

Novel cucurbitane triterpenes from the tubers of *Hemsleya amabilis* with their anti-tumor activity

Wei Feng ^{1, a}, Yuan Zhou ^{1, a}, Ling-Yu Zhou ¹, Li-Ying Kang ¹, Xiang Wang ¹, Bao-Lin Li ¹, Qing Li ¹, and Li-Ying Niu ^{1, *}

¹ School of Pharmaceutical Sciences, Hebei TCM Formula Granule Technology Innovation Center& TCM Formula Granule Research Center of Hebei Province University, Hebei University of Chinese Medicine, Shijiazhuang 050091, China.

^a These authors contributed equally to this work

* Correspondence: niuliyinygy@126.com (L. Niu); Tel.: +86 311 89926208 (L.Niu.)

Received: date; Accepted: date; Published: date

Abstract: The chemical research of the medicinal plant *Hemsleya amabilis* (Cucurbitaceae) yielded five new cucurbitane-type triterpenes hemsleis A-E (**1-5**) by silica gel column, ODS column, and semi-HPLC techniques. The structure was determined by spectroscopic analysis and examined alongside existing data from prior studies. Compound **1-5** was evaluated for their anti-tumor activity against three human tumor cell lines, Hela, HCT-8, and HepG-2, with the IC₅₀ ranging from 5.9 to 33.9 μ M compared to Cisplatin

Keywords: *Hemsleya amabilis*; cucurbitane-type; triterpenes; cytotoxic activity.

List of Figures S1-S30

- Figure S1. ^1H -NMR (600 MHz, Pyridine- d_5) spectrum of the new compound **1**
- Figure S2. ^{13}C -APT (150 MHz, Pyridine- d_5) spectrum of the new compound **1**
- Figure S3. HSQC spectrum of the new compound **1**
- Figure S4. HMBC spectrum of the new compound **1**
- Figure S5. ^1H - ^1H COSY spectrum of the new compound **1**
- Figure S6. NOESY spectrum of the new compound **1**
- Figure S7. ^1H -NMR (600 MHz, Pyridine- d_5) spectrum of the new compound **2**
- Figure S8. ^{13}C -APT (150 MHz, Pyridine- d_5) spectrum of the new compound **2**
- Figure S9. HSQC spectrum of the new compound **2**
- Figure S10. HMBC spectrum of the new compound **2**
- Figure S11. ^1H - ^1H COSY spectrum of the new compound **2**
- Figure S12. NOESY spectrum of the new compound **2**
- Figure S13. ^1H -NMR (600 MHz, Pyridine- d_5) spectrum of the new compound **3**
- Figure S14. ^{13}C -APT (150 MHz, Pyridine- d_5) spectrum of the new compound **3**
- Figure S15. HSQC spectrum of the new compound **3**
- Figure S16. HMBC spectrum of the new compound **3**
- Figure S17. ^1H - ^1H COSY spectrum of the new compound **3**
- Figure S18. NOESY spectrum of the new compound **3**
- Figure S19. ^1H -NMR (600 MHz, Pyridine- d_5) spectrum of the new compound **4**
- Figure S20. ^{13}C -APT (150 MHz, Pyridine- d_5) spectrum of the new compound **4**
- Figure S21. HSQC spectrum of the new compound **4**
- Figure S22. HMBC spectrum of the new compound **4**
- Figure S23. ^1H - ^1H COSY spectrum of the new compound **4**
- Figure S24. NOESY spectrum of the new compound **4**
- Figure S25. ^1H -NMR (600 MHz, Pyridine- d_5) spectrum of the new compound **5**
- Figure S26. ^{13}C -APT (150 MHz, Pyridine- d_5) spectrum of the new compound **5**
- Figure S27. HSQC spectrum of the new compound **5**
- Figure S28. HMBC spectrum of the new compound **5**
- Figure S29. ^1H - ^1H COSY spectrum of the new compound **5**
- Figure S30. NOESY spectrum of the new compound **5**

