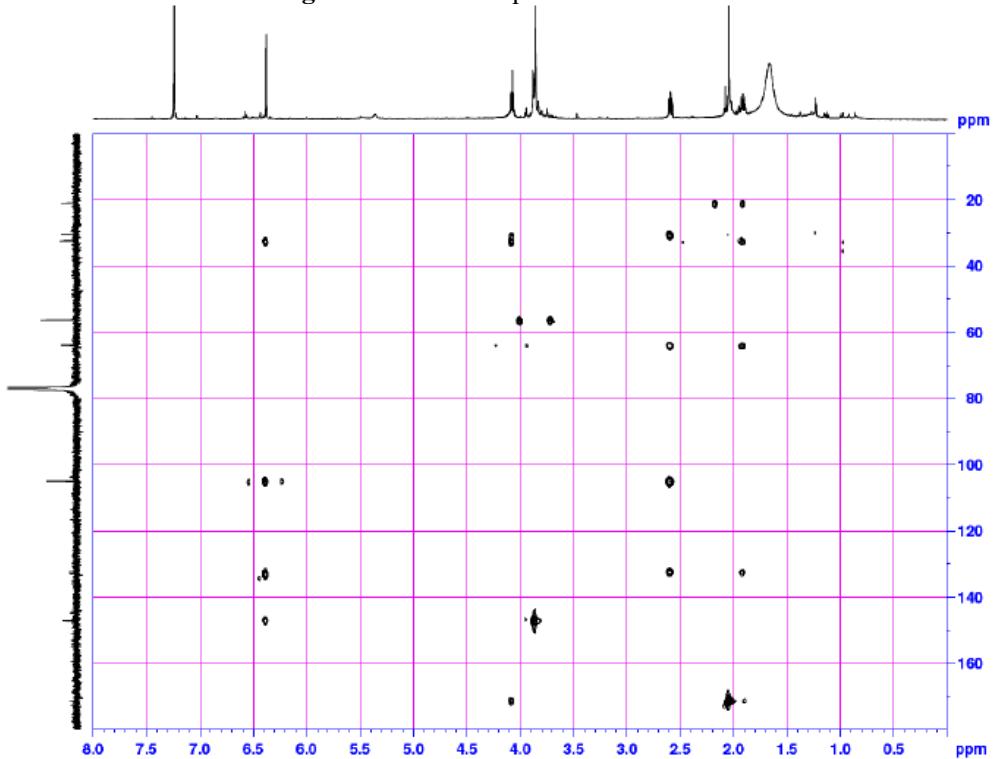


Figure S46. HMBC spectrum of 7

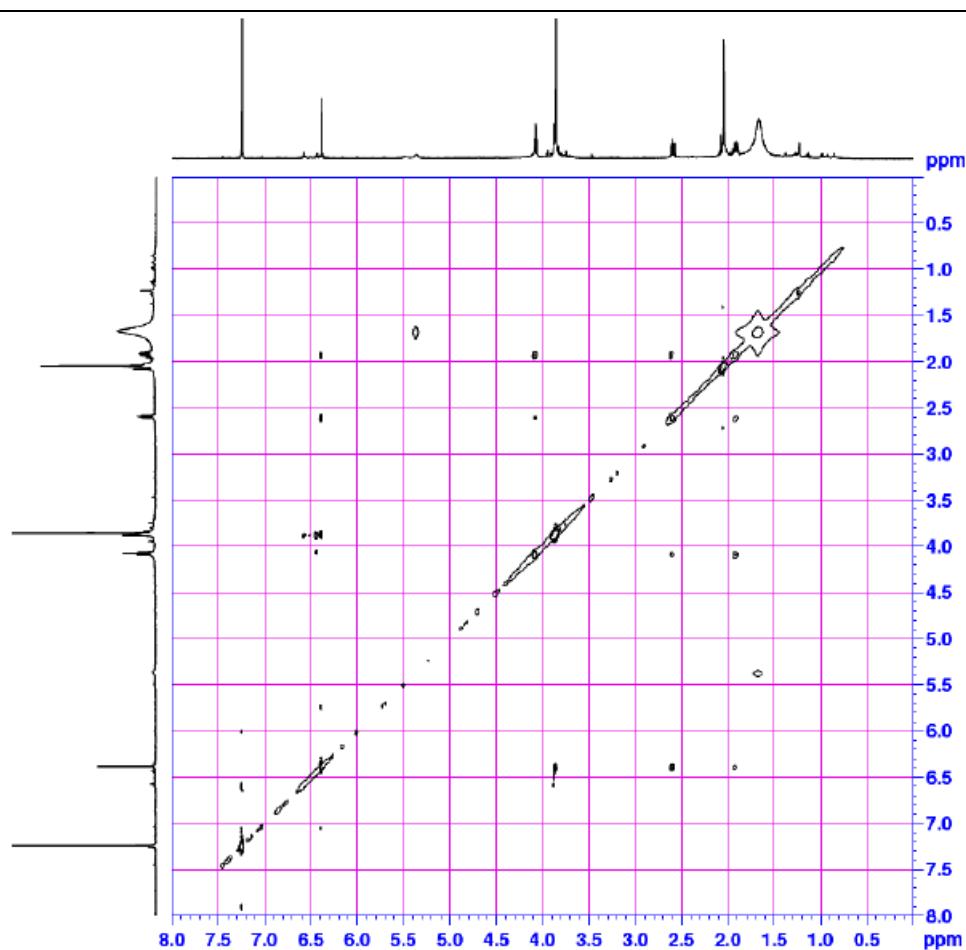


Figure S47. NOESY spectrum of 7

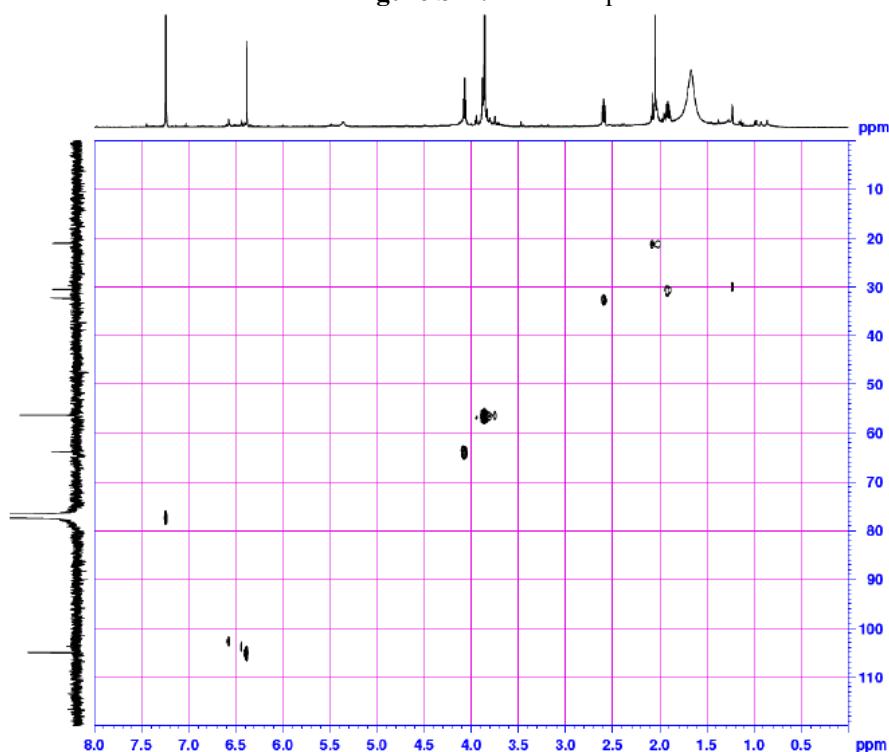


Figure S48. HSQC spectrum of 7

