Supplementary Materials

Chlorophyll derivatives from marine cyanobacteria with lipid reducing activities

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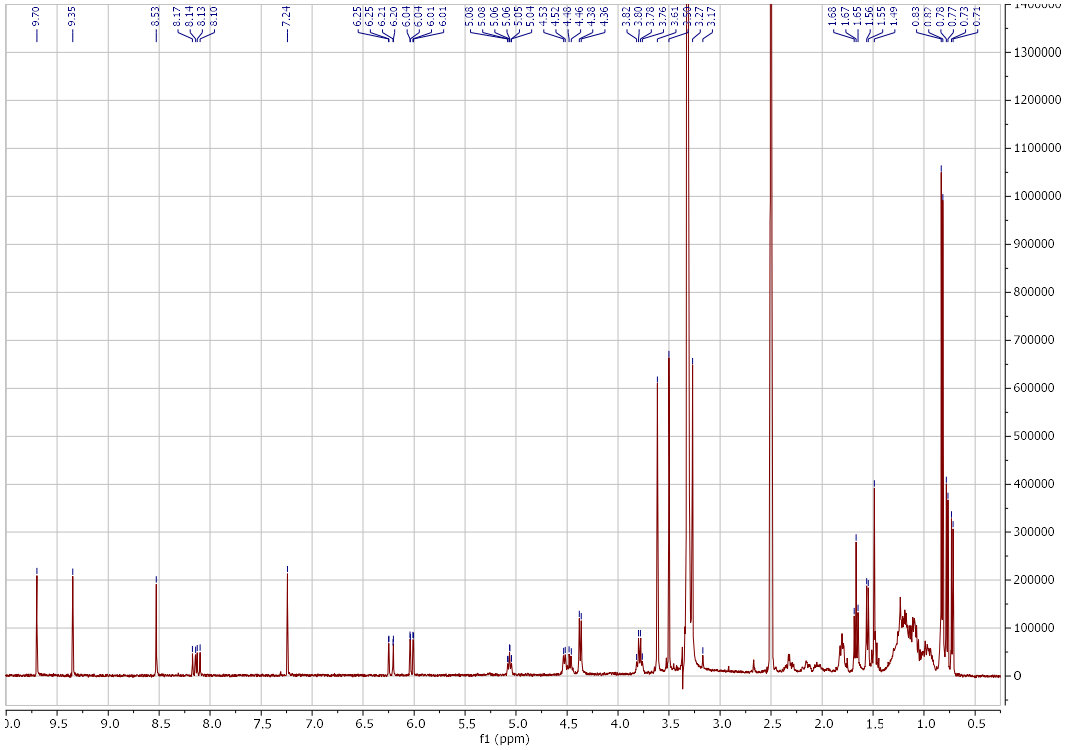

Figure S 1 - ^{1}H NMR spectrum of 13^{2}-hydroxy-pheophytin a, compound **1**, in DMSO-*d6* (400 MHz).

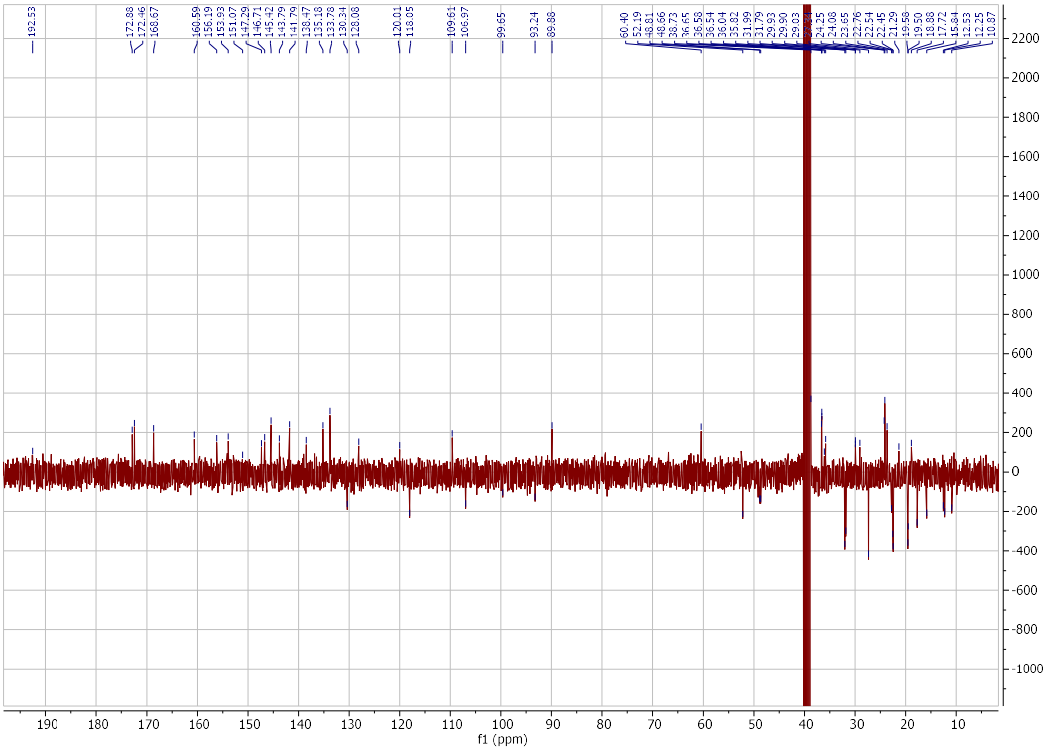

Figure S 2 - ^{13}C NMR spectrum of 13²-hydroxy-pheophytin a, compound **1**, in DMSO-*d6* (400 MHz).