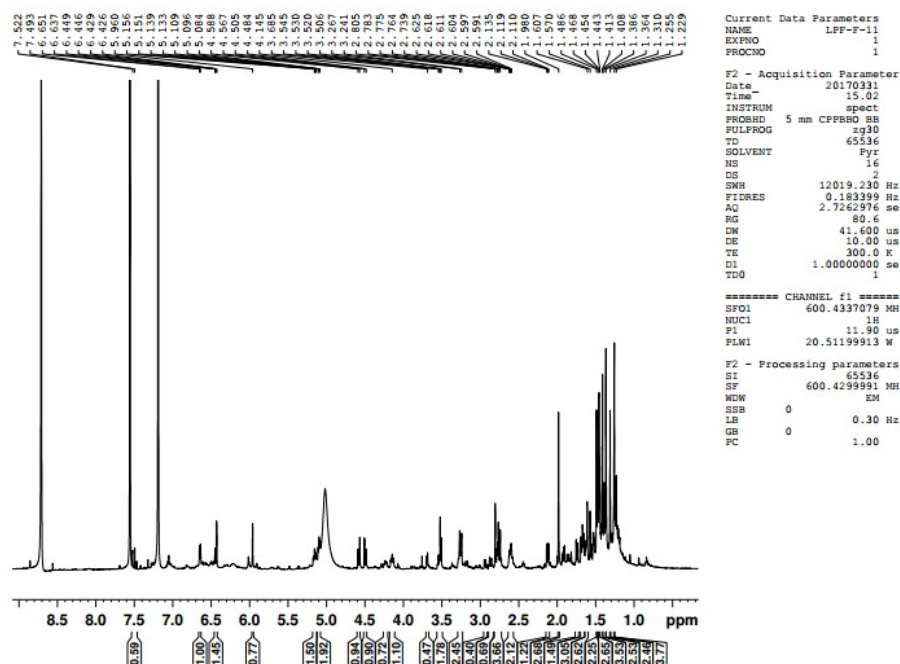


Figure S1. ^1H -NMR (600 MHz, Pyridine- d_5) spectrum of the new compound **1**

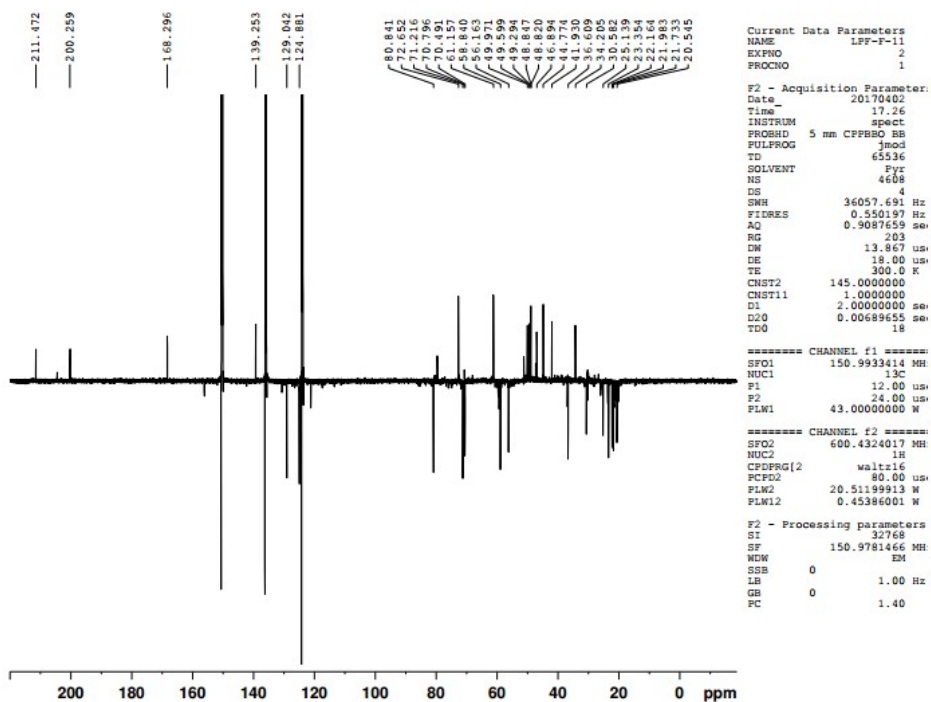


Figure S2. ^{13}C -APT (150 MHz, Pyridine- d_5) spectrum of the new compound **1**