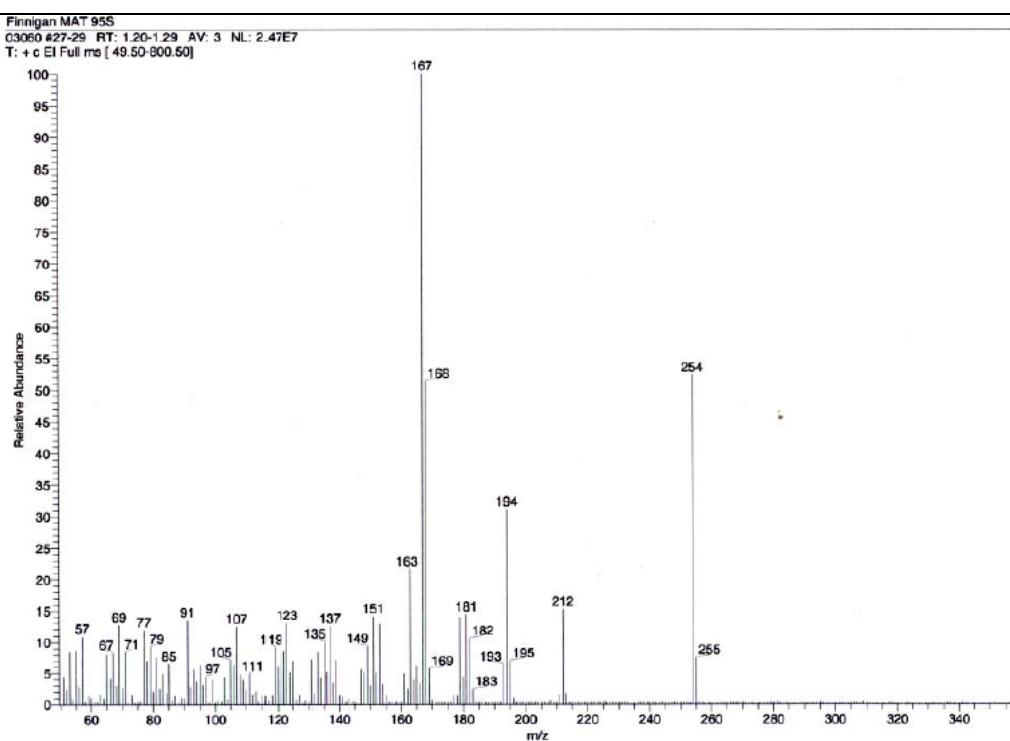


Figure S49. EI-MS spectrum of 7

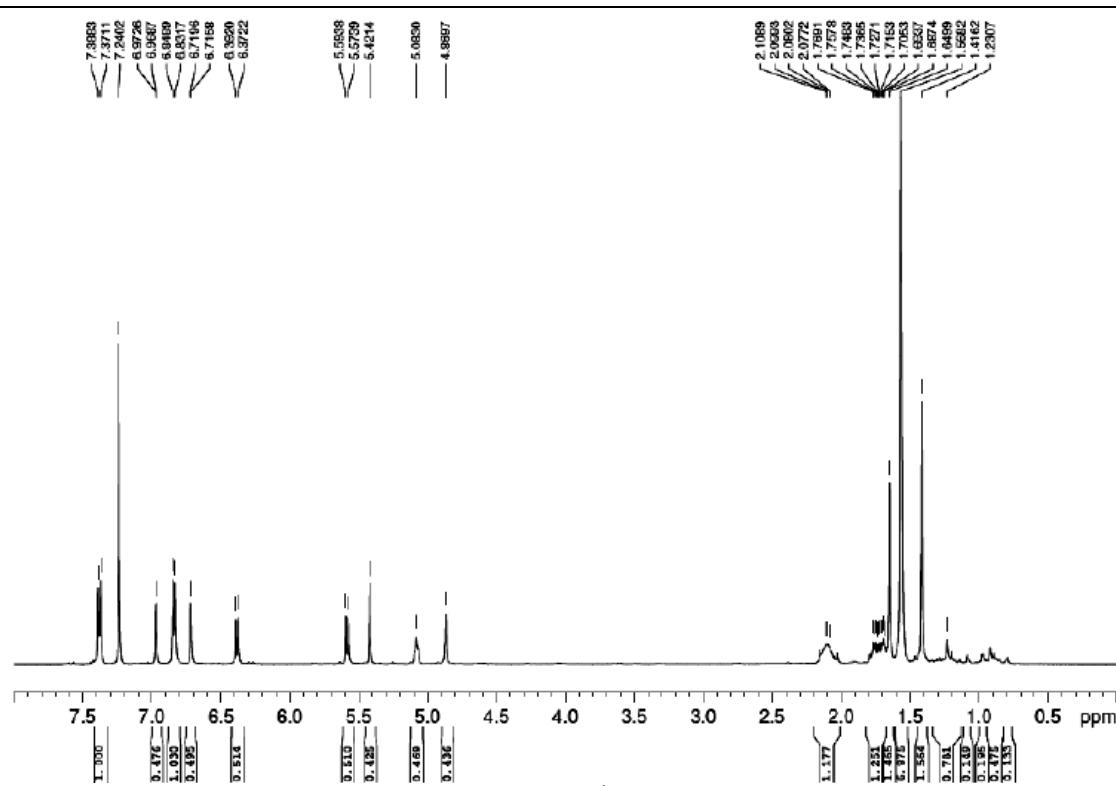


Figure S50. ^1H NMR spectrum of **8**

Dept 135

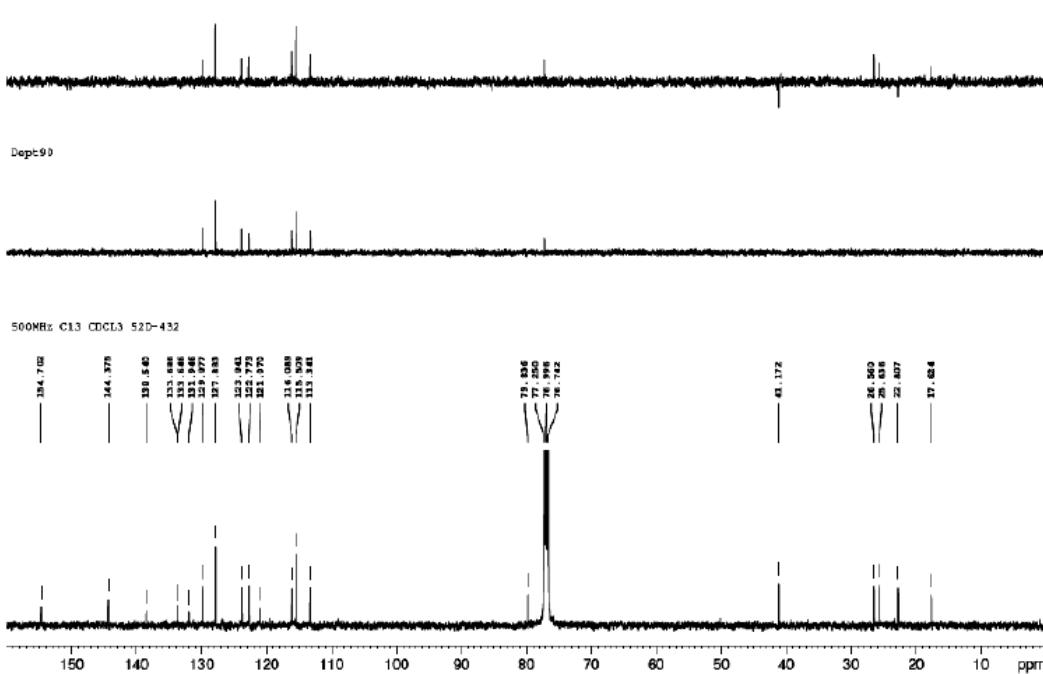