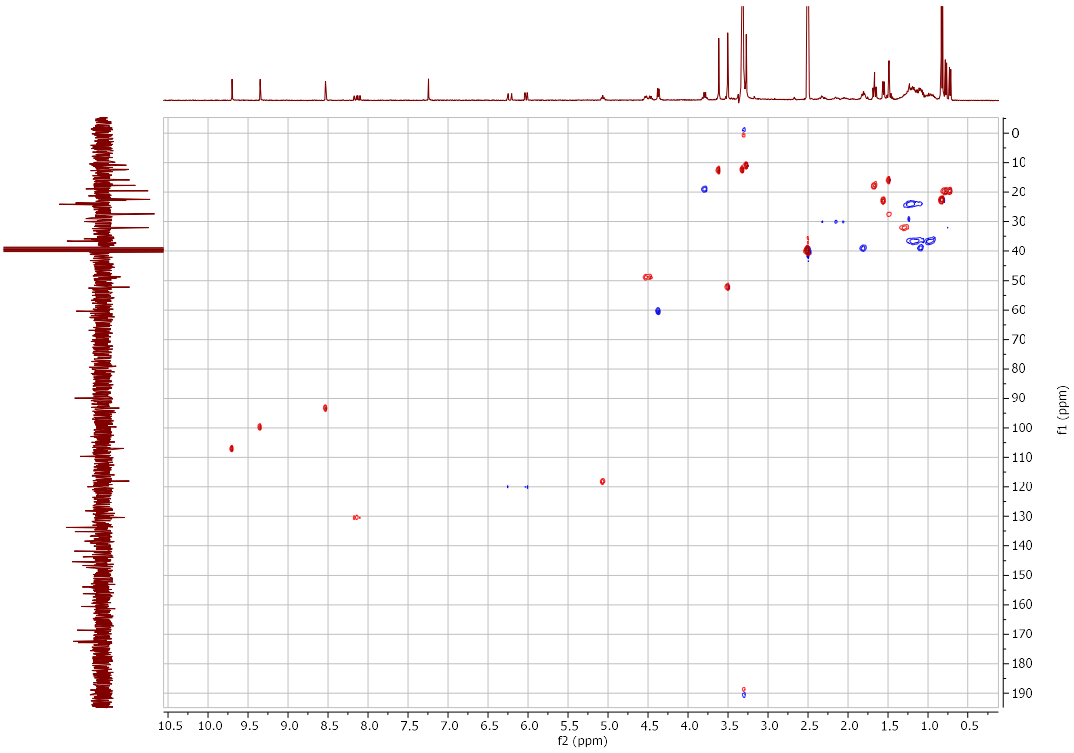

Figure S 3 - HSQC spectrum of 13²-hydroxy-pheophytin a, compound **1**, in DMSO-d6 (400 MHz).

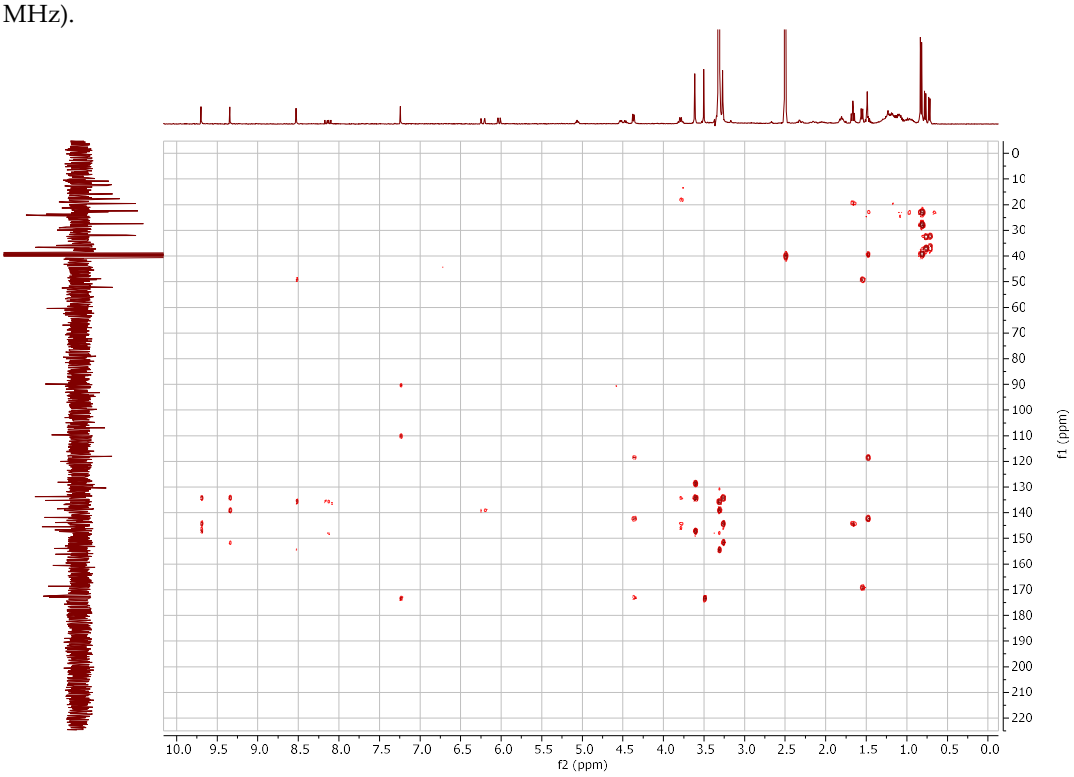

Figure S 4 - HMBC spectrum of 13²-hydroxy-pheophytin a, compound **1**, in DMSO-*d*6 (400 MHz).