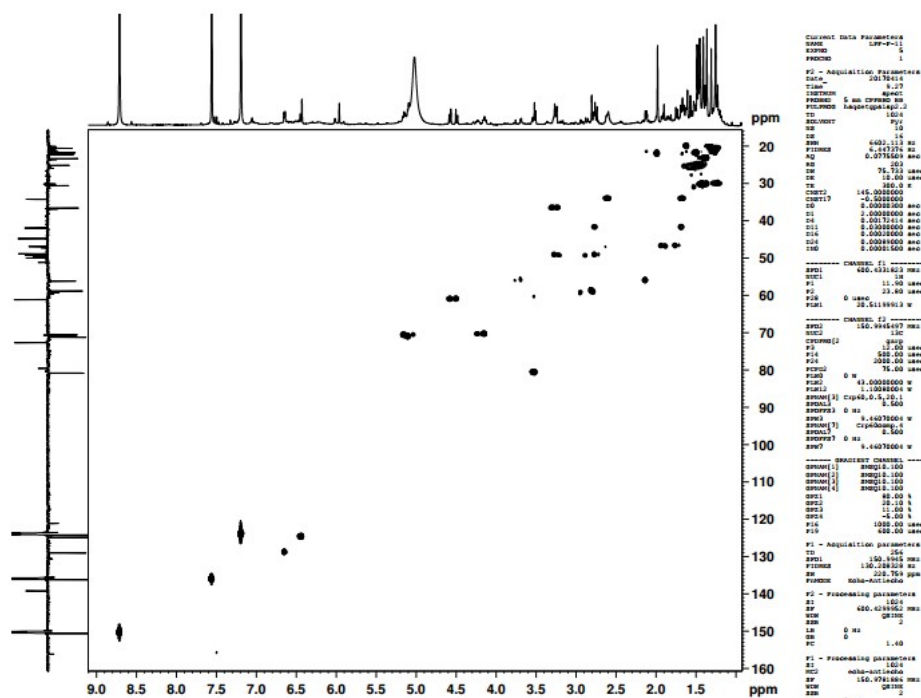


Figure S3. HSQC spectrum of the new compound 1

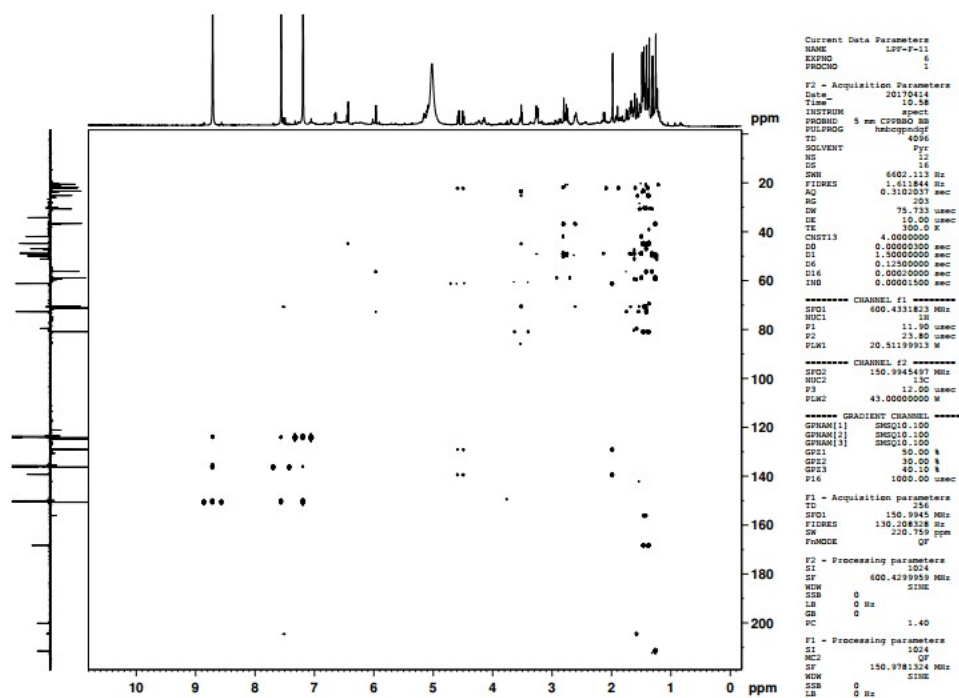


Figure S4. HMBC spectrum of the new compound 1

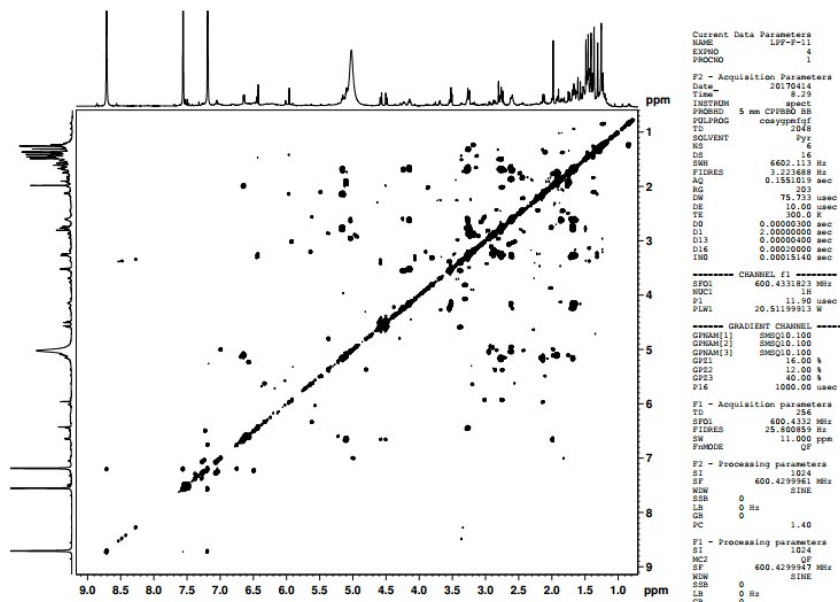


Figure S5. ^1H - ^1H COSY spectrum of the new compound **1**

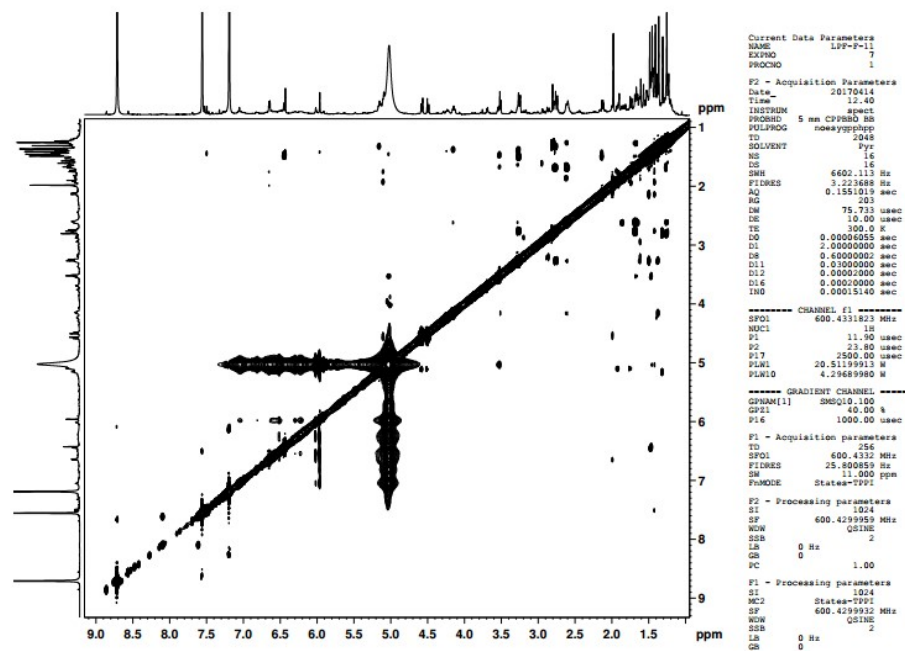