Figure S51. ^{13}C NMR/DEPT spectra of **8**

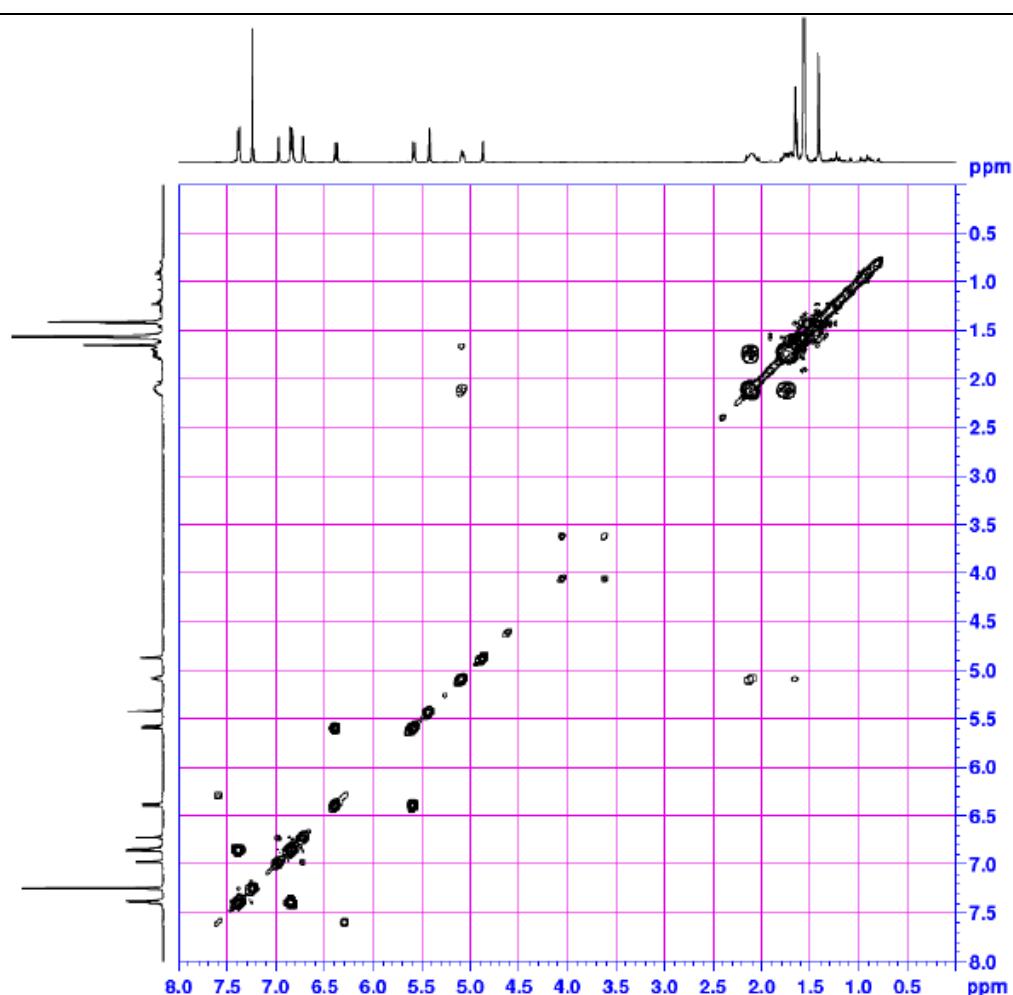


Figure S52. COSY spectrum of 8

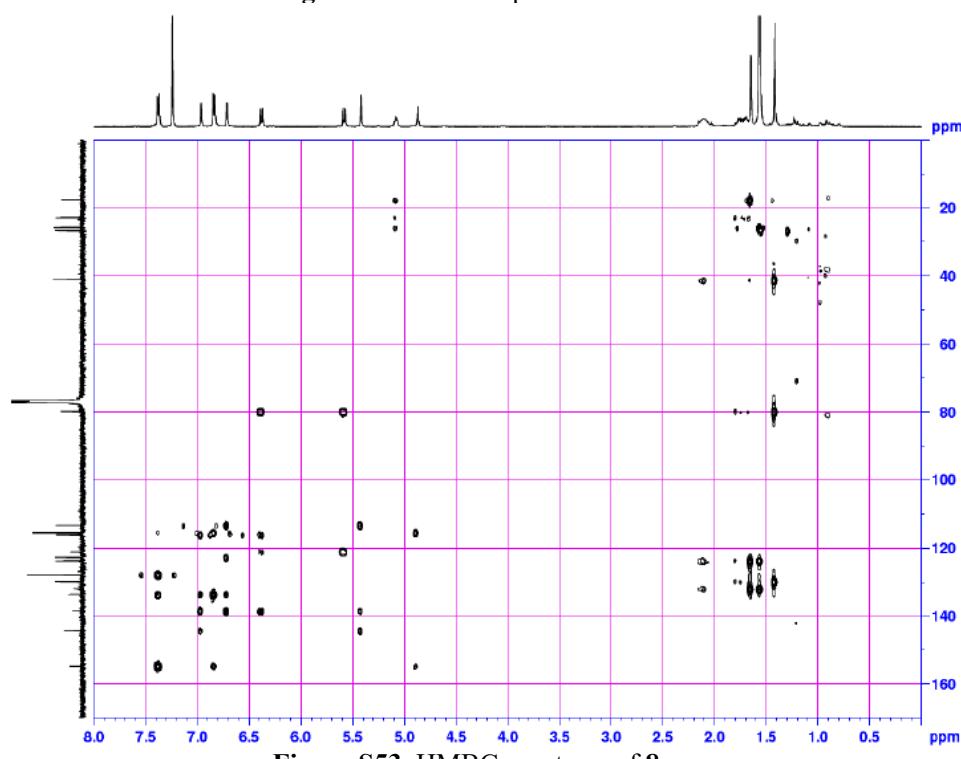


Figure S53. HMBC spectrum of 8

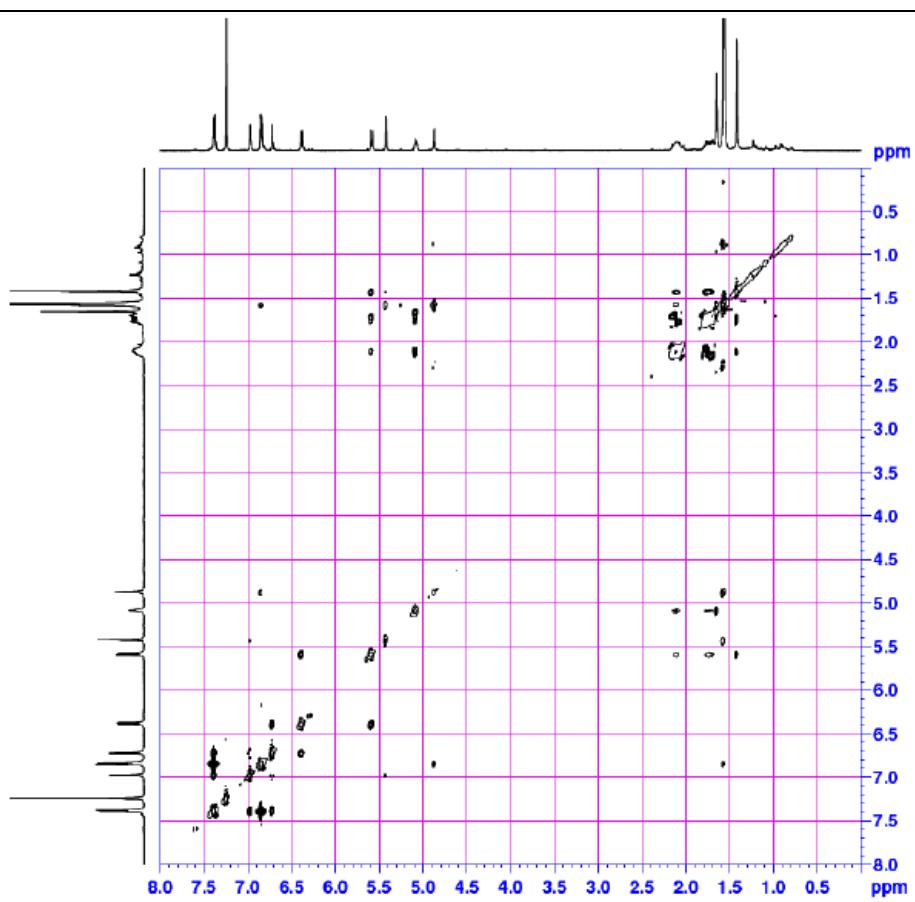