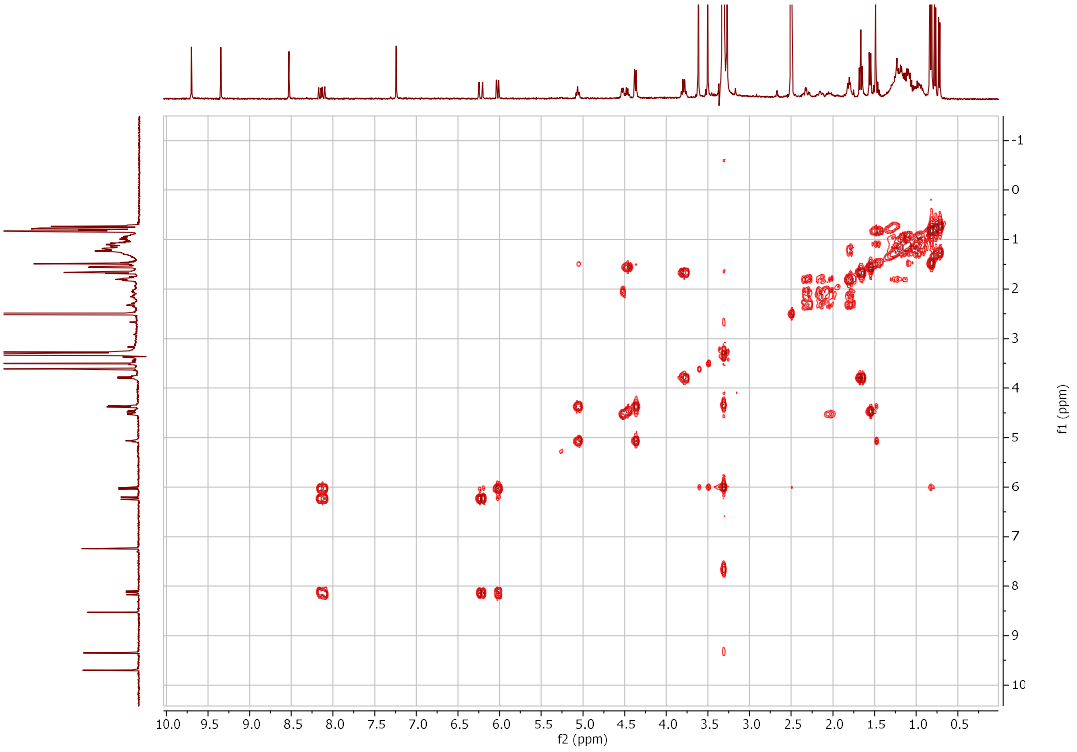

Figure S 5 - ^{1}H-^{1}H COSY spectrum of 13^{2}-hydroxy-pheophytin a, compound **1**, in DMSO-*d*6 (400 MHz).

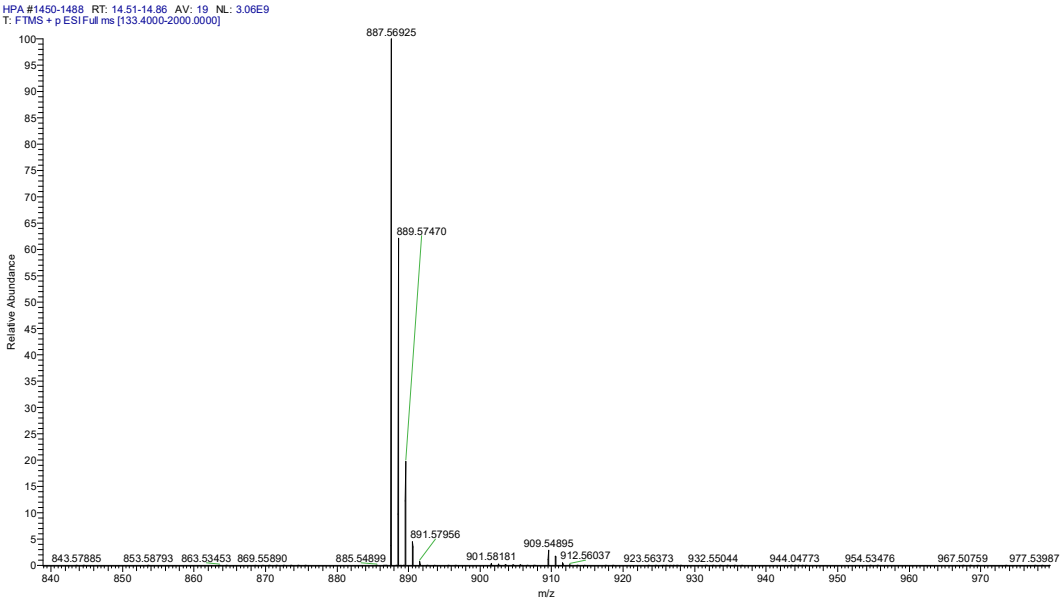

Figure S 6 - Full LC-ESI-HRMS spectrum of 13^{2}-hydroxy-pheophytin a, compound **1**, in the positive mode.