Figure S6. NOESY spectrum of the new compound **1**

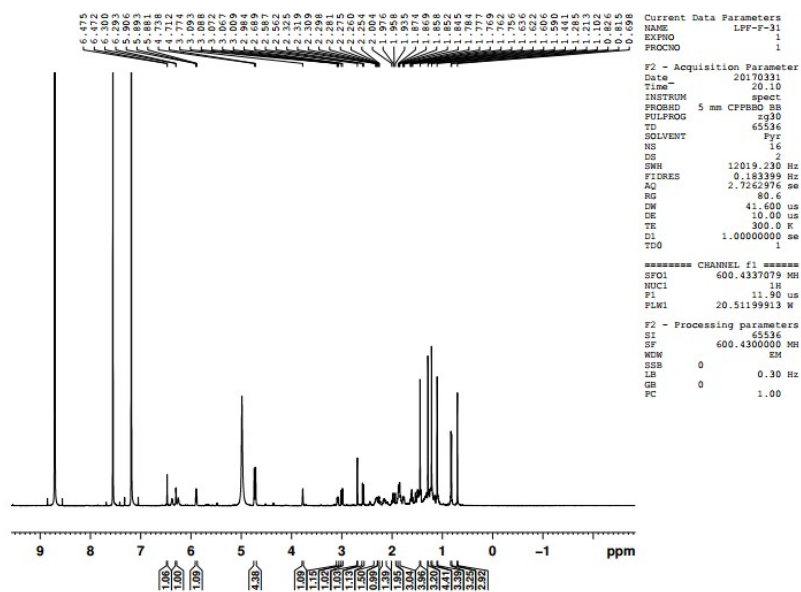


Figure S7. ^1H -NMR (600 MHz, Pyridine- d_5) spectrum of the new compound **2**

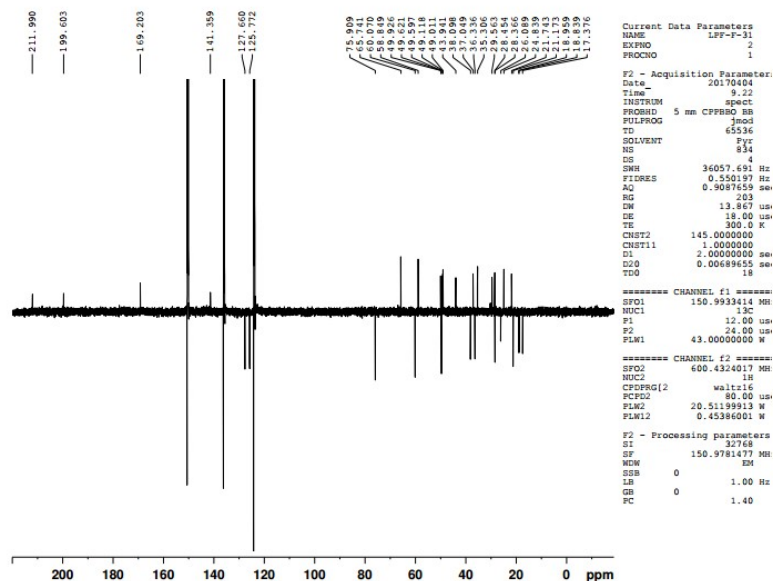


Figure S8. ^{13}C -APT (150 MHz, Pyridine- d_5) spectrum of the new compound **2**

