

# Five New Meroterpenoids from the Fruiting Bodies of the Basidiomycete *Clitocybe clavipes* with Cytotoxic Activity

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**Abstract:** Five new meroterpenoids, clavipols A–B (1–2) with a 12-membered ether ring and clavilactones G–I (3–5) having a 10-membered carbocycle connected to a hydroquinone and an  $\alpha,\beta$ -epoxy/unsaturated lactone, were obtained from the fruiting bodies of the basidiomycete *Clitocybe clavipes*. Their structures were determined by comprehensive analysis of their spectroscopic data, and the absolute configuration of **1** was established by quantum chemical calculations of electronic circular dichroism (ECD). All the isolated compounds (1–5) were tested for their cytotoxic activity against three human tumor cell lines (Hela, SGC-7901, and SHG-44) in vitro after treatment for 48 h. Compound **4** exhibited moderate cytotoxic activity against Hela and SGC-7901 tumor cell lines, with IC<sub>50</sub> values of 23.5 and 14.5  $\mu$ M, respectively.

**Keywords:** meroterpenoids; *Clitocybe clavipes*; basidiomycete; cytotoxicity

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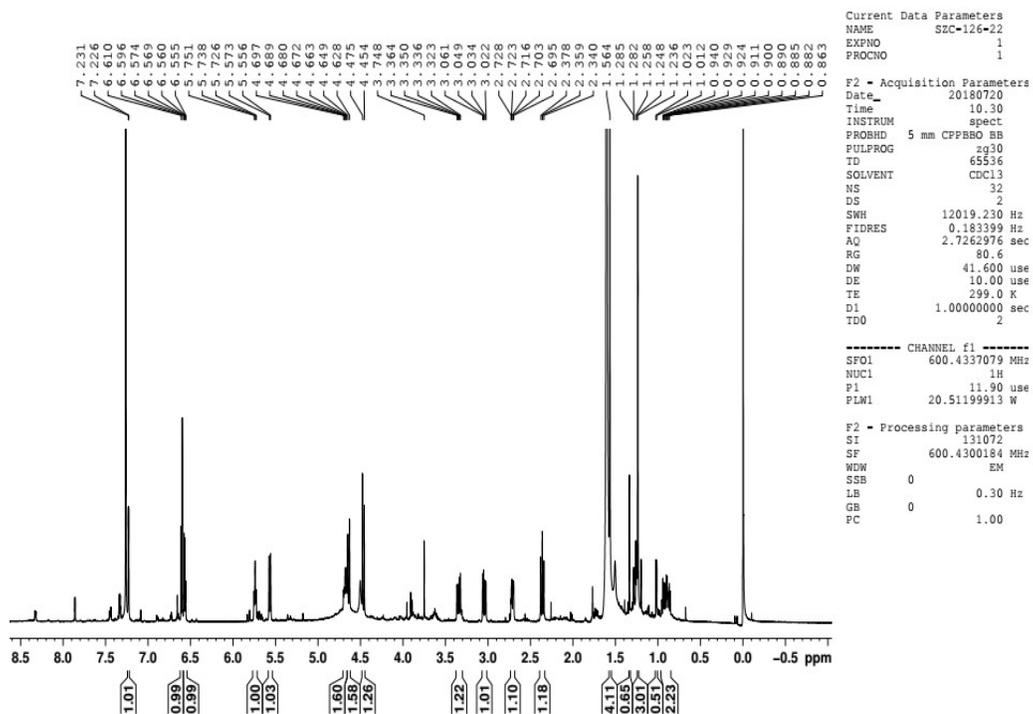


Figure S1.  $^1\text{H-NMR}$  (600 MHz,  $\text{CDCl}_3$ ) spectrum of the new compound **1**

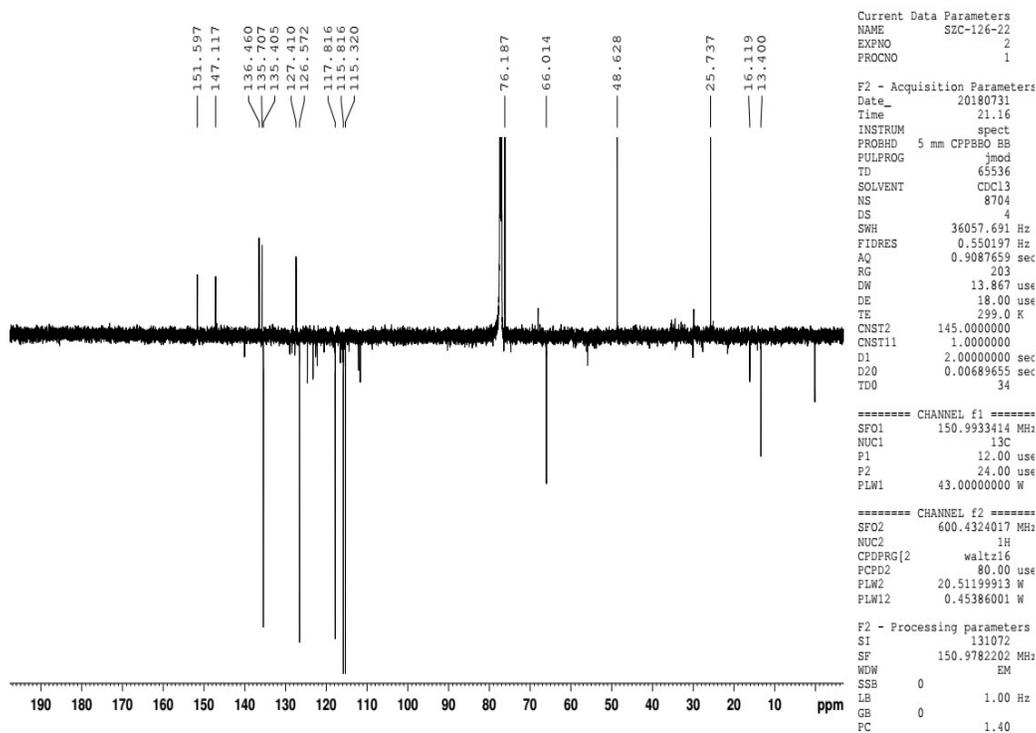


Figure S2.  $^{13}\text{C-APT}$  (150 MHz,  $\text{CDCl}_3$ ) spectrum of the new compound **1**