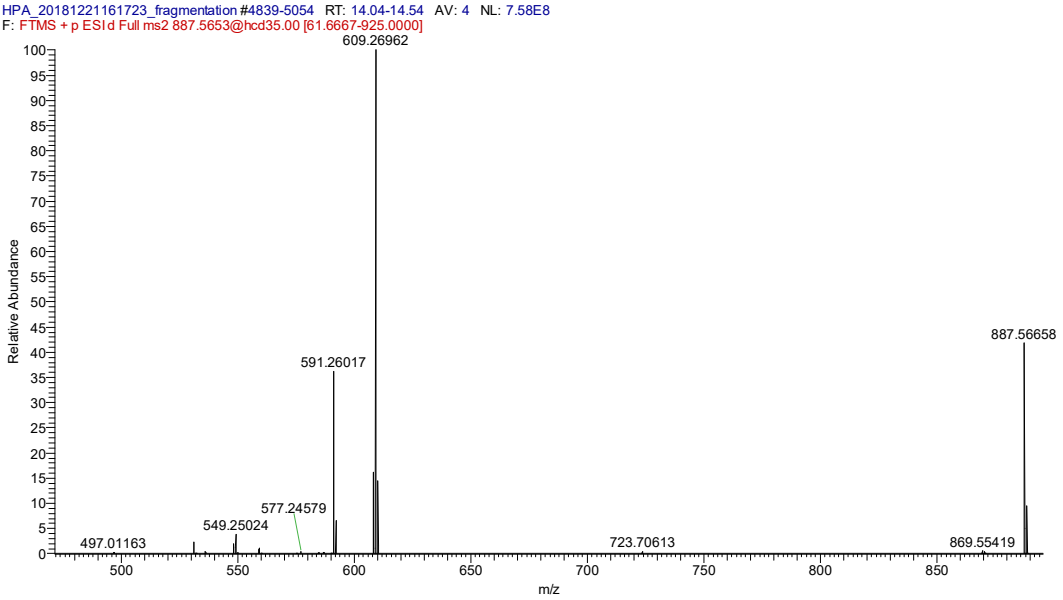

Figure S 7 - LC-ESI-HRMS/MS spectrum of 13²-hydroxy-pheophytin a, compound **1**, in the positive mode, showing the major fragments *m/z* 869.5542 $[M - OH]^+$, *m/z* 609.2696 $[M - phytol]^+$, *m/z* 591.2602 $[M - OH - phytol]^+$.

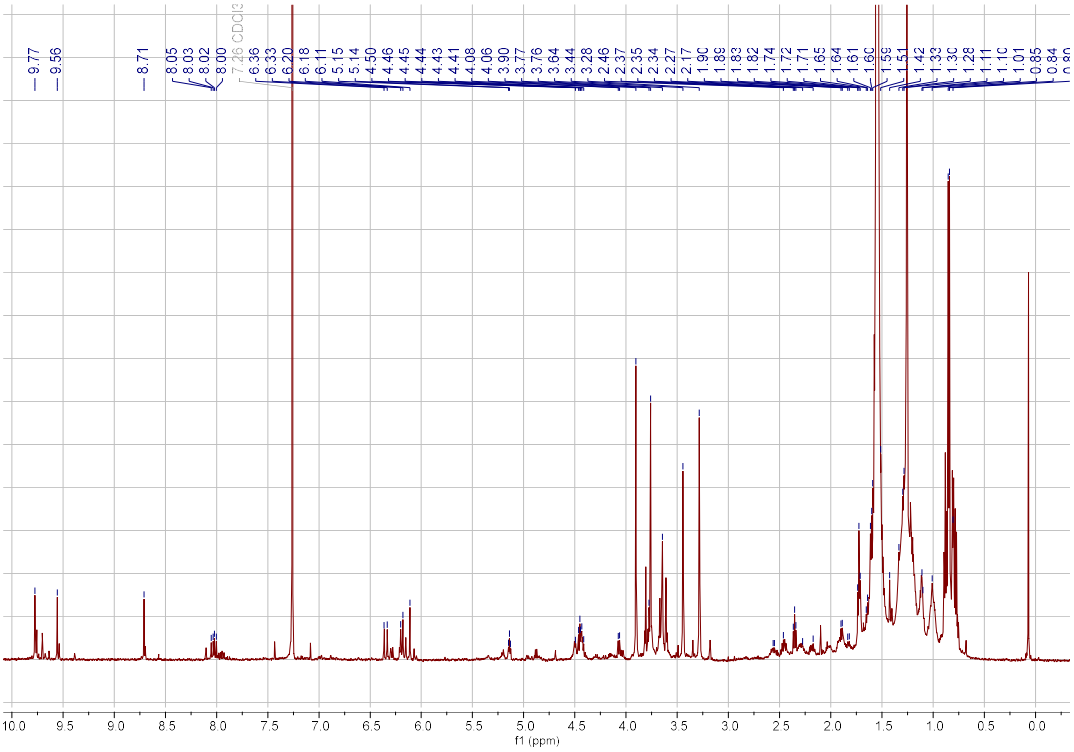

Figure S 8 - ^1H NMR spectrum of 13²-hydroxy-pheofarnesin a, compound **2**, in $CDCl_3$ (600 MHz).