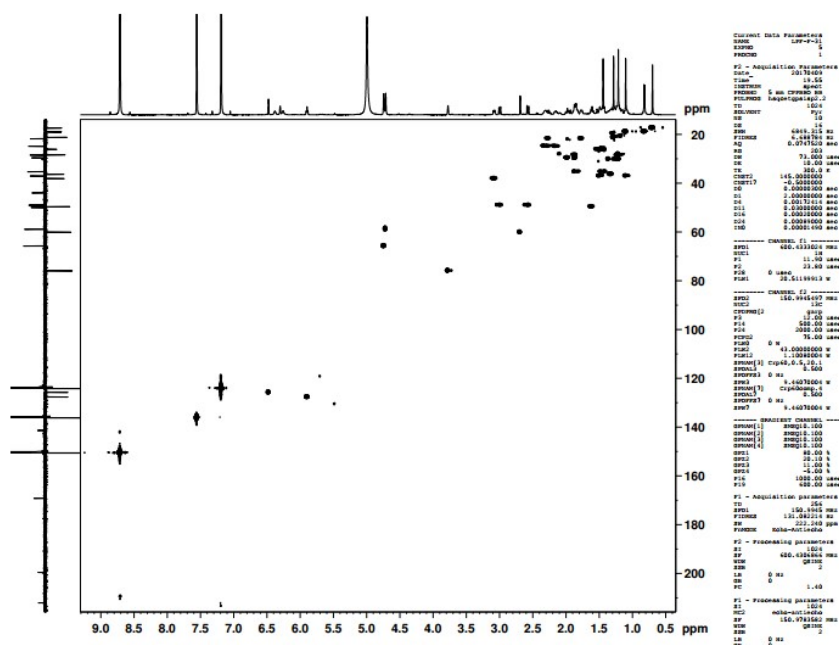


Figure S9. HSQC spectrum of the new compound 2

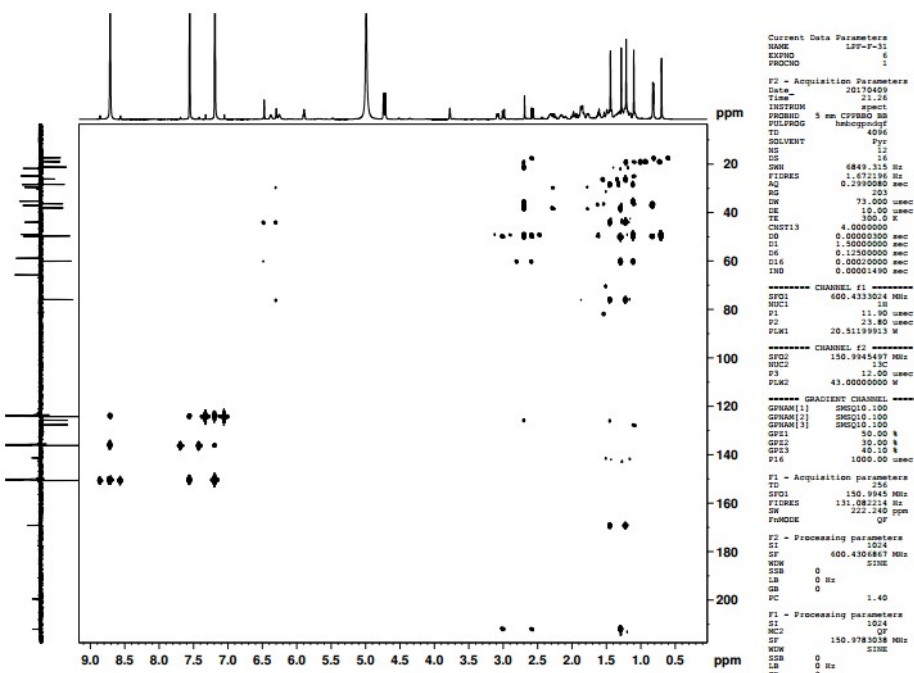


Figure S10. HMBC spectrum of the new compound 2

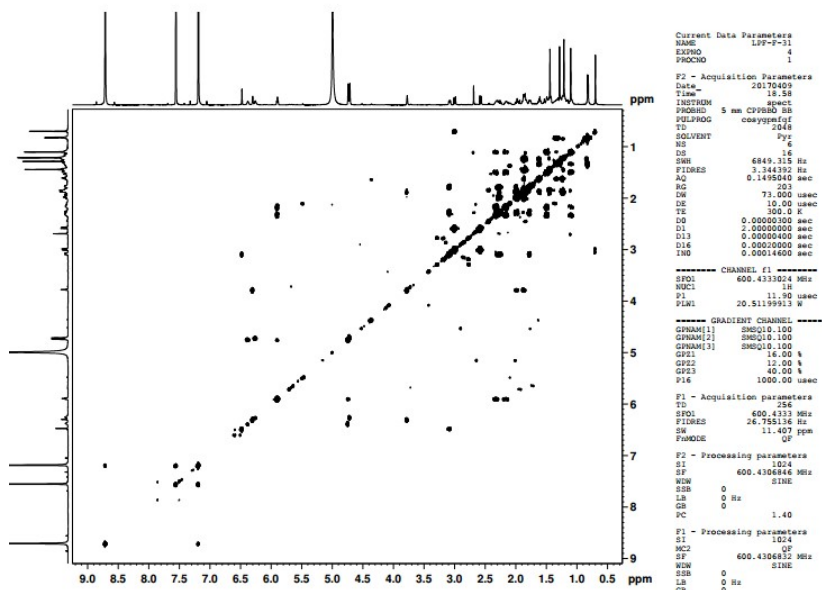


Figure S11. ^1H - ^1H COSY spectrum of the new compound **2**

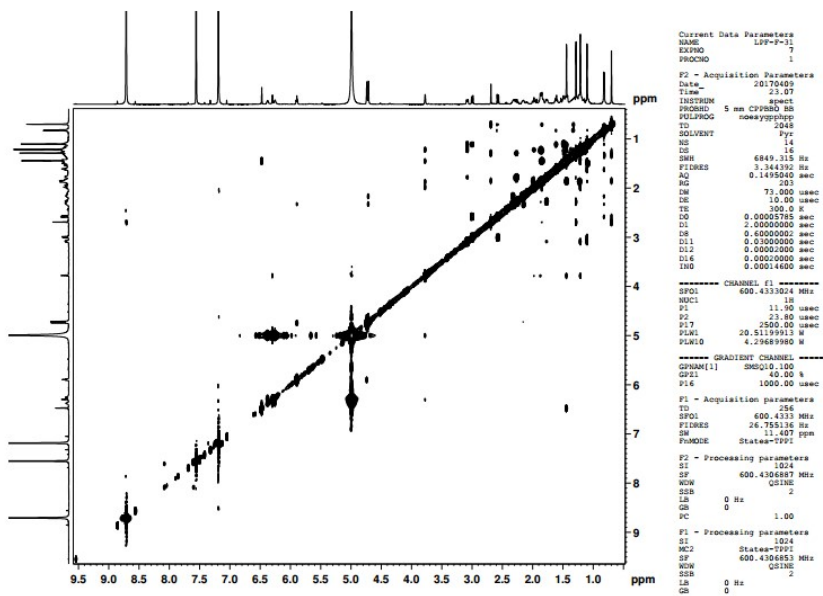


Figure S12. NOESY spectrum of the new compound **2**

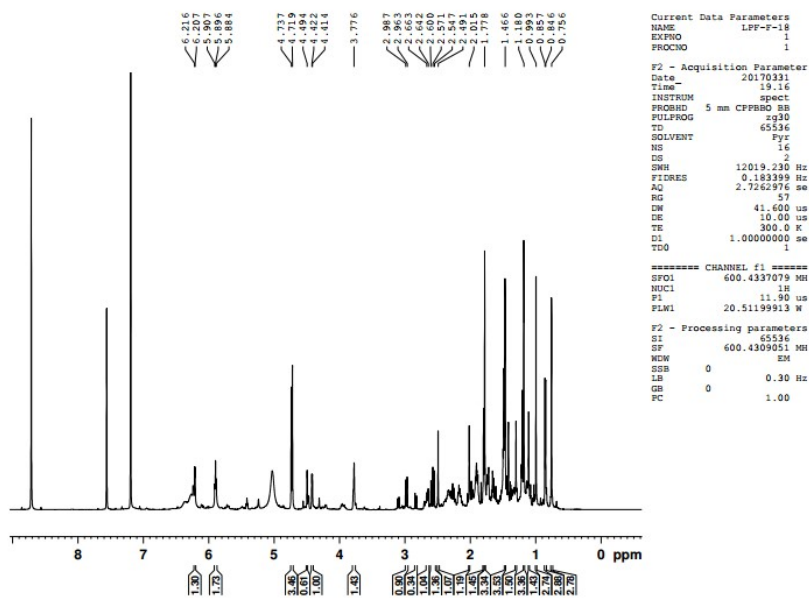


Figure S13. ^1H -NMR (600 MHz, Pyridine- d_5) spectrum of the new compound **3**

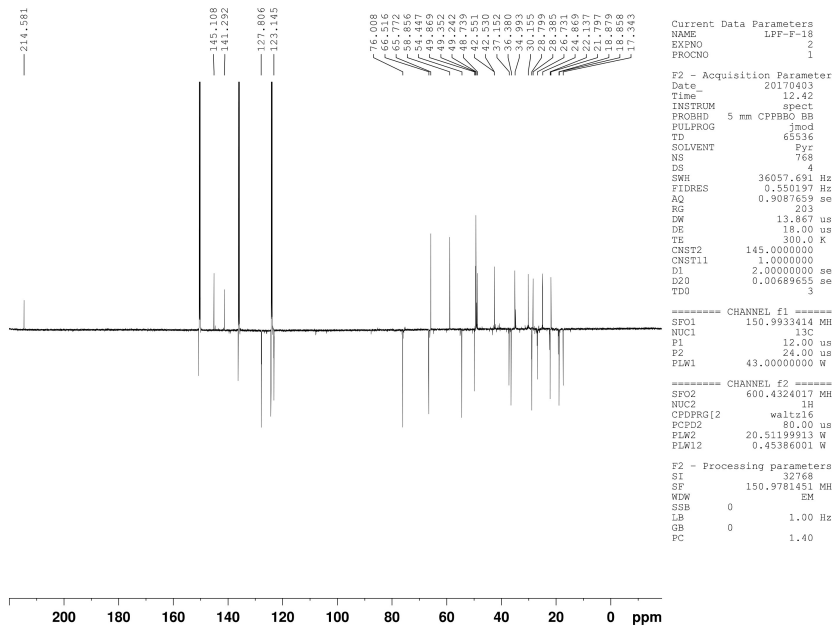


Figure S14. ^{13}C -APT (150 MHz, Pyridine- d_5) spectrum of the new compound **3**