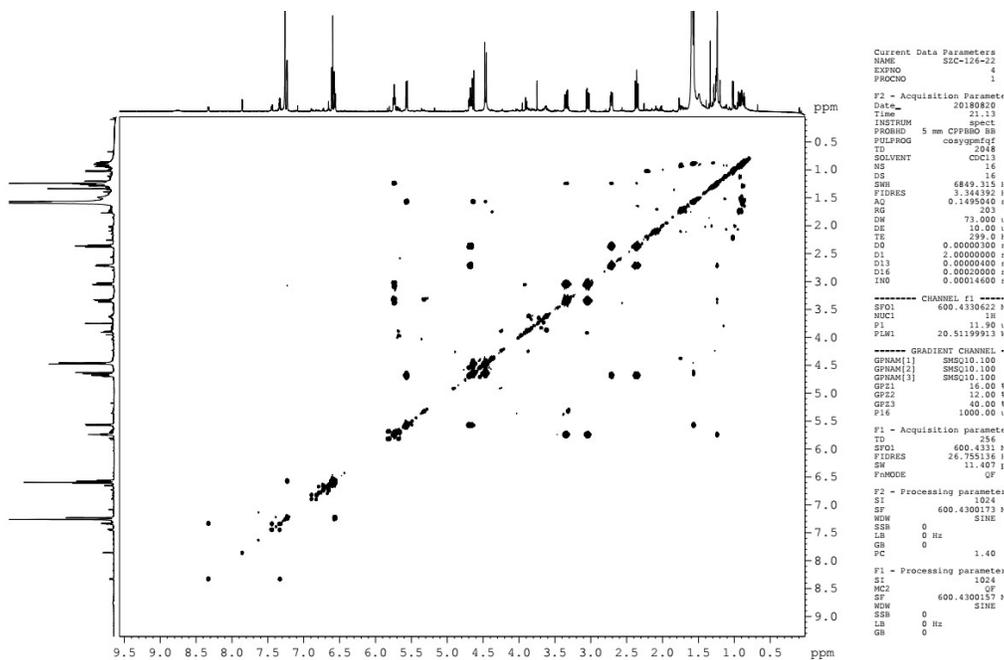


Figure S3.  $^1\text{H}$ - $^1\text{H}$  COSY spectrum of the new compound **1**

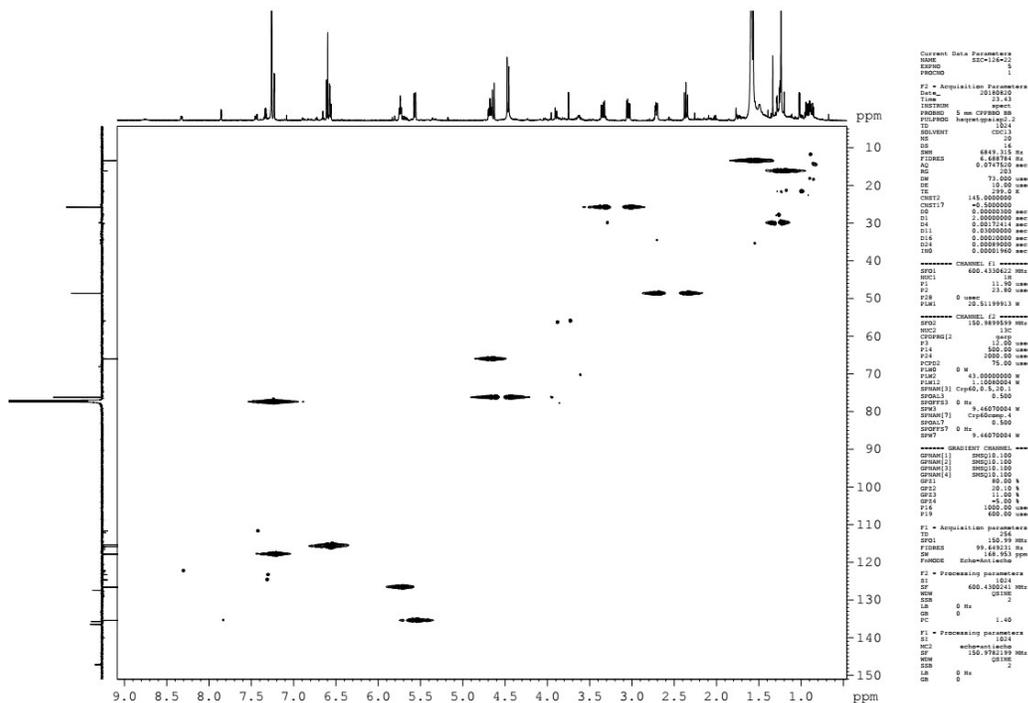


Figure S4. HSQC spectrum of the new compound **1**

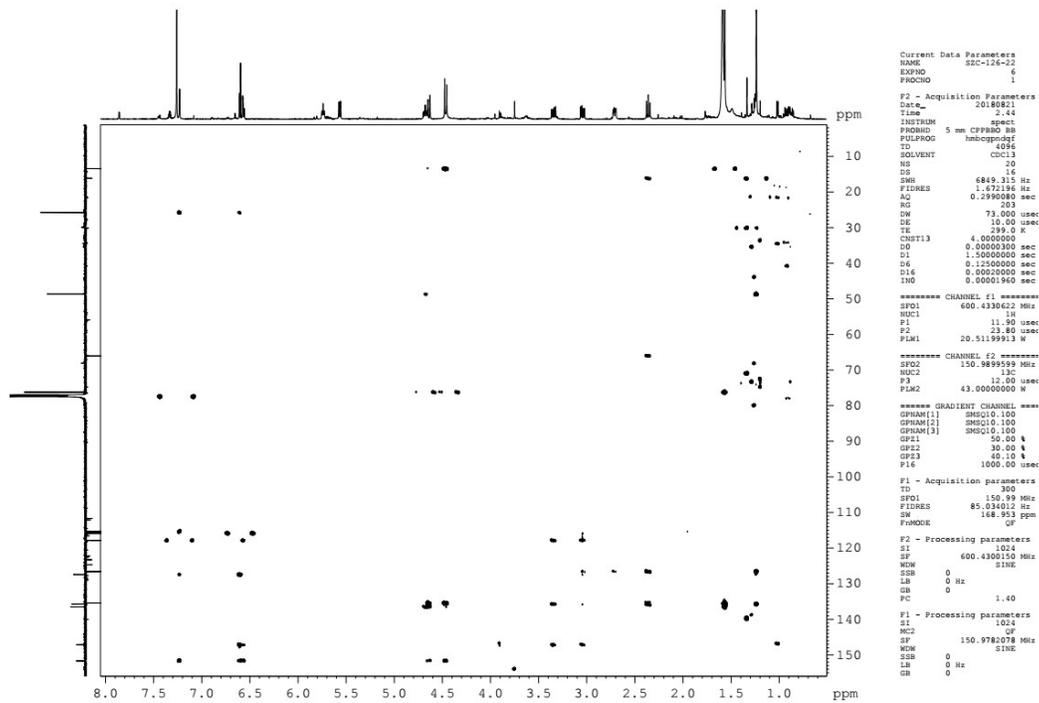


Figure S5. HMBC spectrum of the new compound 1

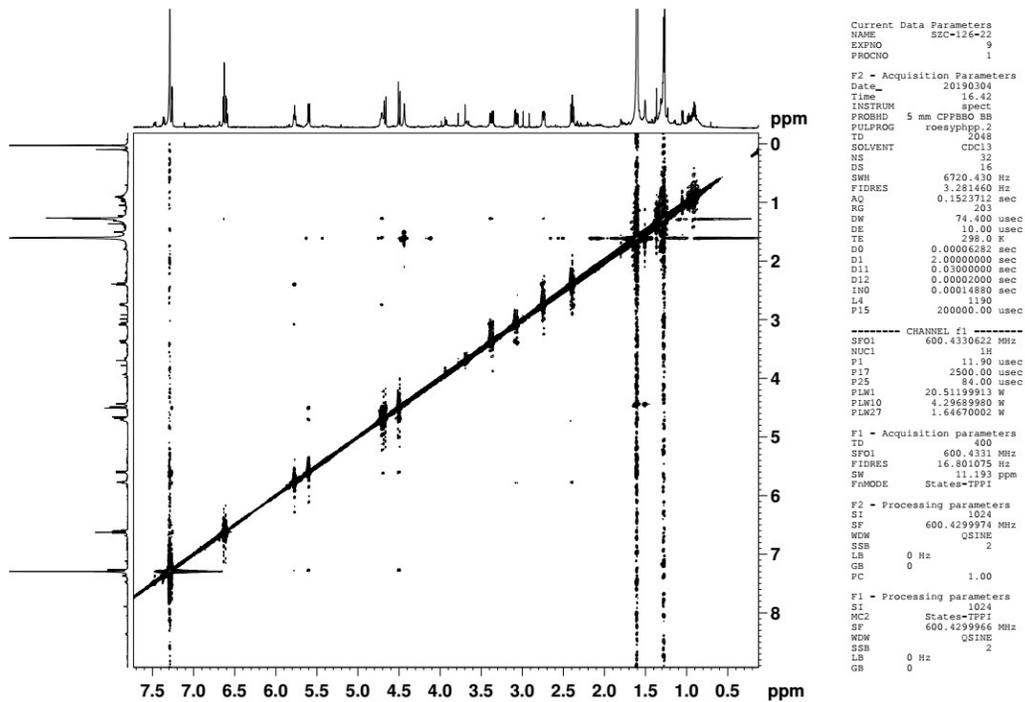


Figure S6. ROESY spectrum of the new compound 1

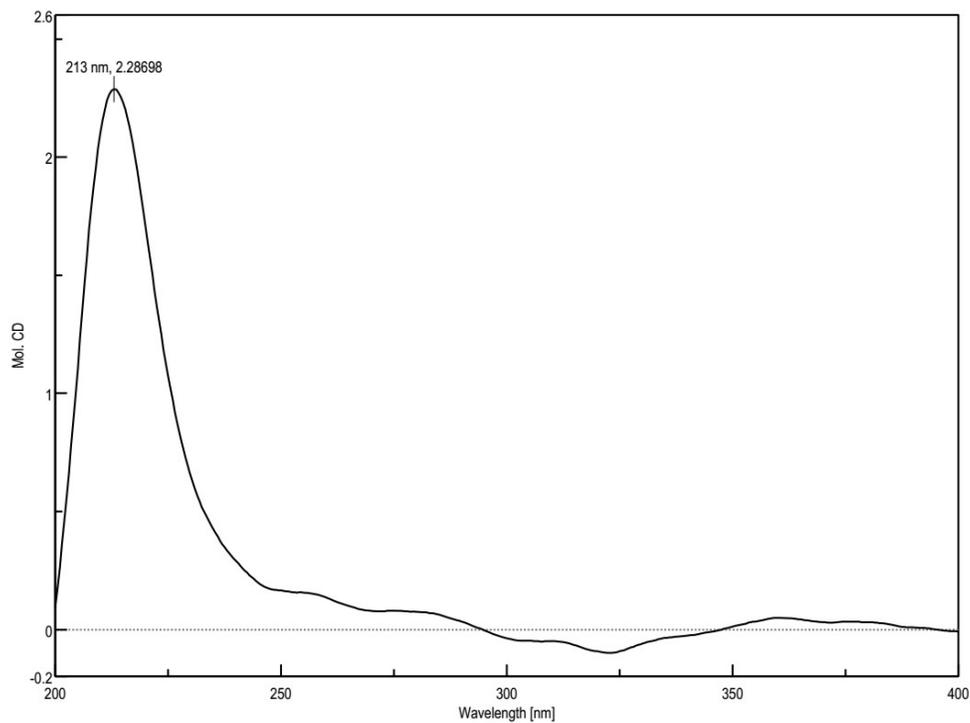