Figure S54. NOESY spectrum of 8

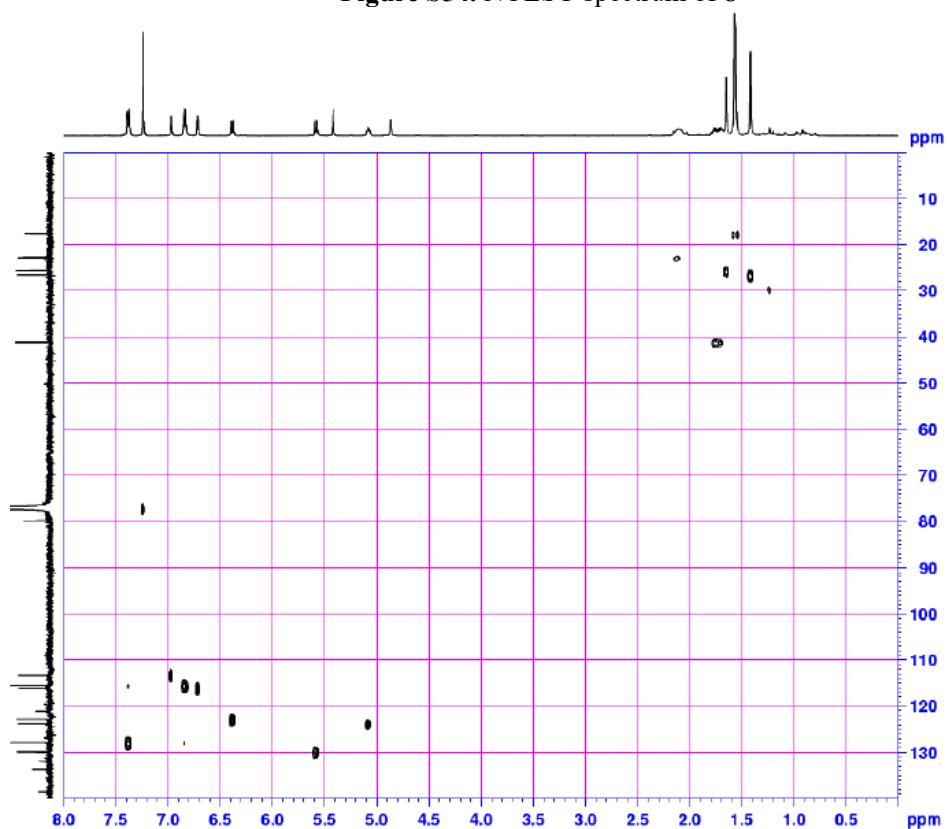


Figure S55. HSQC spectrum of 8

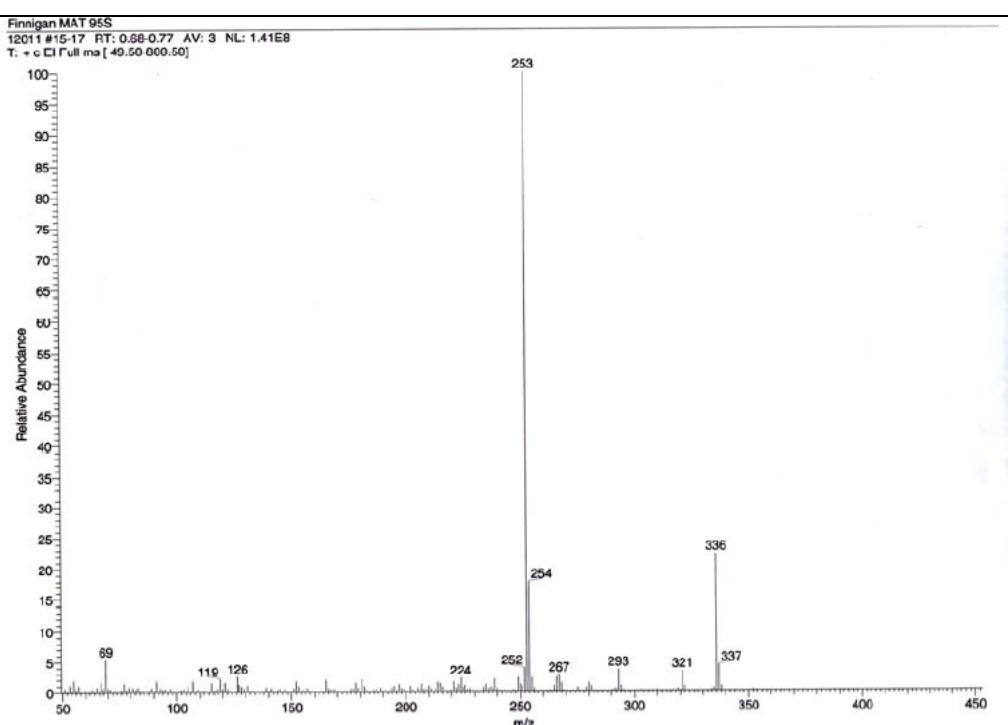
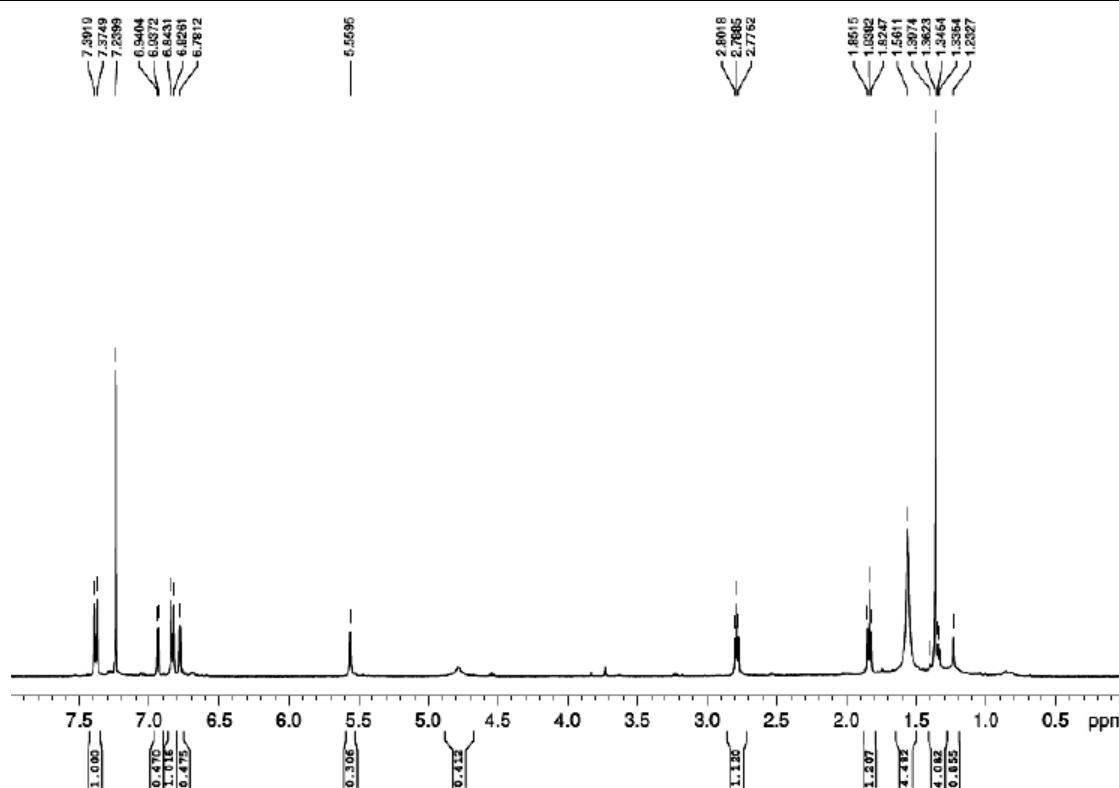
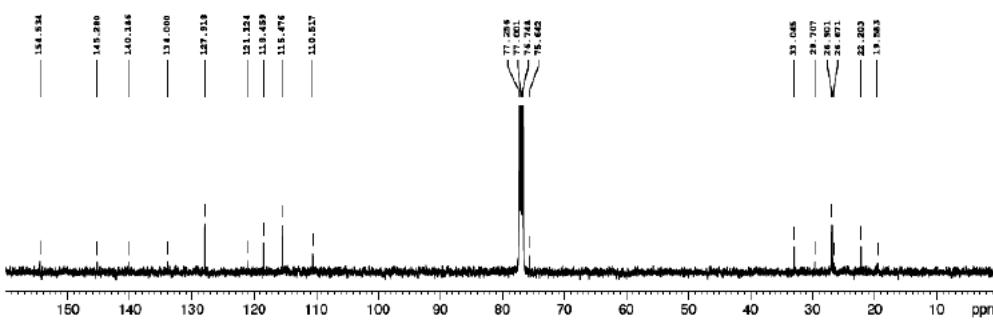