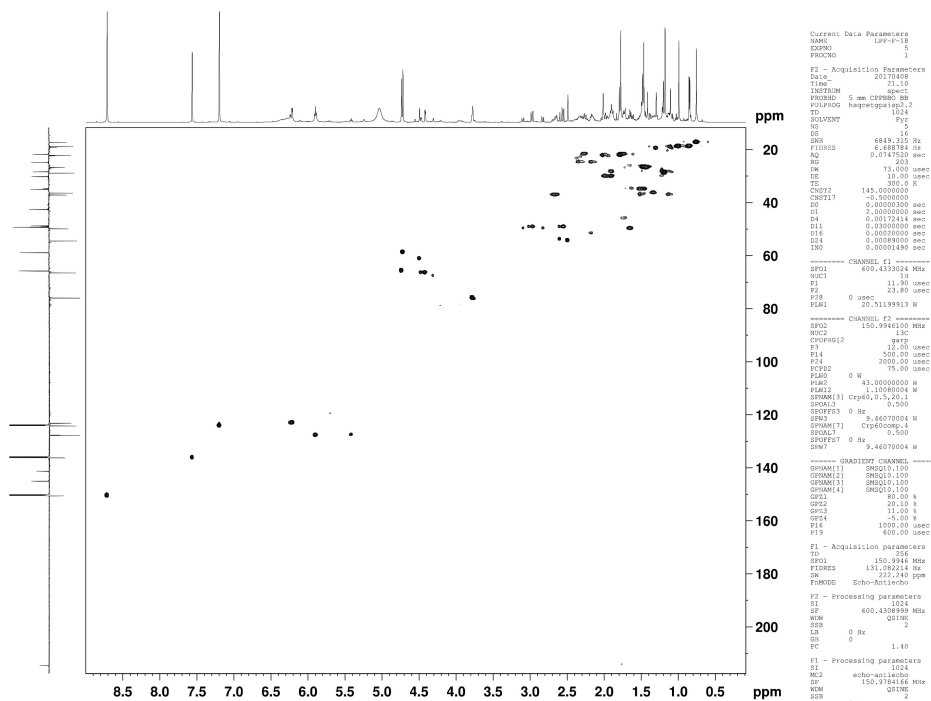


Figure S15. HSQC spectrum of the new compound **3**

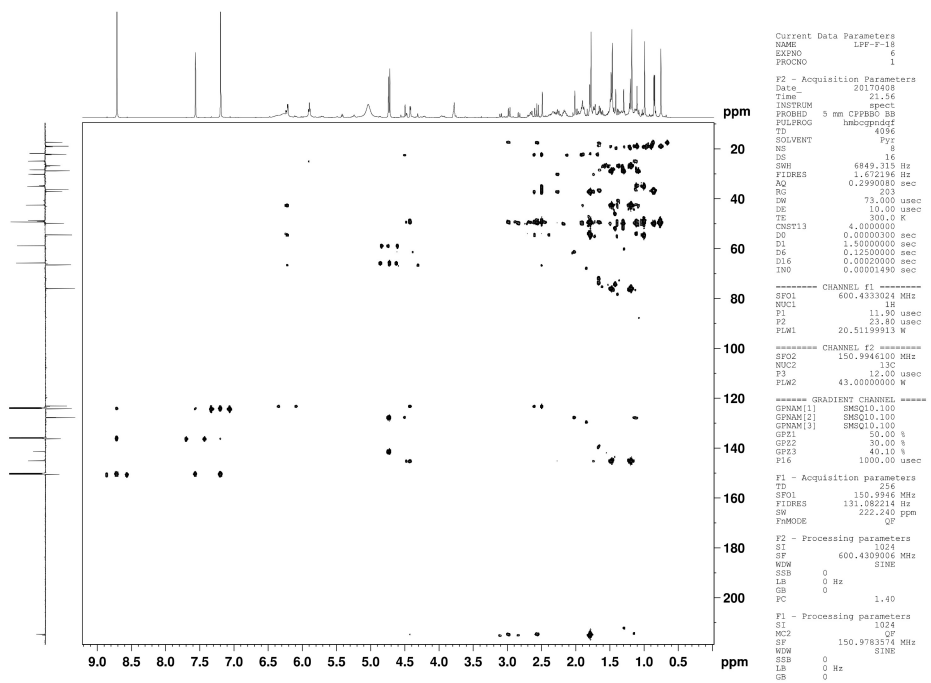


Figure S16. HMBC spectrum of the new compound **3**

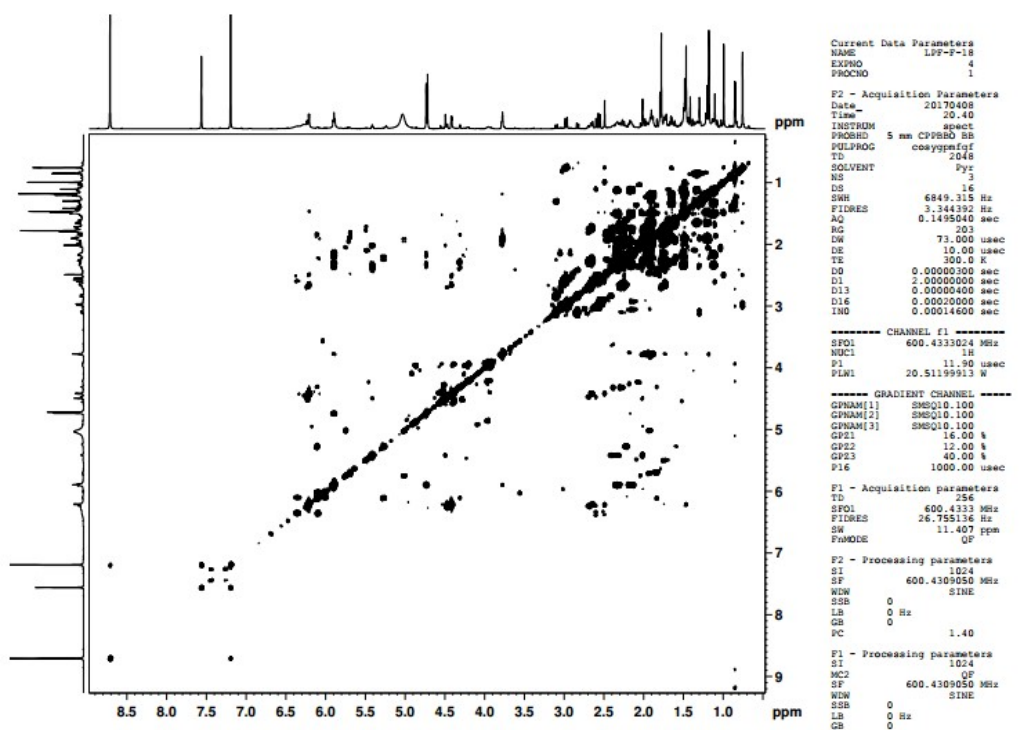


Figure S17. ^1H - ^1H COSY spectrum of the new compound 3

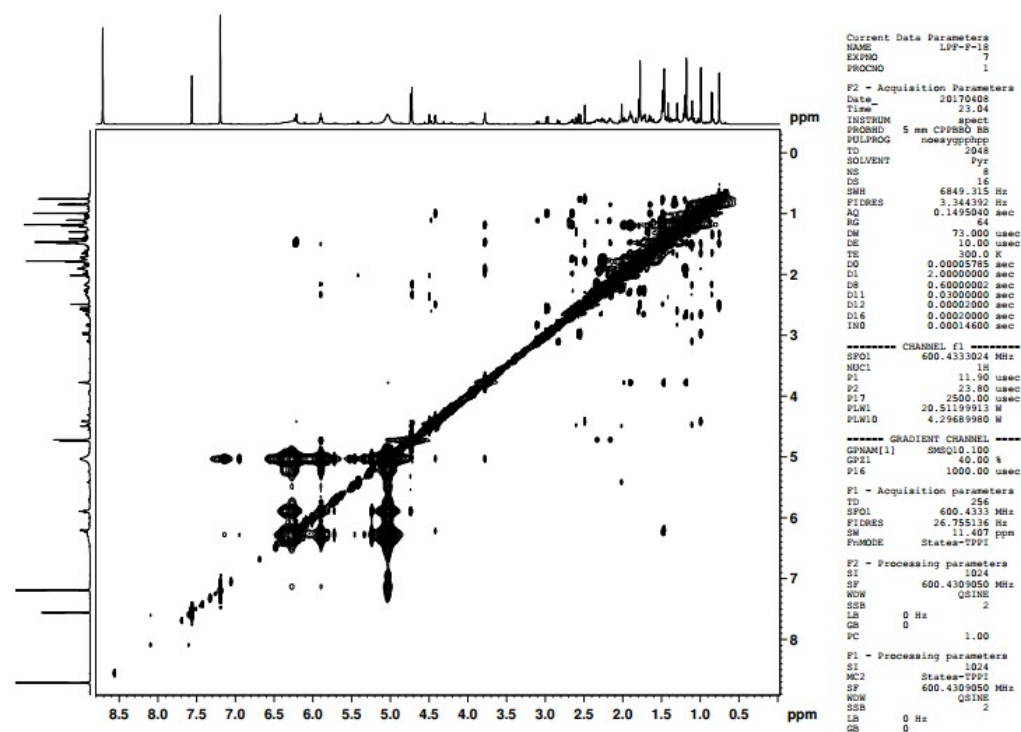