Figure S7. CD spectrum of the new compound 1

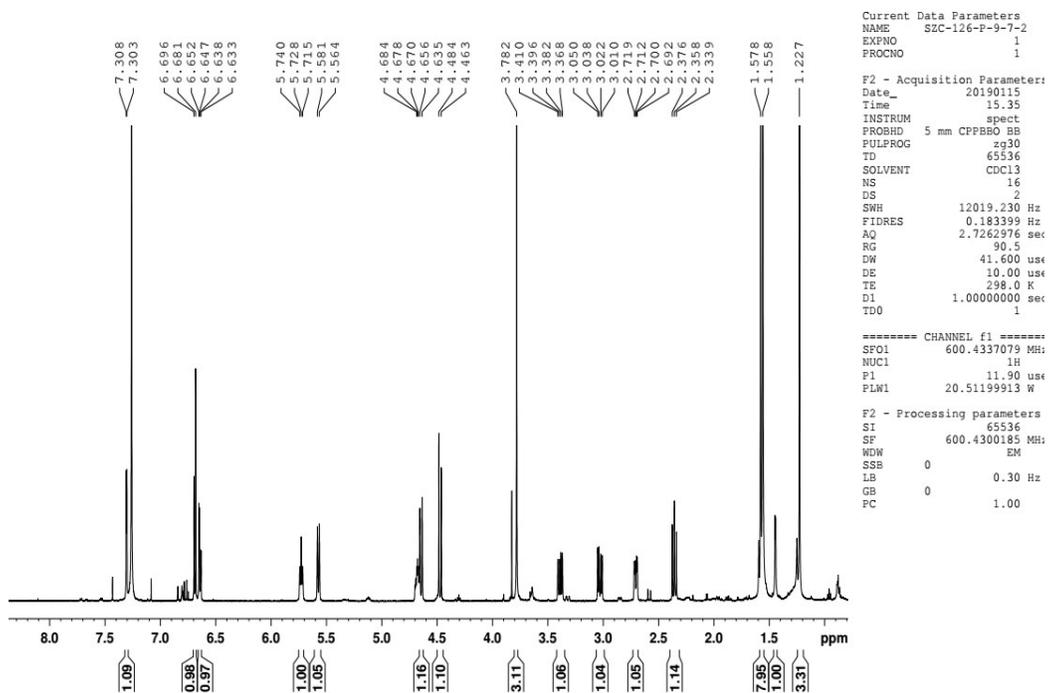


Figure S8.  $^1\text{H-NMR}$  (600 MHz,  $\text{CDCl}_3$ ) spectrum of the new compound 2

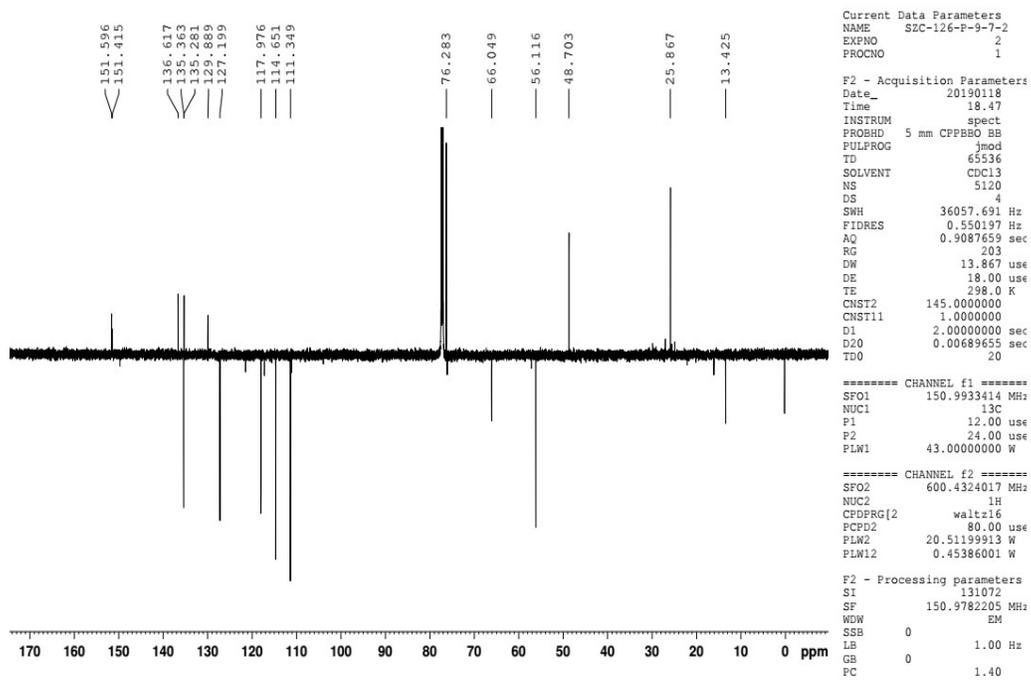


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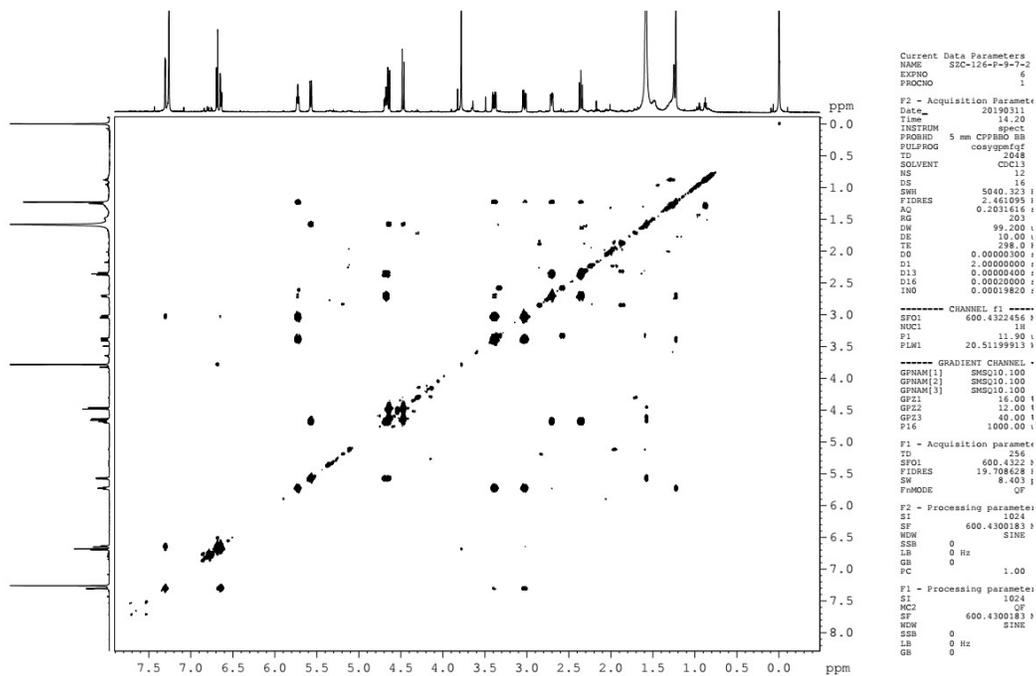


Figure S10.  $^1\text{H}$ - $^1\text{H}$  COSY spectrum of the new compound **2**