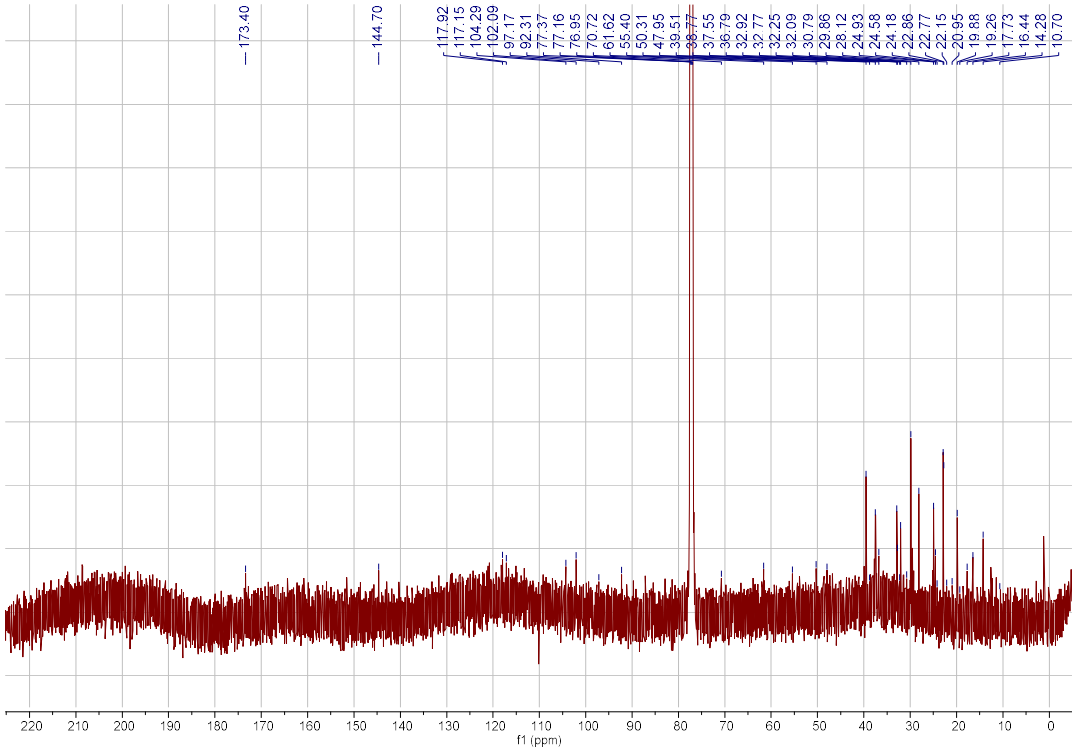

Figure S 9 - ^{13}C NMR spectrum of 13²-hydroxy-pheofarnesin a, compound **2**, in $CDCl_3$ (600 MHz).

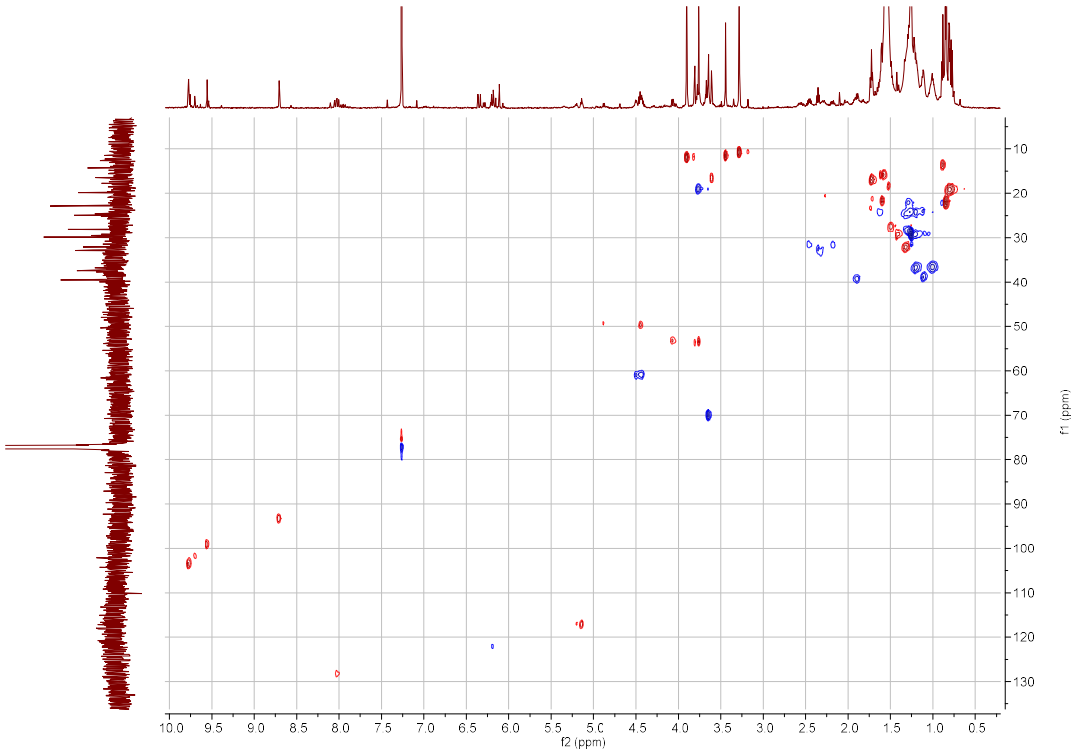

Figure S 10 - HSQC spectrum of 13²-hydroxy-pheofarnesin a, compound **2**, in $CDCl_3$ (600 MHz).