Figure S18. NOESY spectrum of the new compound 3

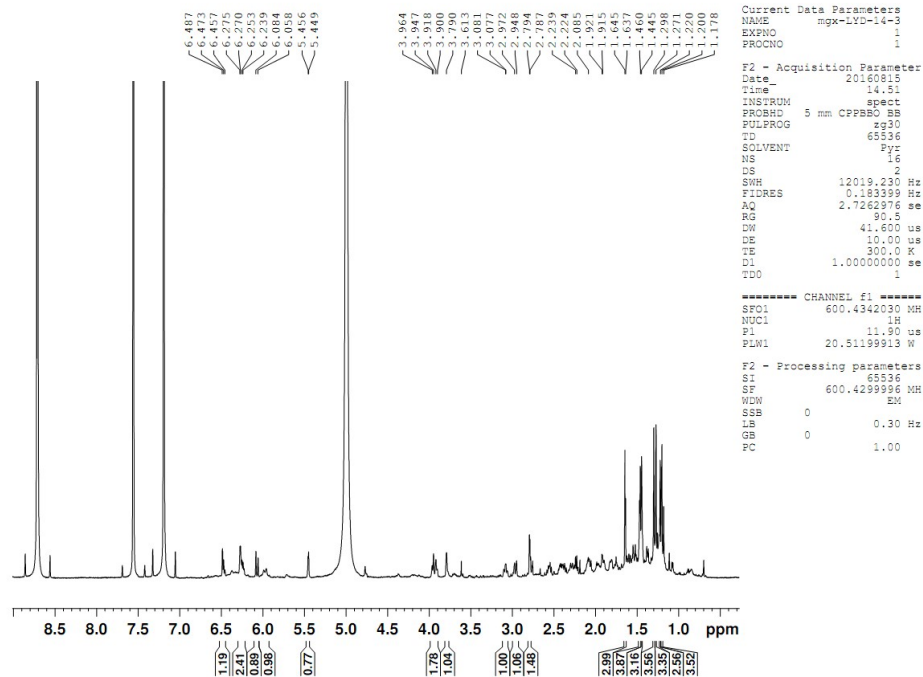


Figure S19. ^1H -NMR (600 MHz, Pyridine- d_5) spectrum of the new compound **4**

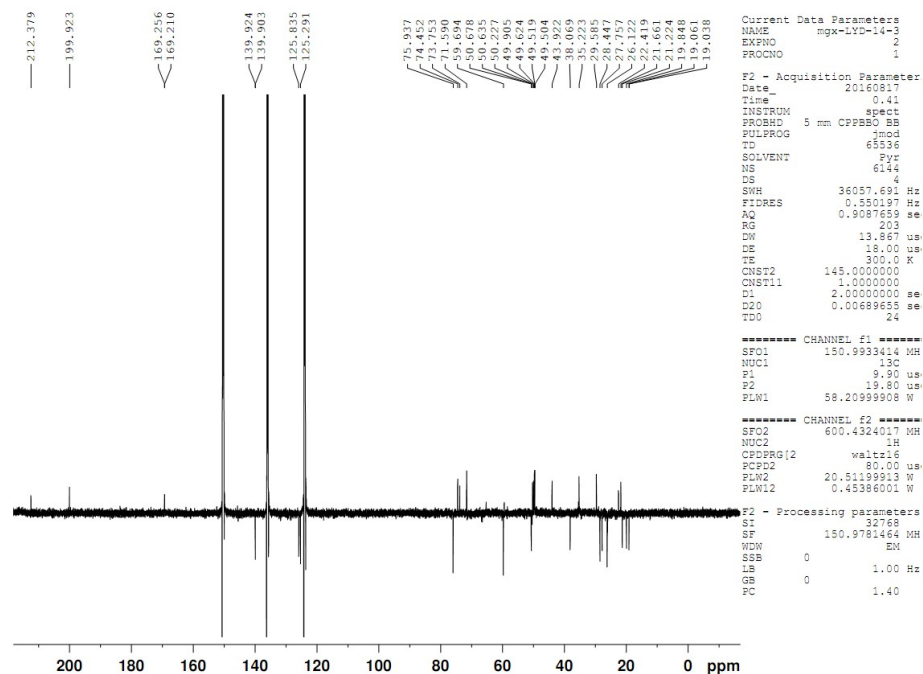


Figure S20. ^{13}C -APT (150 MHz, Pyridine- d_5) spectrum of the new compound **4**