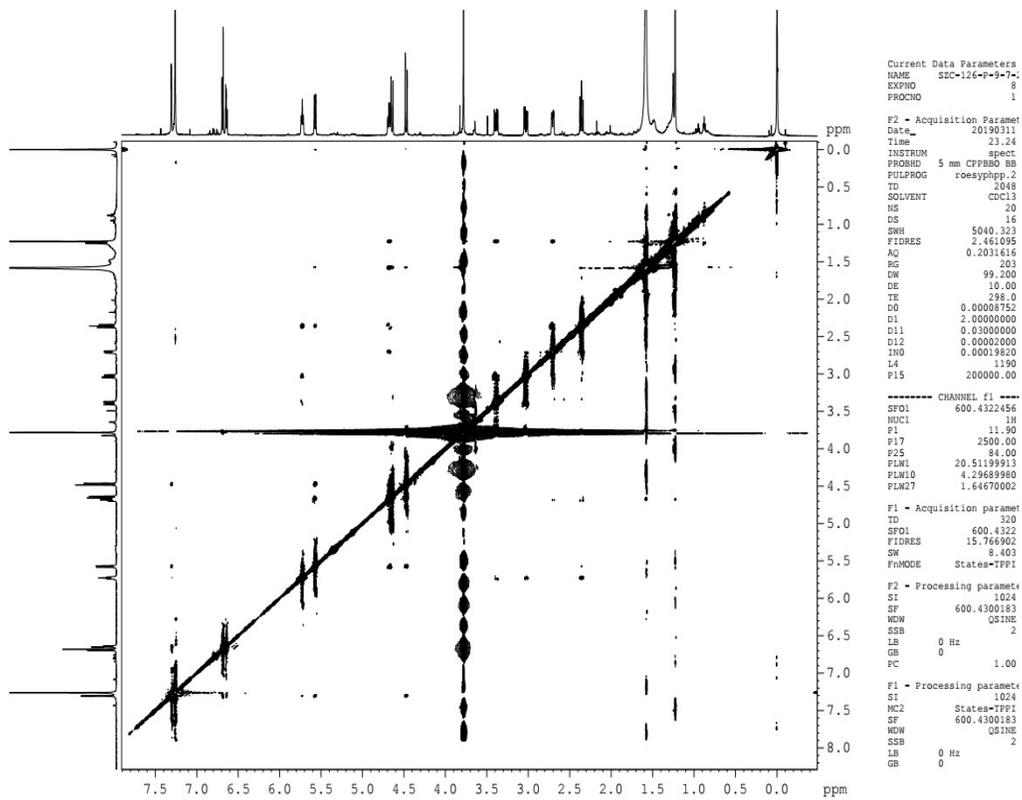


Figure S13. ROESY spectrum of the new compound 2

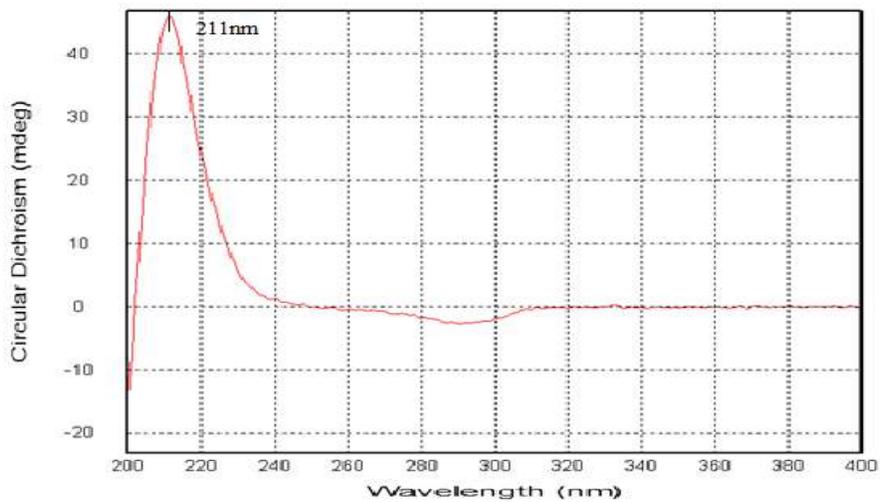


Figure S14. CD spectrum of the new compound 2

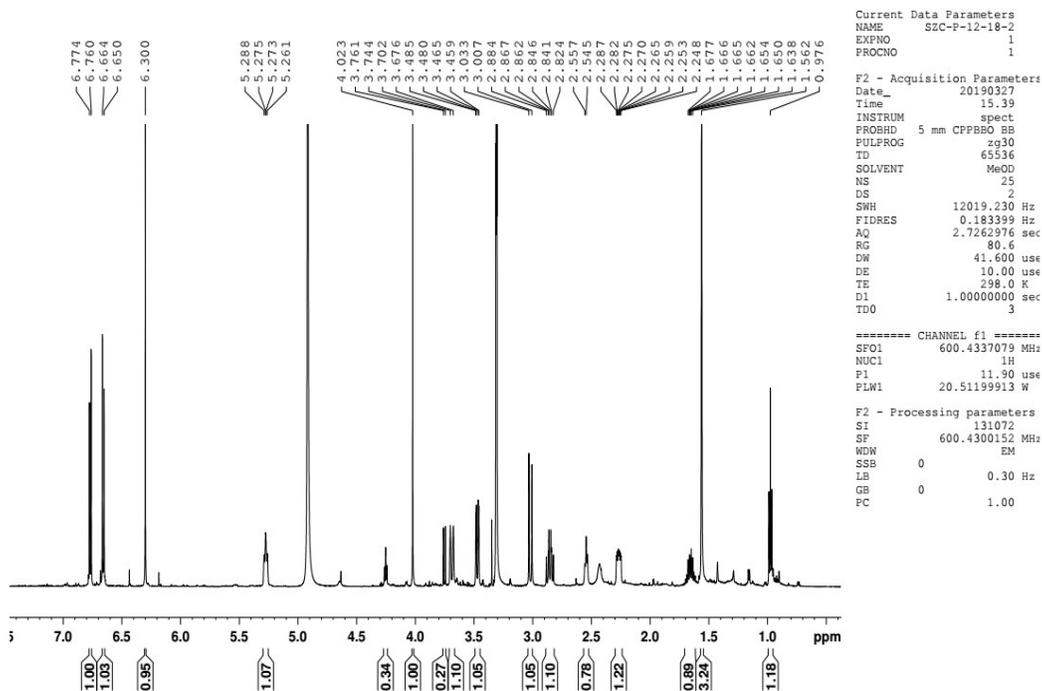


Figure S15. <sup>1</sup>H-NMR (600 MHz, CD<sub>3</sub>OD) spectrum of the new compound **3**

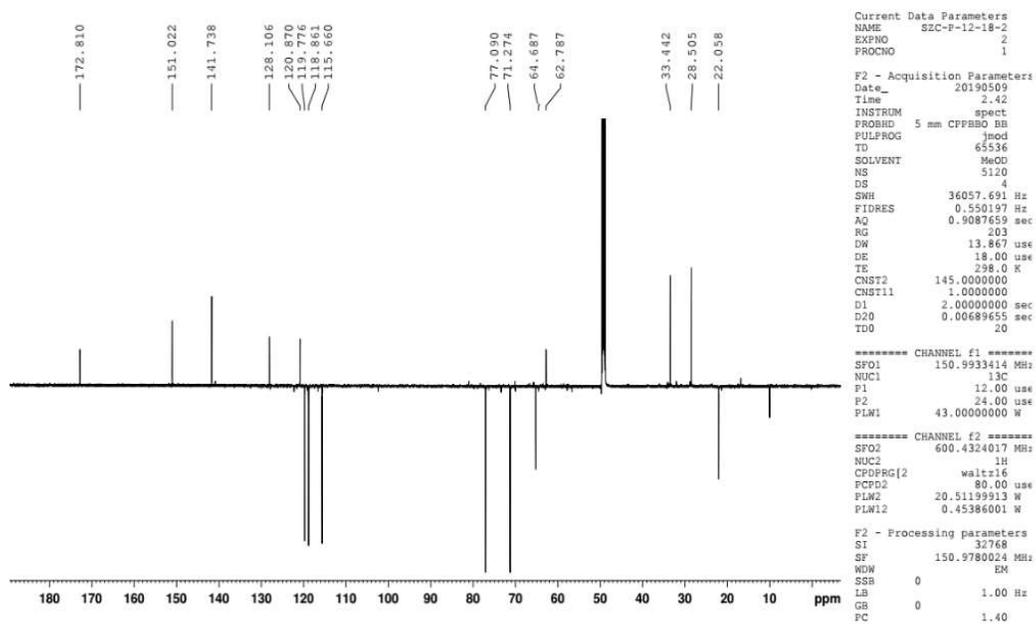


Figure S16. <sup>13</sup>C-APT (150 MHz, CD<sub>3</sub>OD) spectrum of the new compound **3**

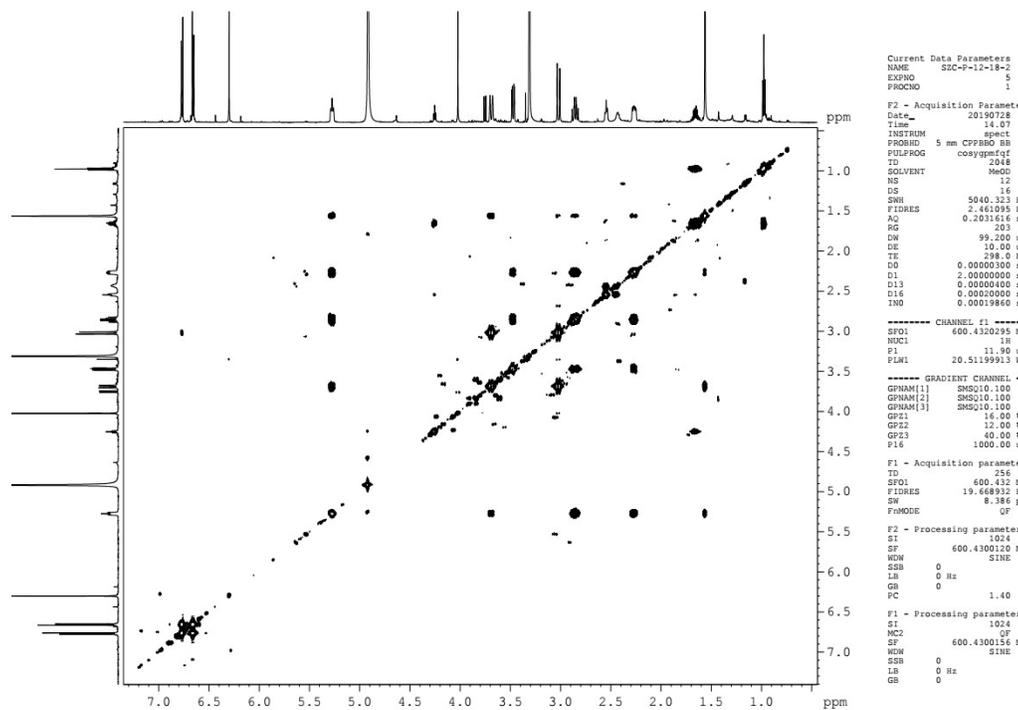


Figure S17.  $^1\text{H}$ - $^1\text{H}$  COSY spectrum of the new compound **3**