Figure S56. EI-MS spectrum of **8**

Figure S57. ^1H NMR spectrum of 9

Dept:135

Dept:90

500MHz C13 CDCl₃ 25d-6-10-1Figure S58. ^{13}C NMR/DEPT spectra of 9

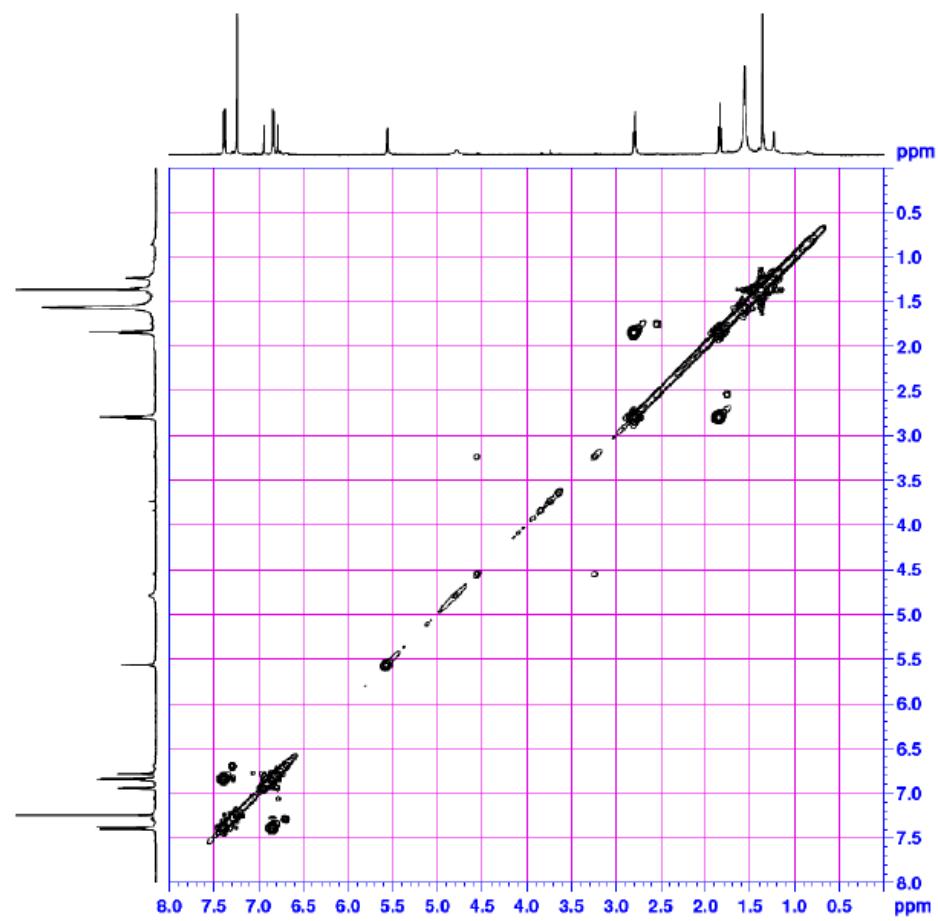


Figure S59. COSY spectrum of 9

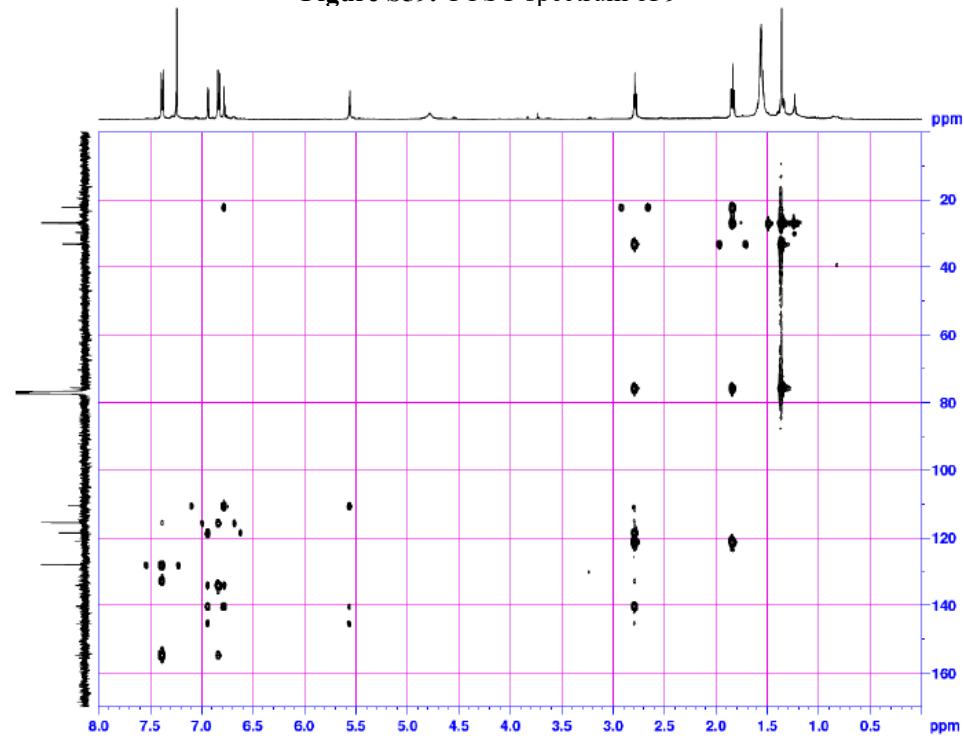