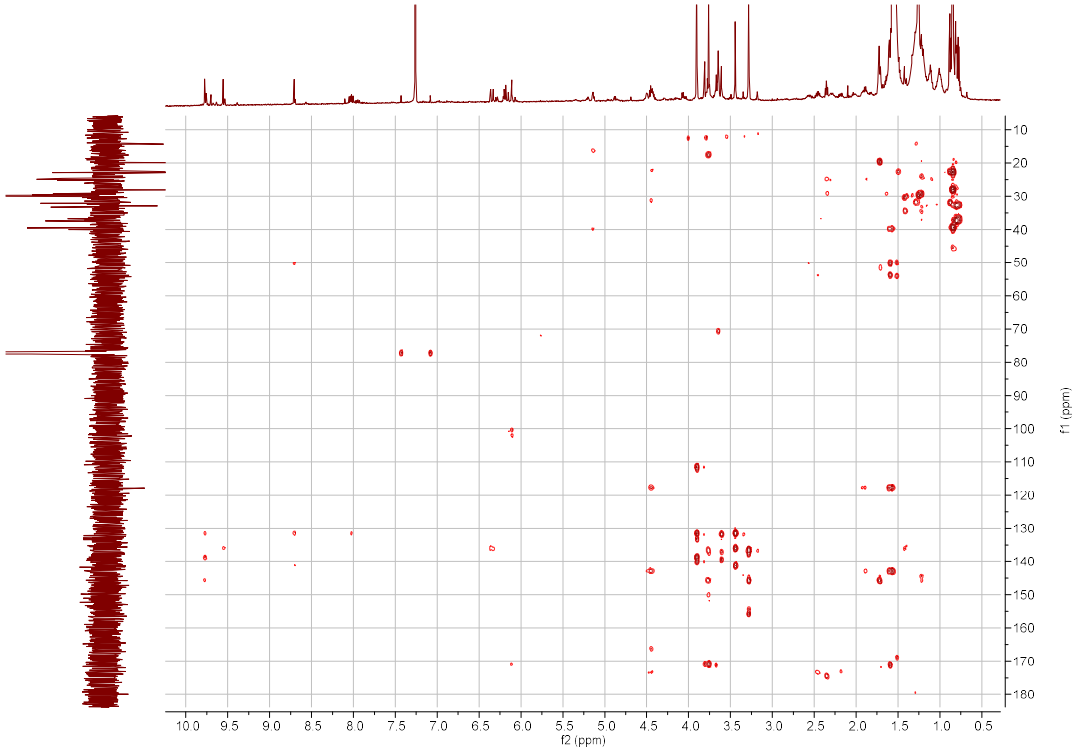

Figure S 11 - HMBC spectrum of 13²-hydroxy-pheofarnesin a, compound **2**, in $CDCl_3$ (600 MHz).