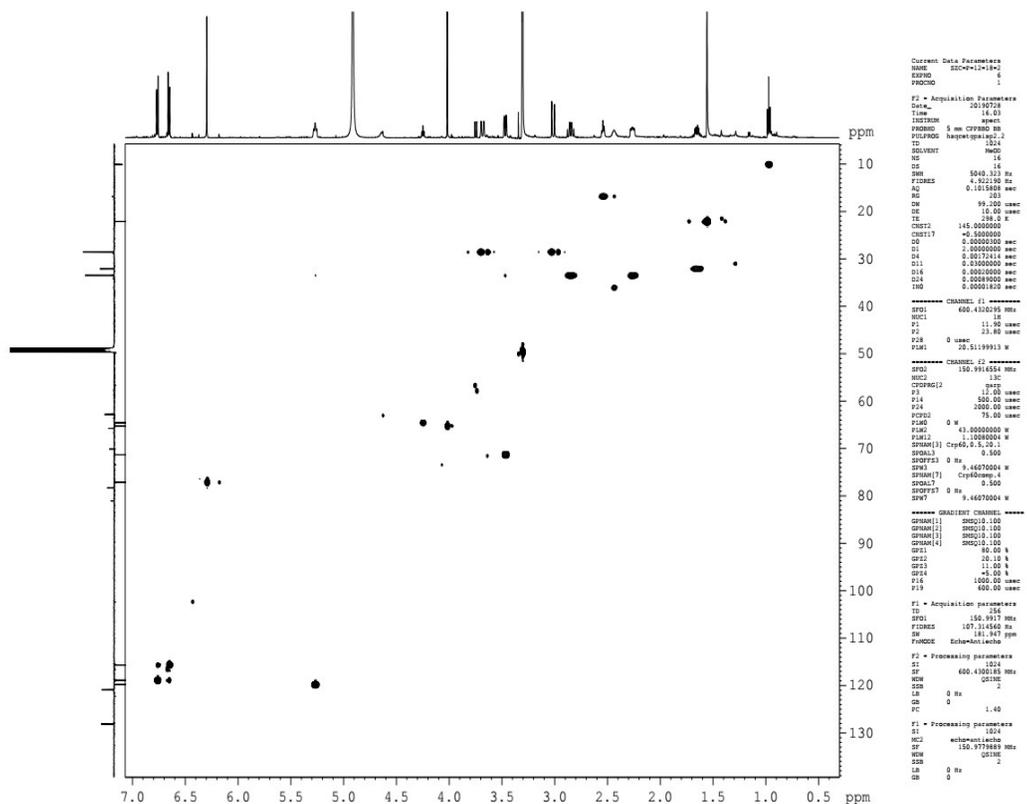


Figure S18. HSQC spectrum of the new compound **3**

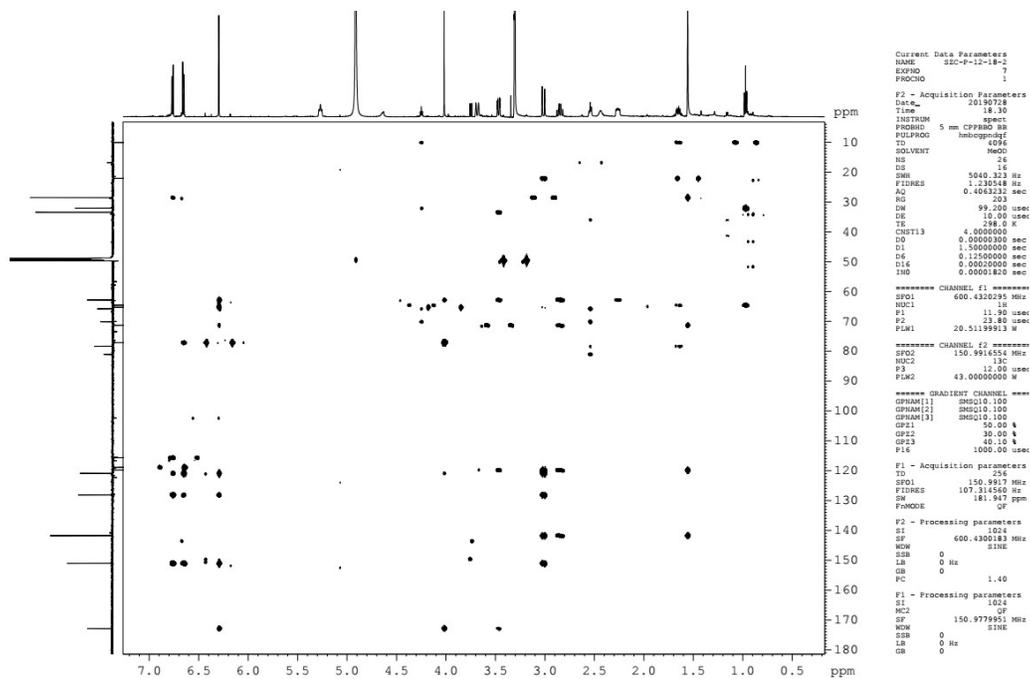


Figure S19. HMBC spectrum of the new compound 3

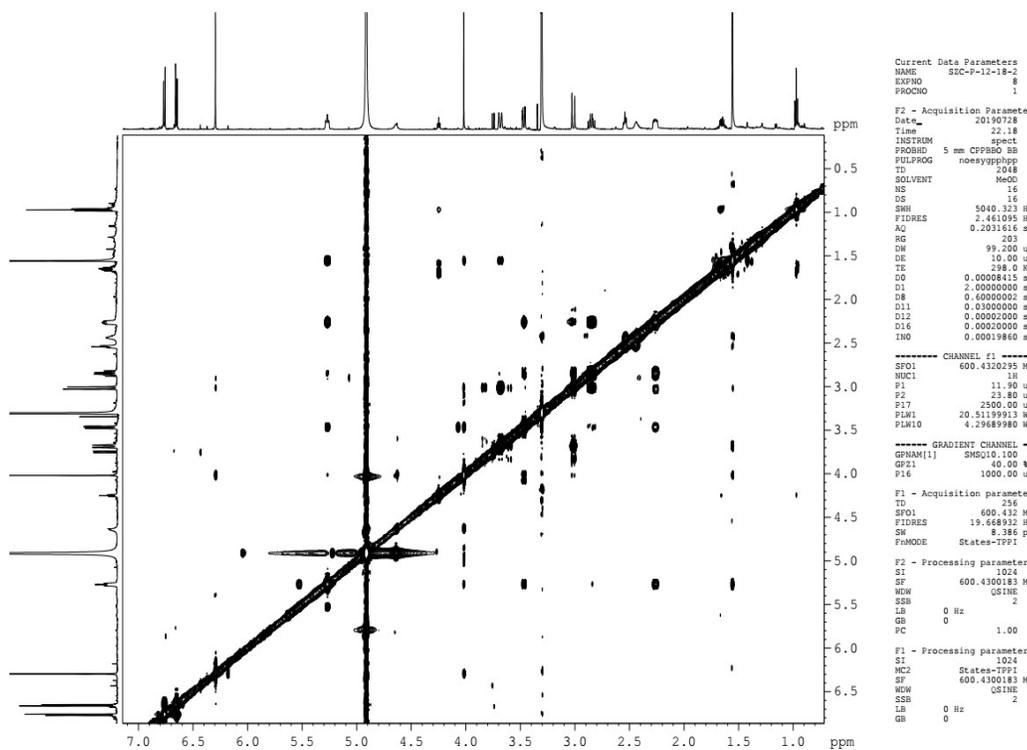


Figure S20. NOESY spectrum of the new compound 3

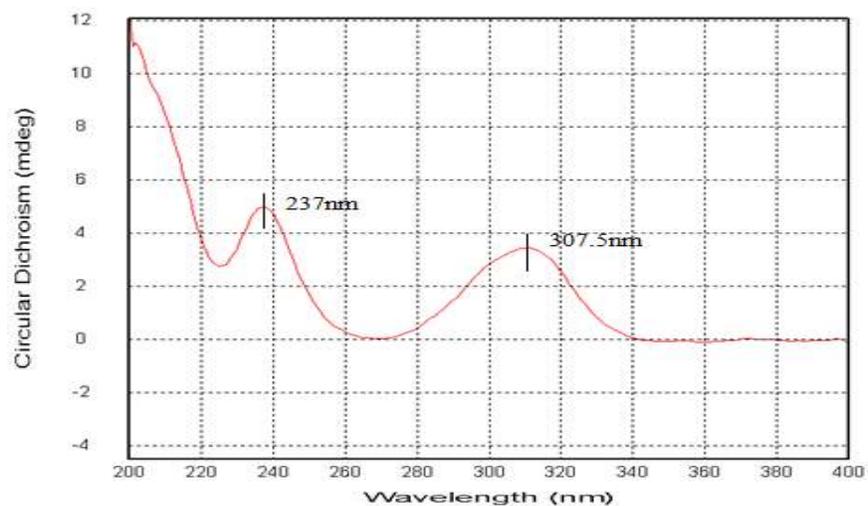


Figure S21. CD spectrum of the new compound 3

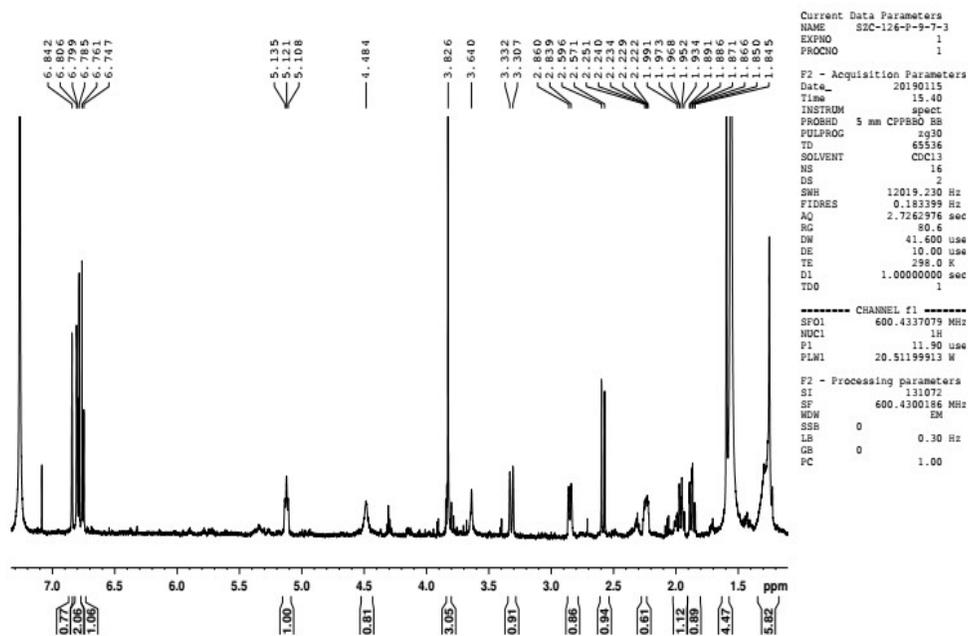


Figure S22. <sup>1</sup>H-NMR (600 MHz, CDCl<sub>3</sub>) spectrum of the new compound 4

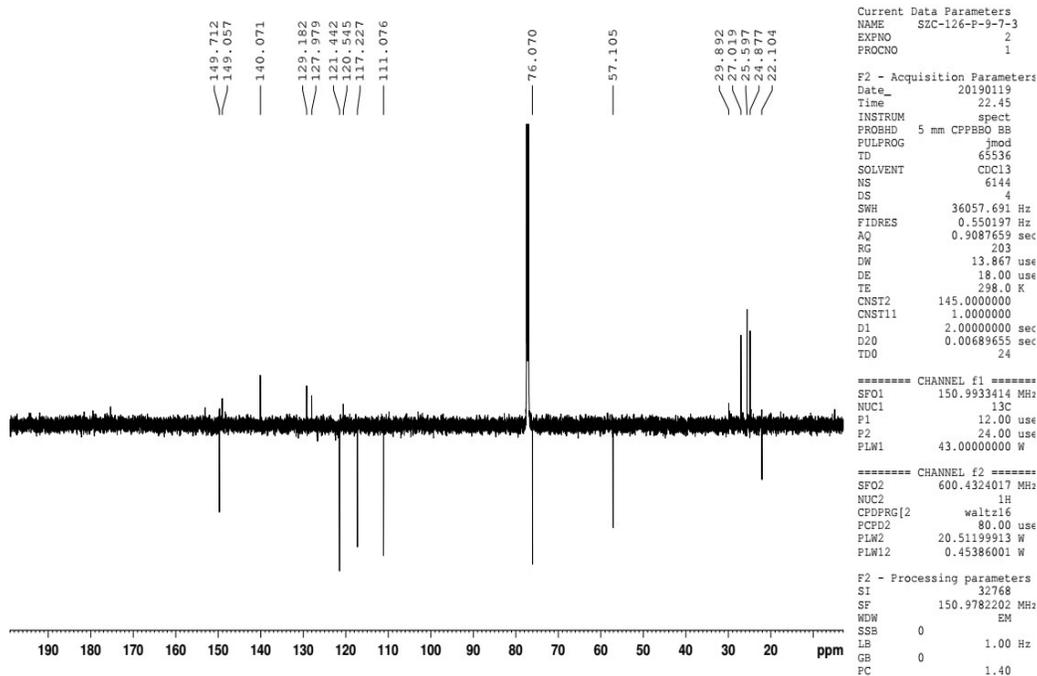


Figure S23. <sup>13</sup>C-APT (150 MHz, CDCl<sub>3</sub>) spectrum of the new compound **4**