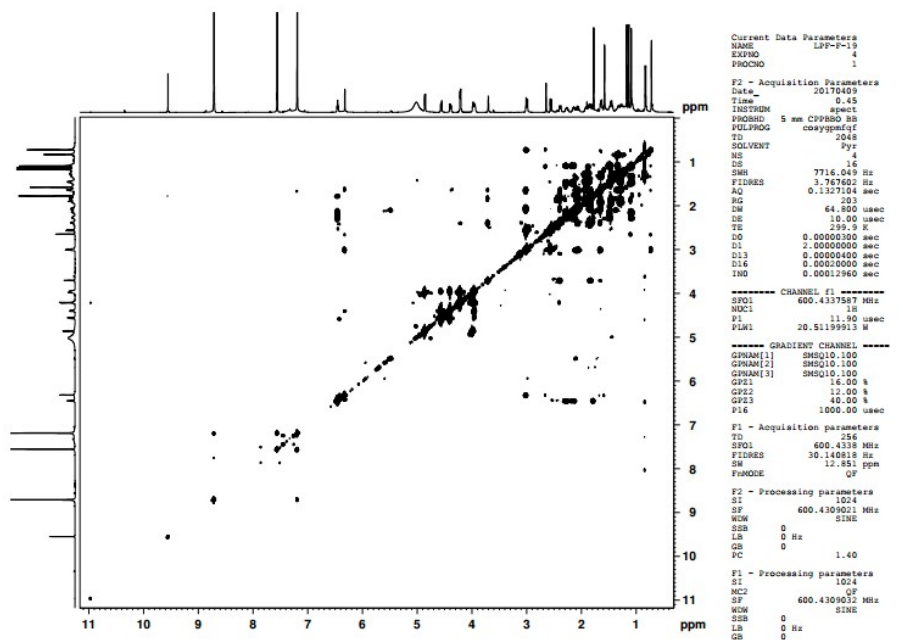


Figure S23. ^1H - ^1H COSY spectrum of the new compound 4

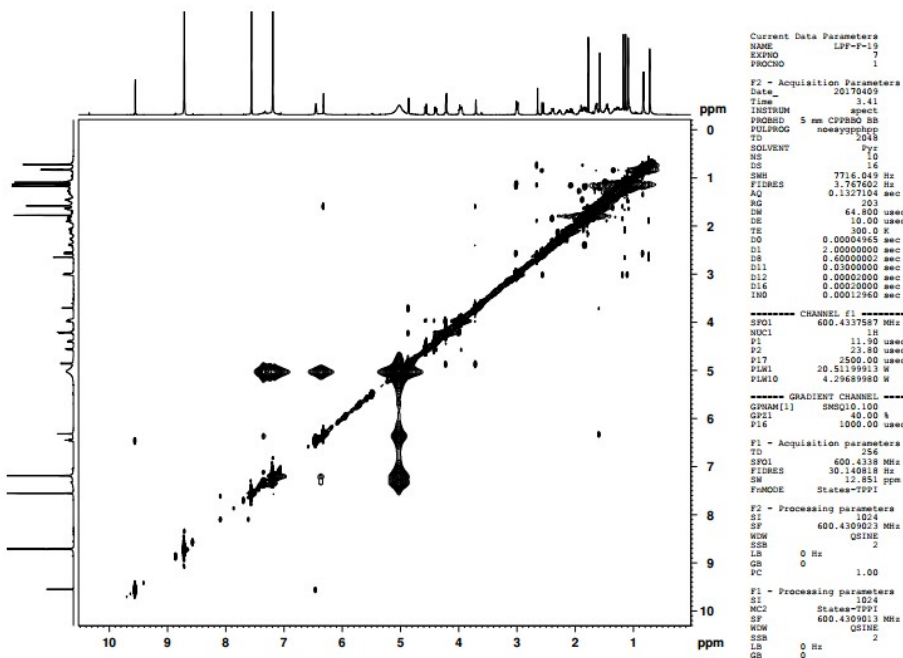


Figure S24. NOESY spectrum of the new compound 4

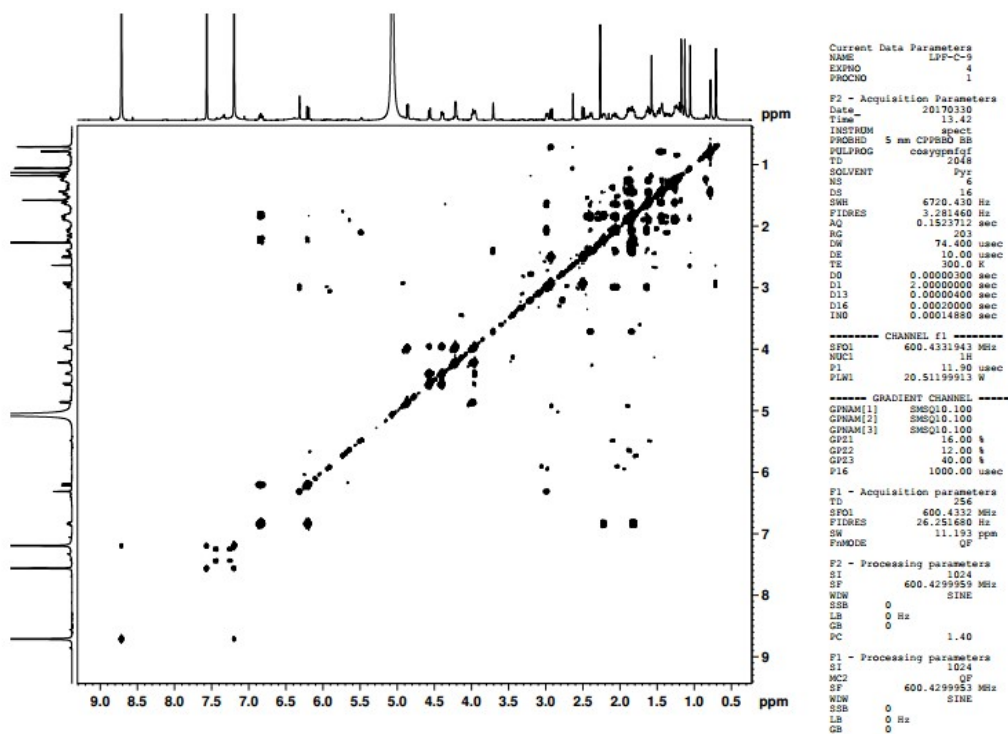


Figure S29. ^1H - ^1H COSY spectrum of the new compound **5**

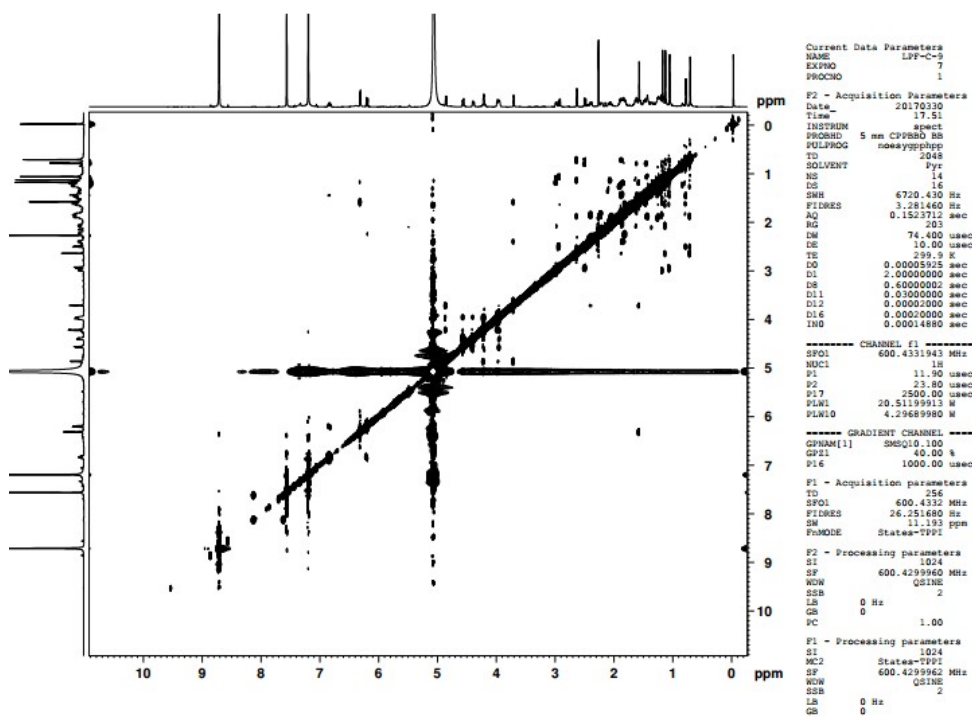


Figure S30. NOESY spectrum of the new compound **5**