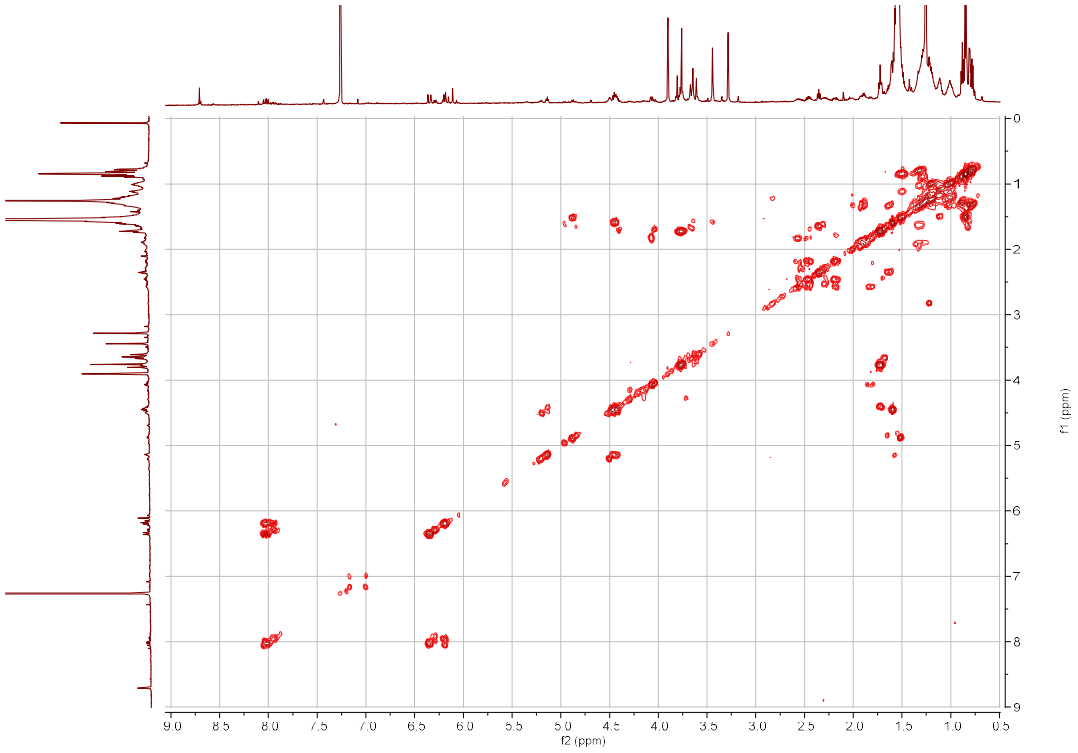

Figure S 12 - ^1H-^1H COSY spectrum of 13²-hydroxy-pheofarnesin a, compound **2**, in $CDCl_3$ (600 MHz).

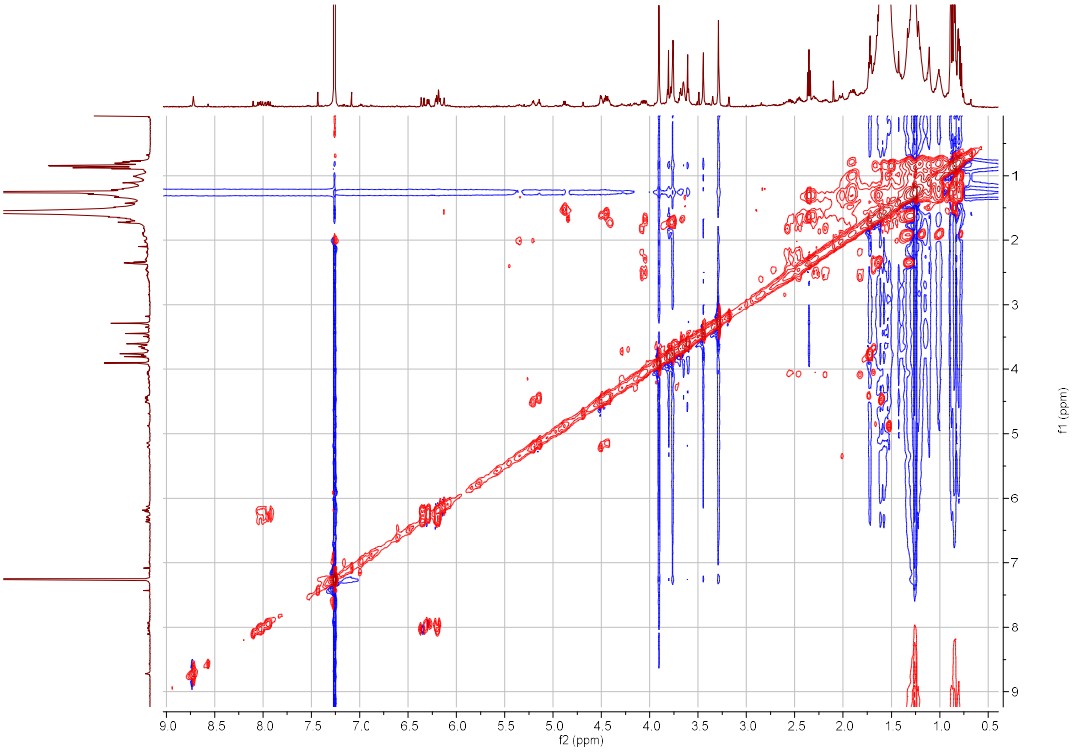

Figure S 13 - ROESY spectrum 13²-hydroxy-pheofarnesin a, compound **2**, in DMSO-*d6* (600 MHz).

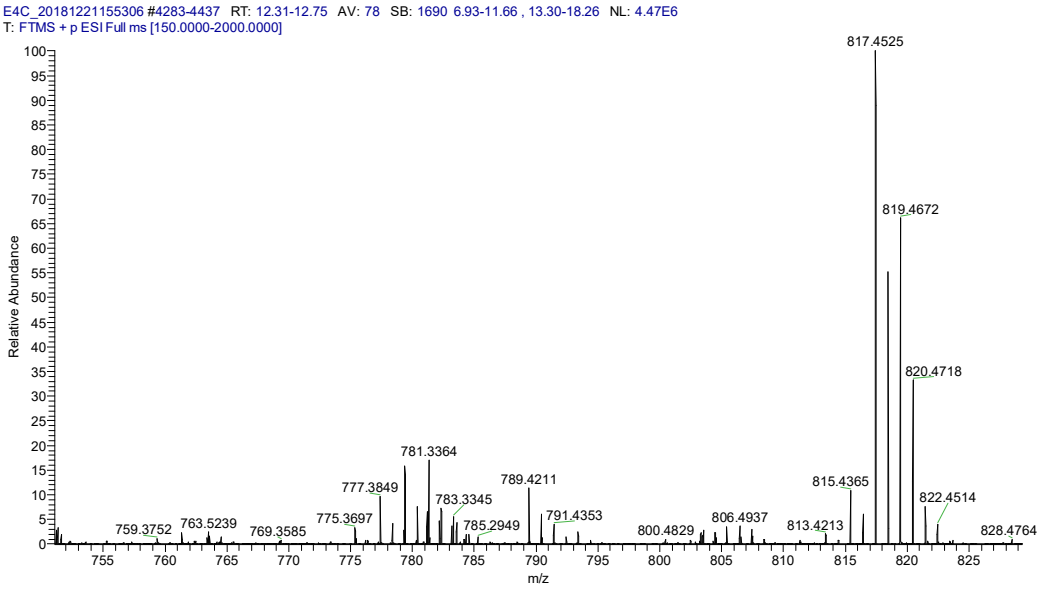

Figure S 14 - Full LC-ESI-HRMS spectrum of 13²-hydroxy-pheofarnesin a, compound **2**, in the positive mode.