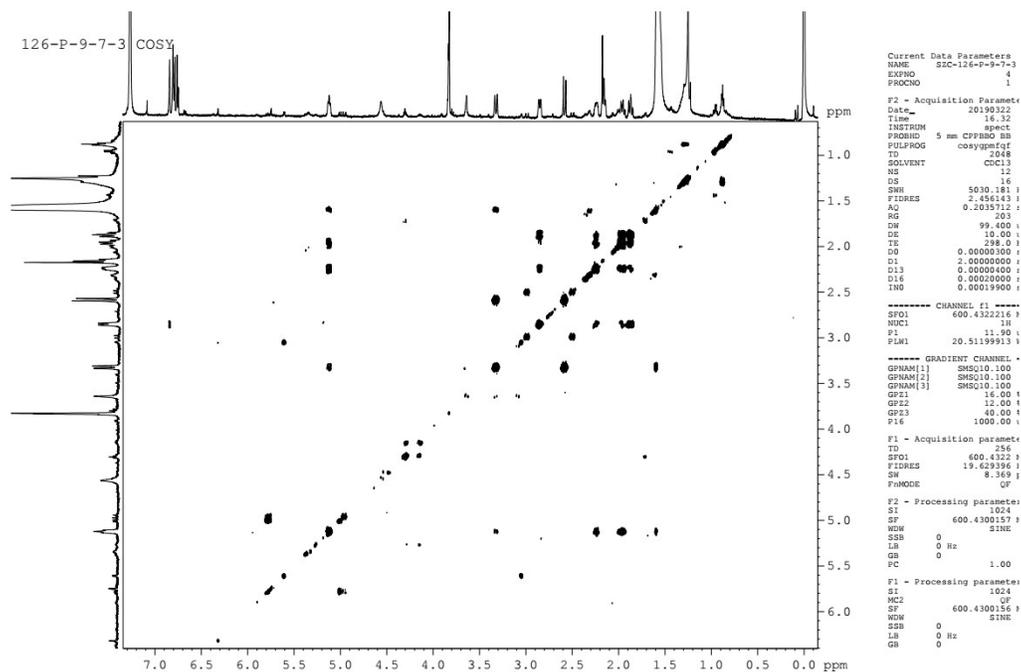


Figure S24. <sup>1</sup>H-<sup>1</sup>H COSY spectrum of the new compound **4**

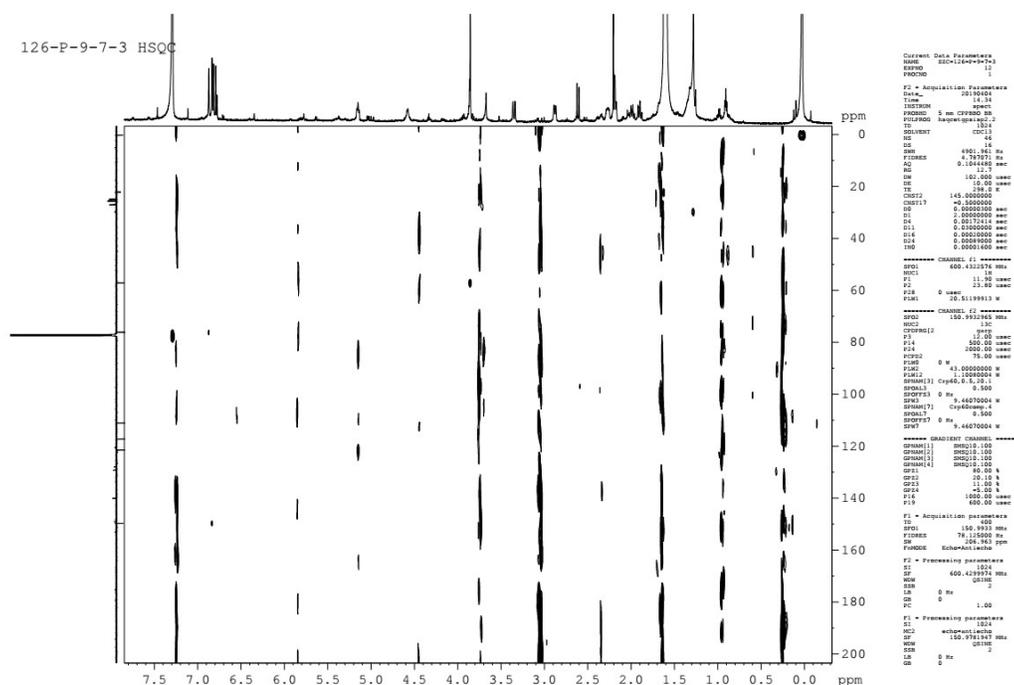


Figure S25. HSQC spectrum of the new compound 4

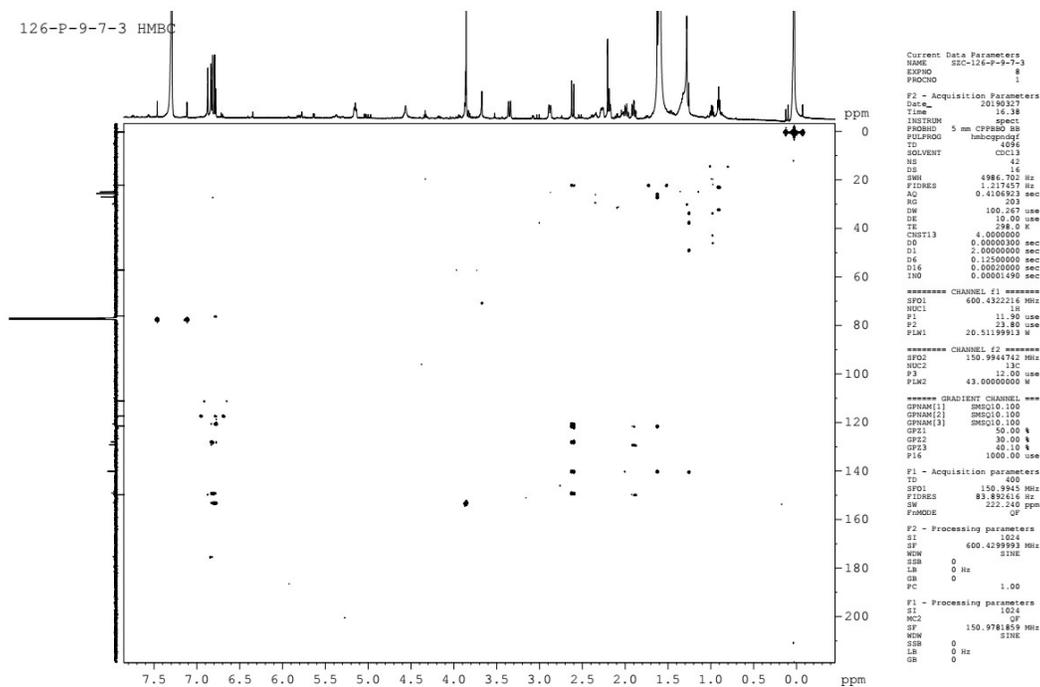


Figure S26. HMBC spectrum of the new compound 4