Figure S60. HMBC spectrum of 9

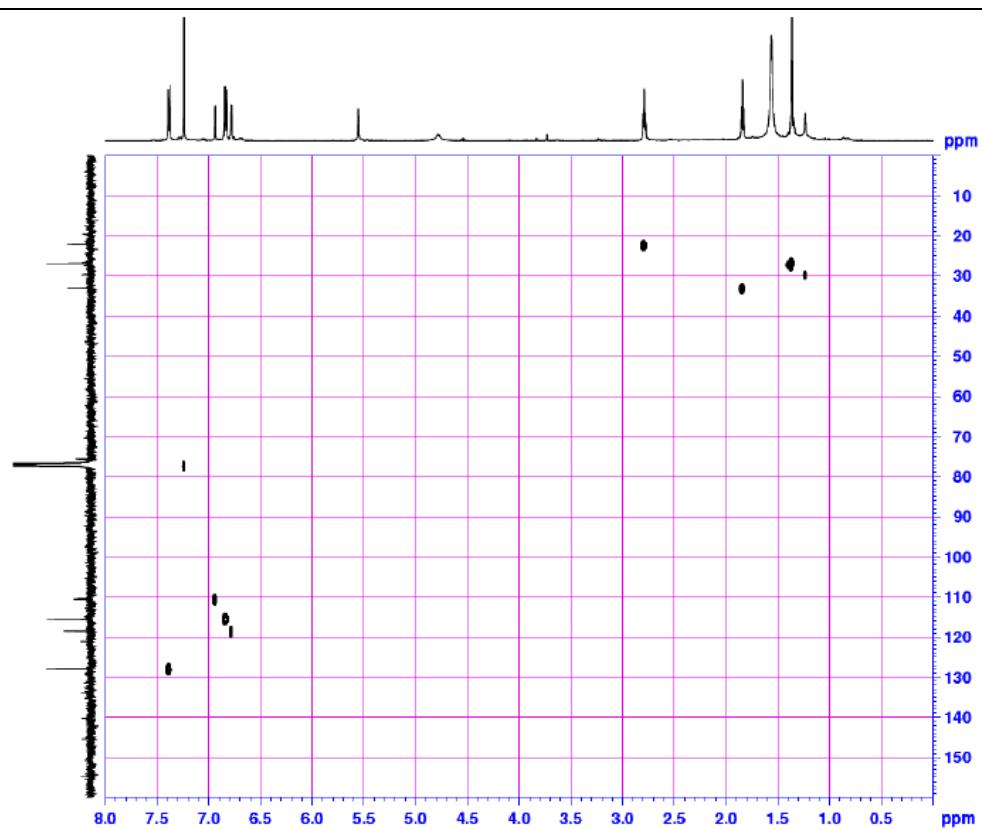


Figure S61. NOESY spectrum of 9

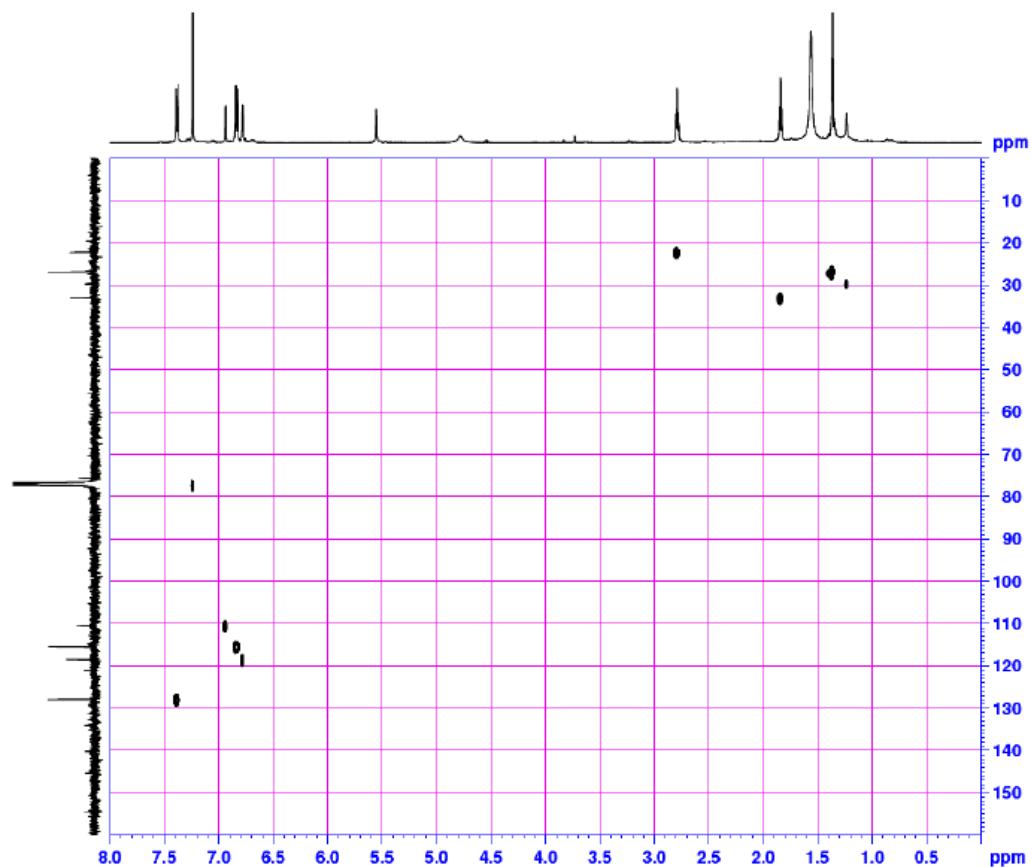


Figure S62 HSQC spectrum of 9

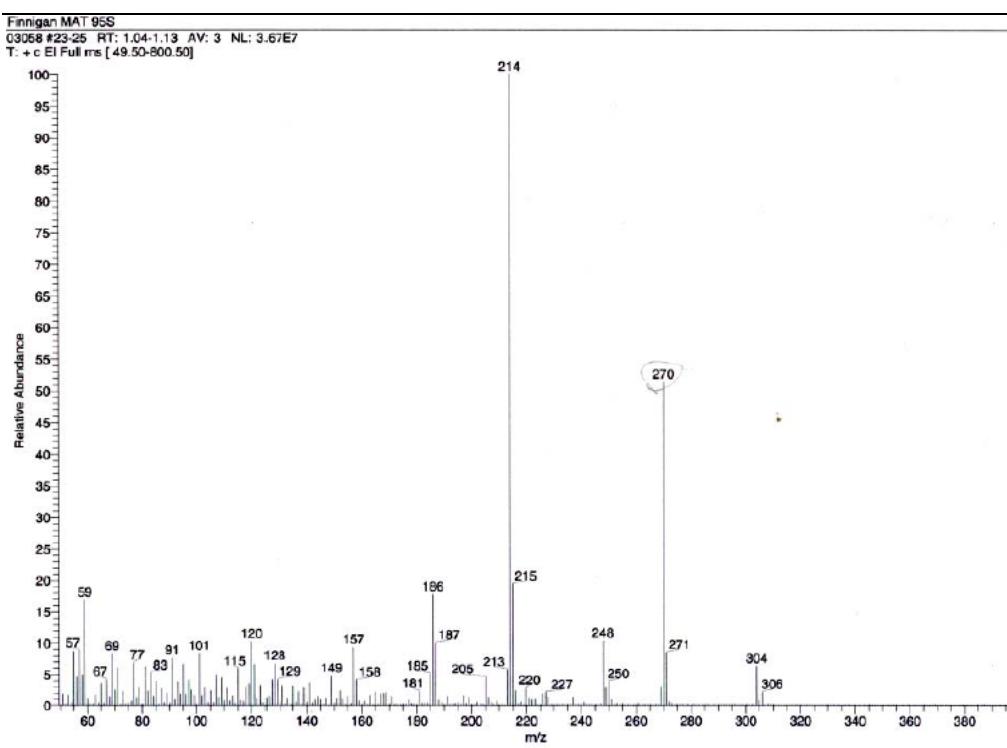


Figure S63. EI-MS spectrum of **9**

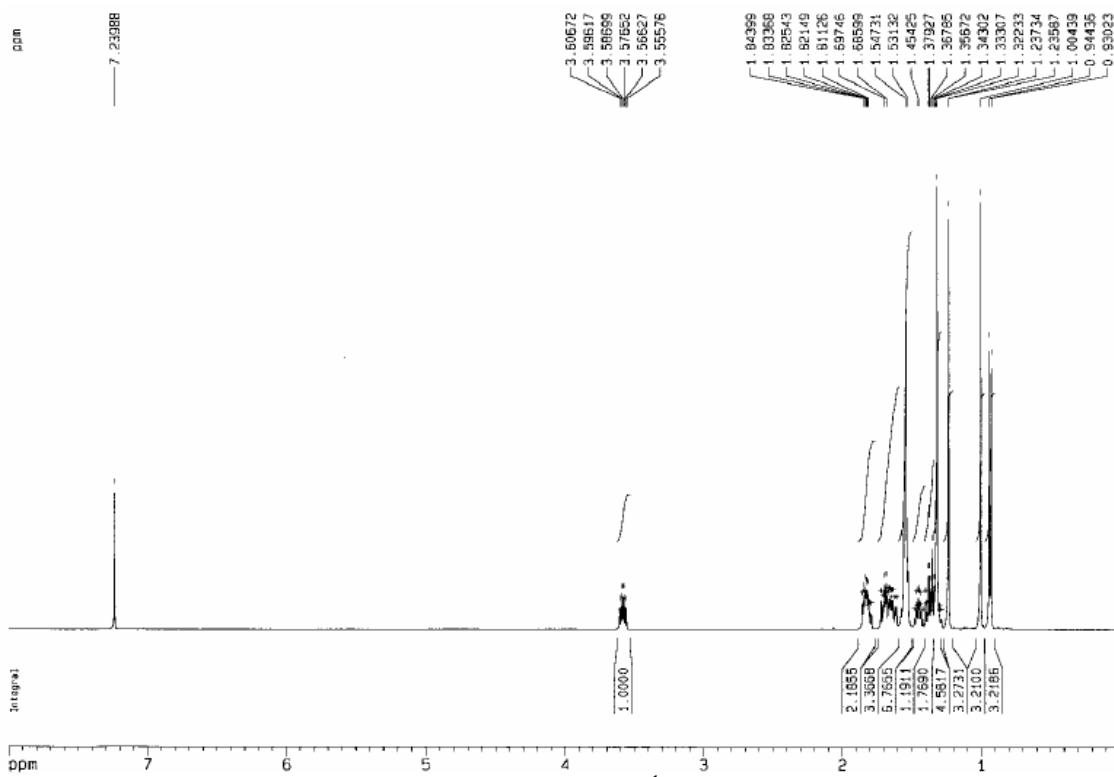


Figure S64. ¹H NMR spectrum of **10**

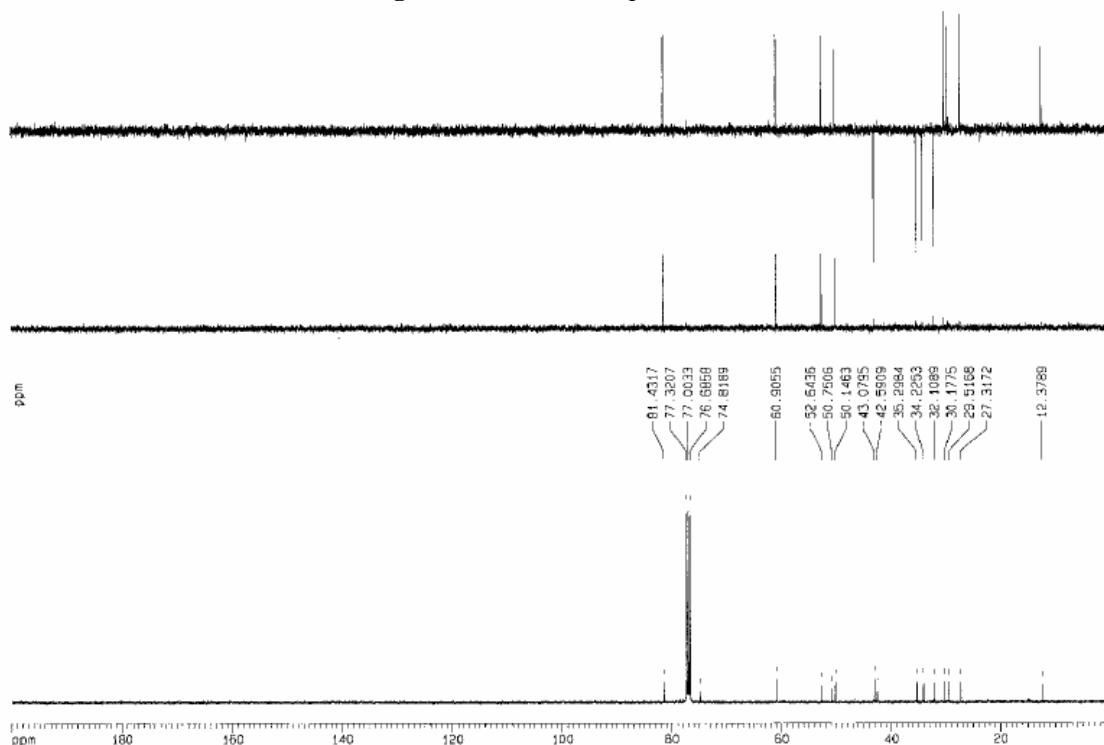


Figure S65. ¹³C NMR/DEPT spectra of **10**

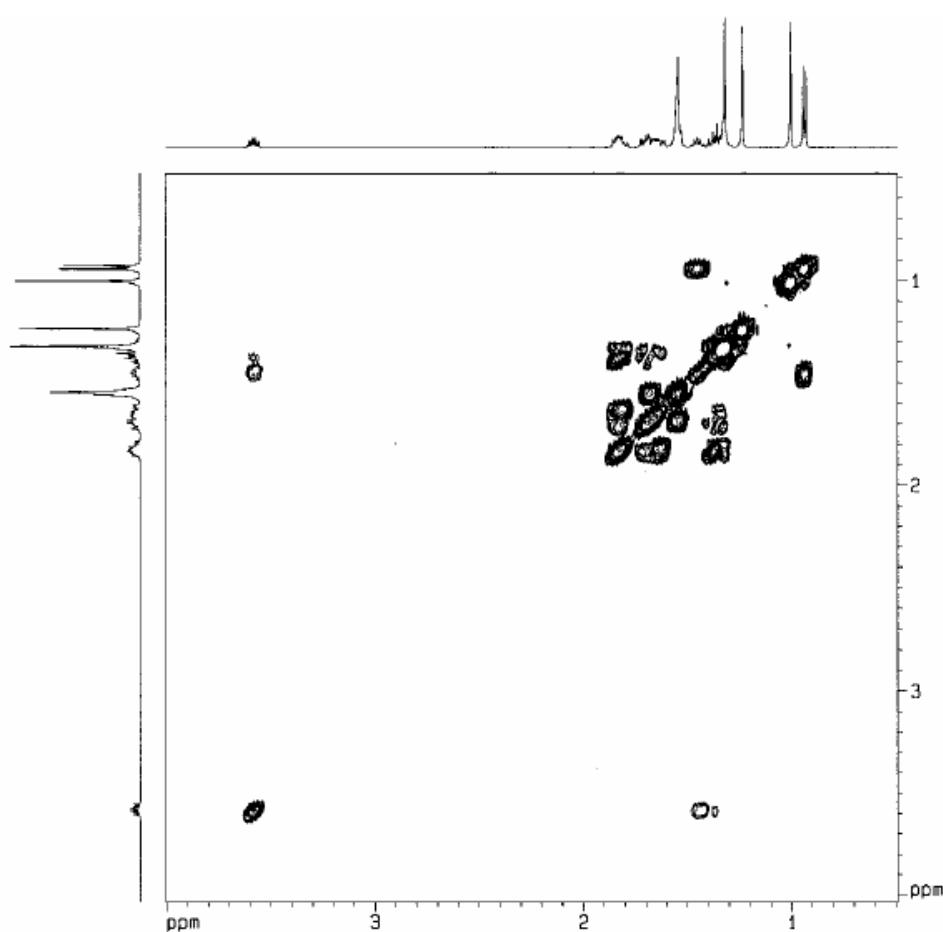


Figure S66. COSY spectrum of **10**

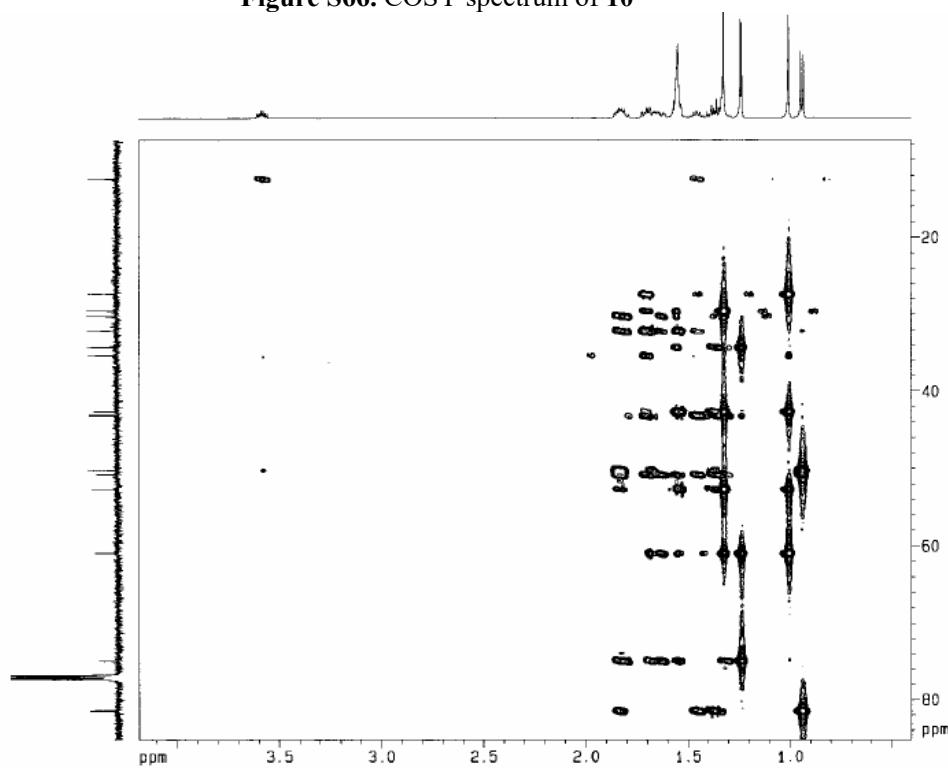