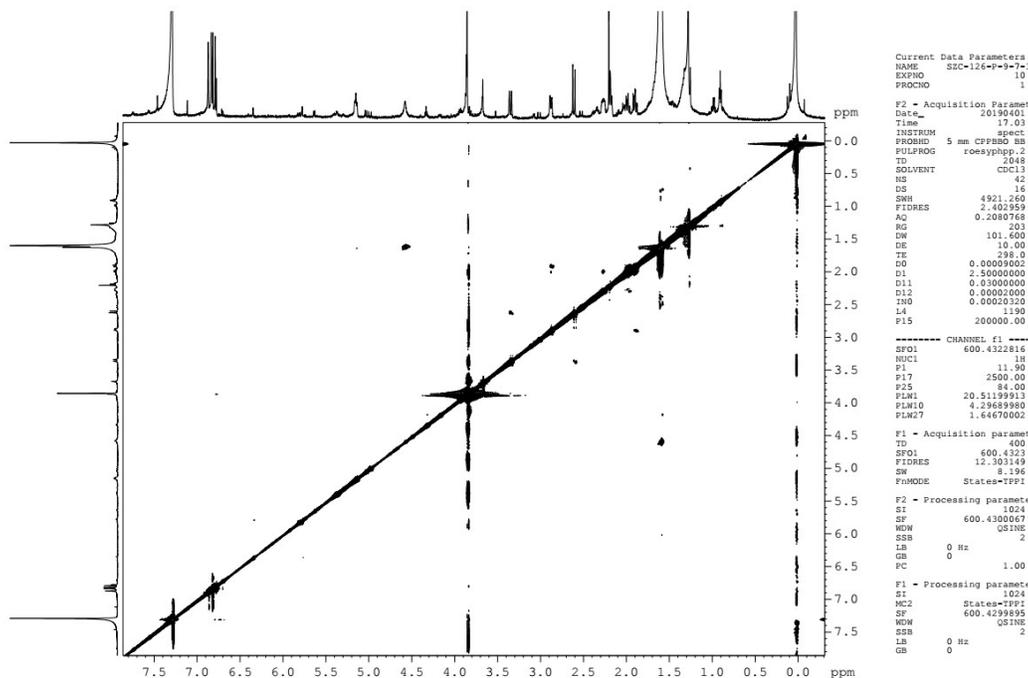


Figure S27. ROESY spectrum of the new compound **4**

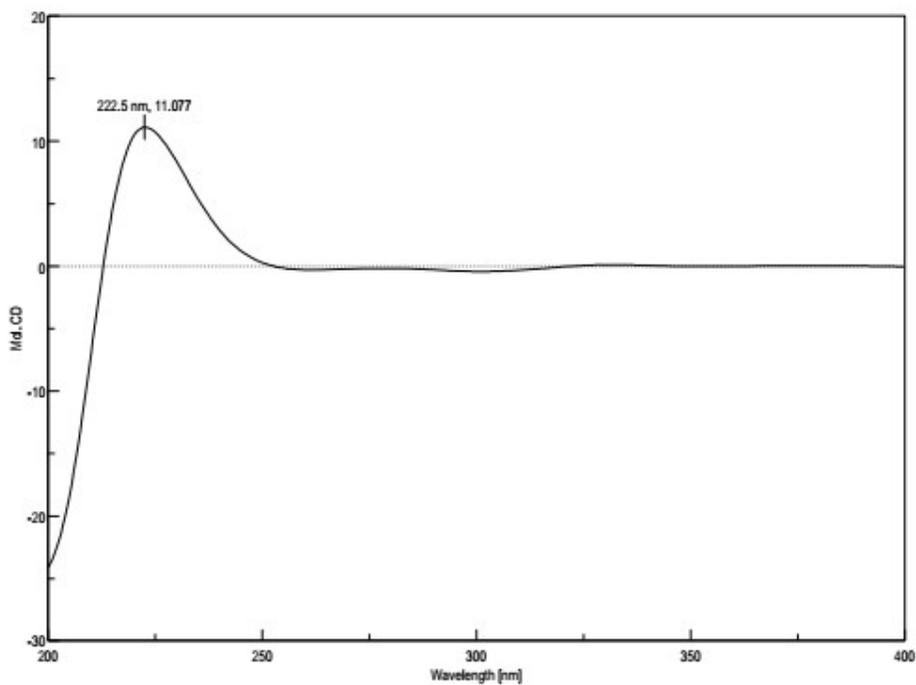


Figure S28. CD spectrum of the new compound **4**

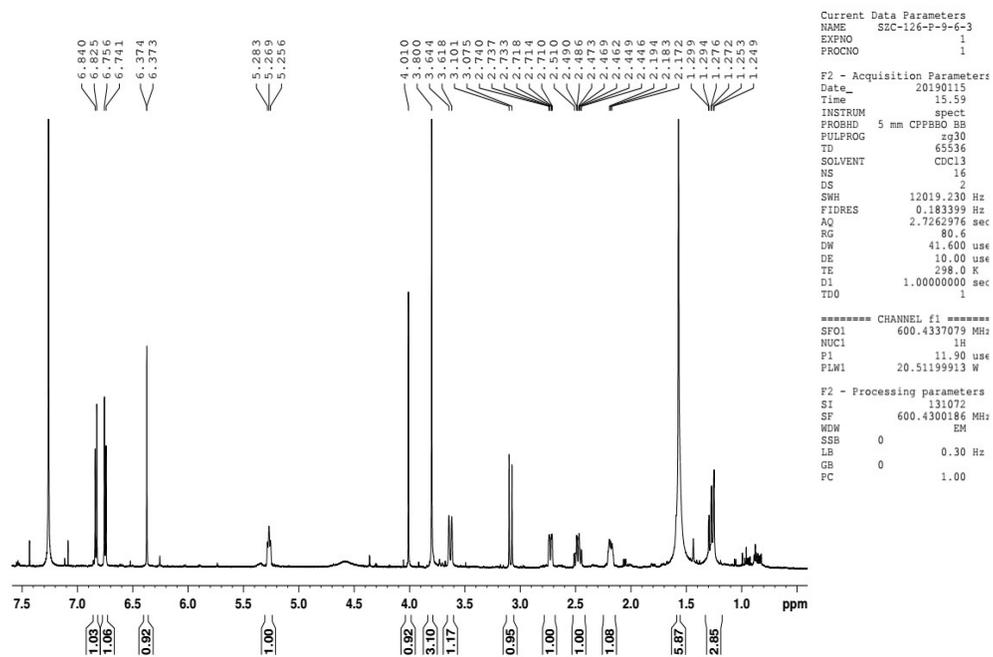


Figure S29. <sup>1</sup>H-NMR (600 MHz, CDCl<sub>3</sub>) spectrum of the new compound 5