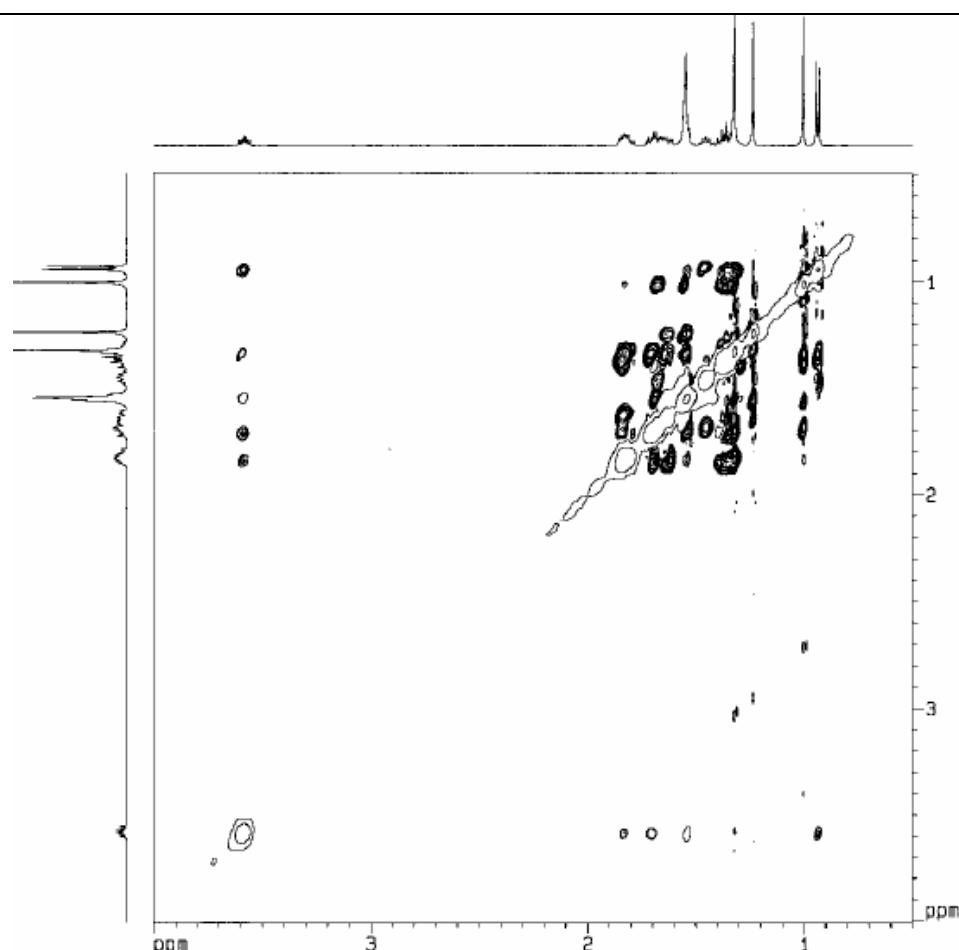
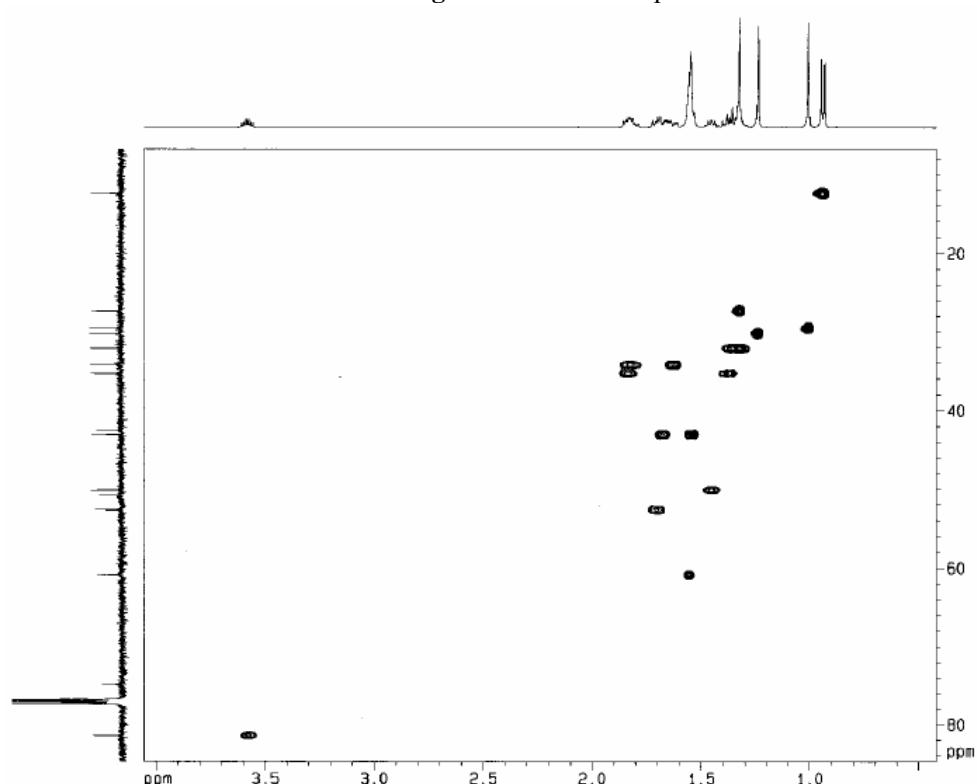


Figure S67. HMBC spectrum of **10**

Figure S68 NOESY spectrum of **10**Figure S69. HSQC spectrum of **10**

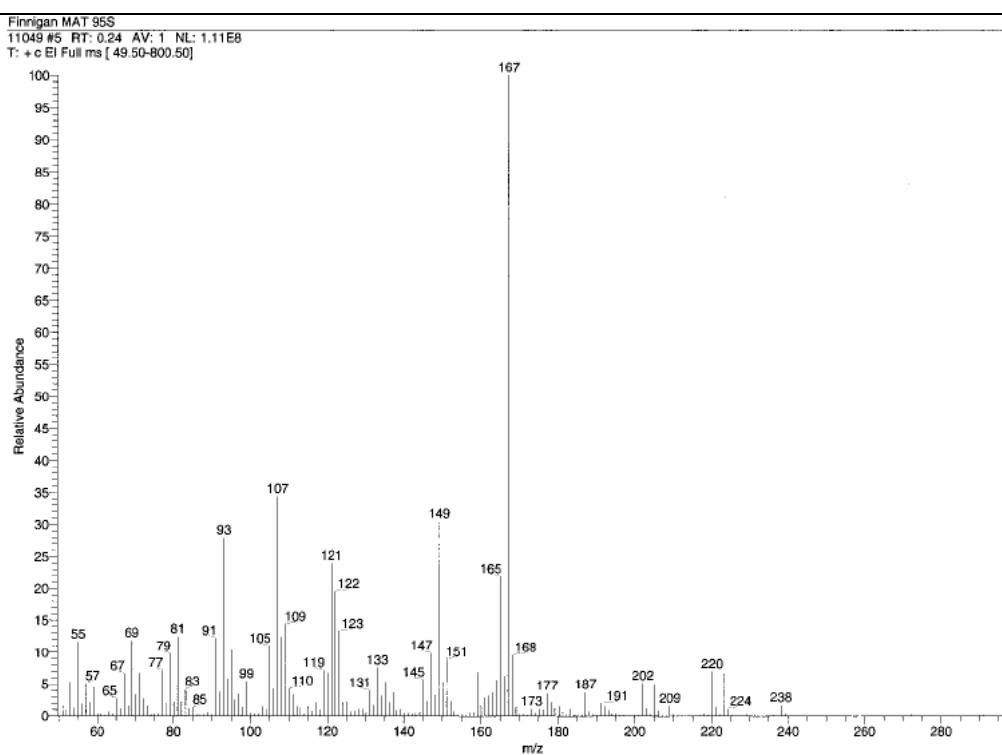


Figure S70. EI-MS spectrum of **10**