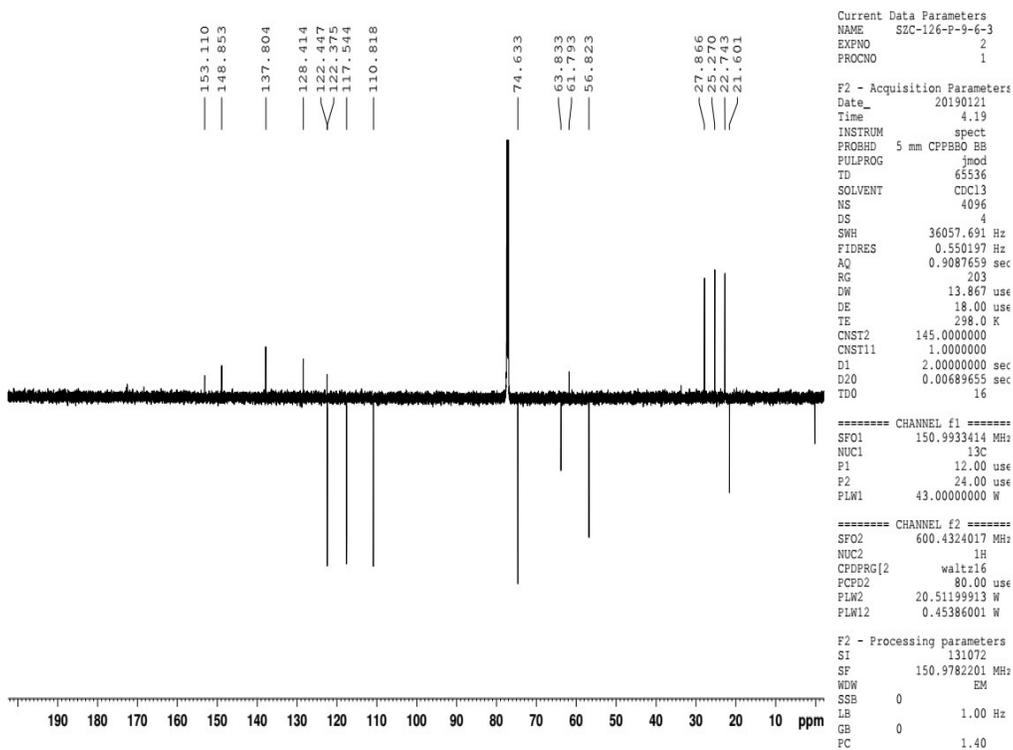


Figure S30. <sup>13</sup>C-APT (150 MHz, CDCl<sub>3</sub>) spectrum of the new compound 5

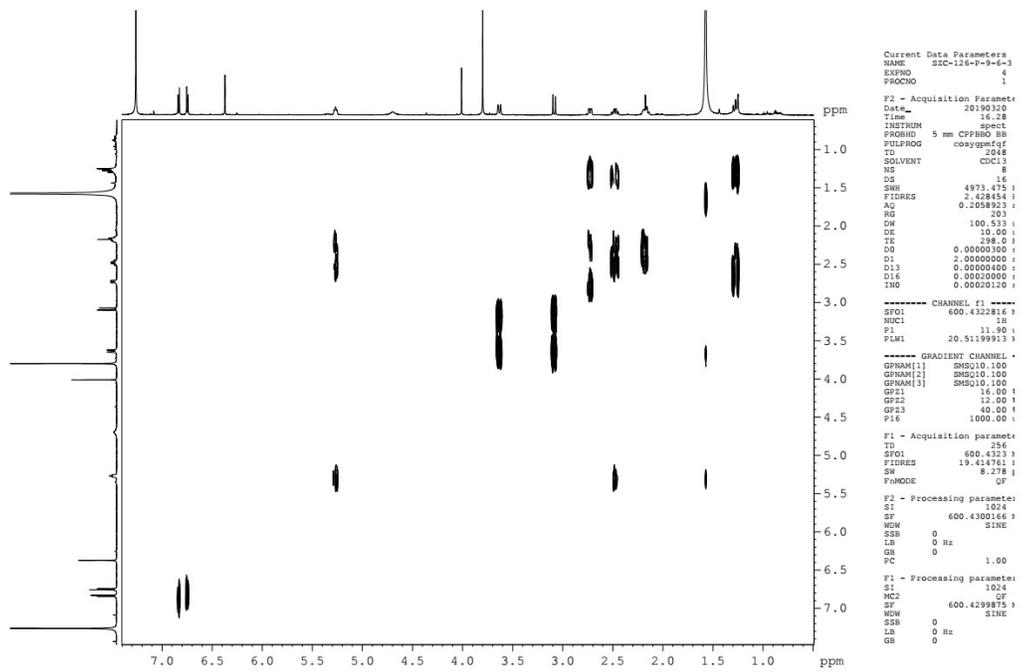


Figure S31. <sup>1</sup>H-<sup>1</sup>H COSY spectrum of the new compound 5

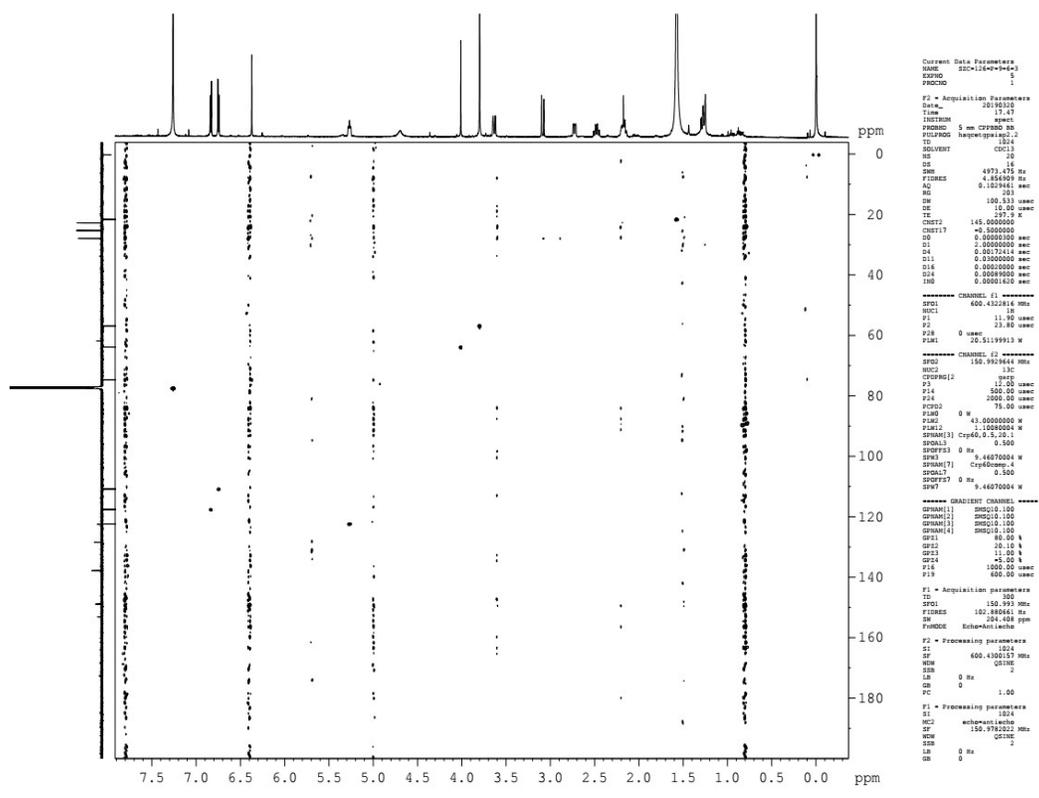


Figure S32. HSQC spectrum of the new compound 5