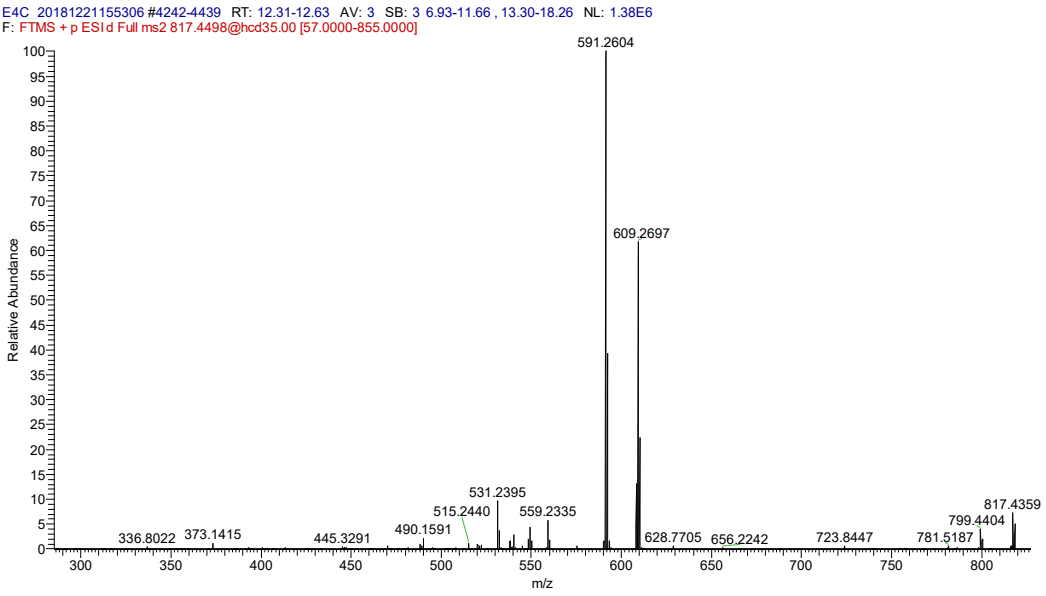

Figure S 15 - LC-ESI-HRMS chromatogram of 13²-hydroxy-pheofarnesin a, compound **2**, in the positive mode, showing major fragments *m/z* 840.4339 $[M + H + Na]^+$, 609.2697 $[M + 2H - farnesyl]^+$, 591.2604 $[M - OH - farnesyl]^+$.

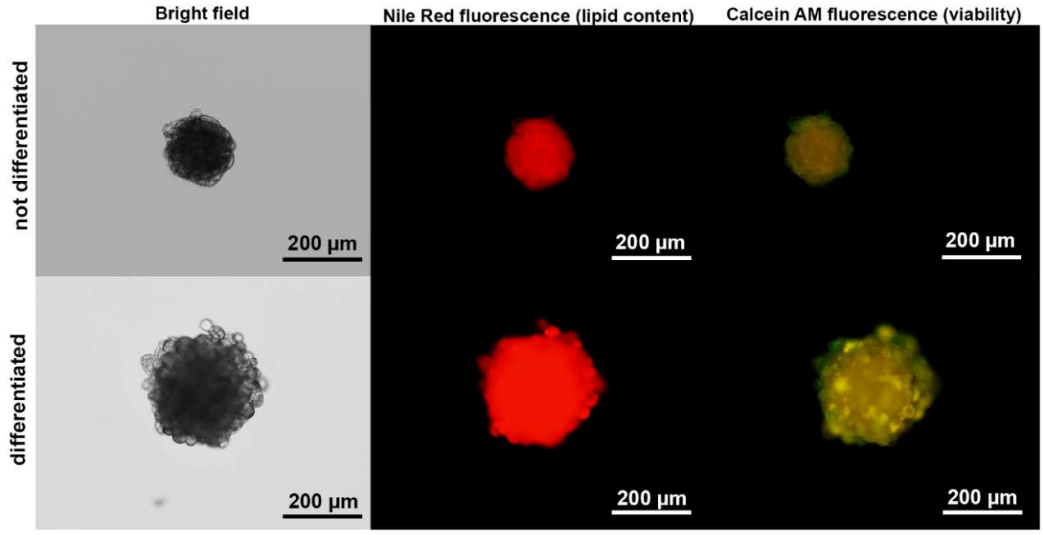

Figure S 16 - 3T3-L1 organoids without differentiation induction (upper images) and after differentiation induction (lower images). Differentiated organoids were formed during 5 days in DMEM medium and then exposed for 3 days to a differentiated medium, containing 10 µg/ml of insulin, 250 nM dexamethasone and 500 µM of isobutylmethylxanthine. After this step, an exposure assay to 1 or 2 can take place. Not differentiation organoids were cultured as differentiated organoids but without the differentiation medium.

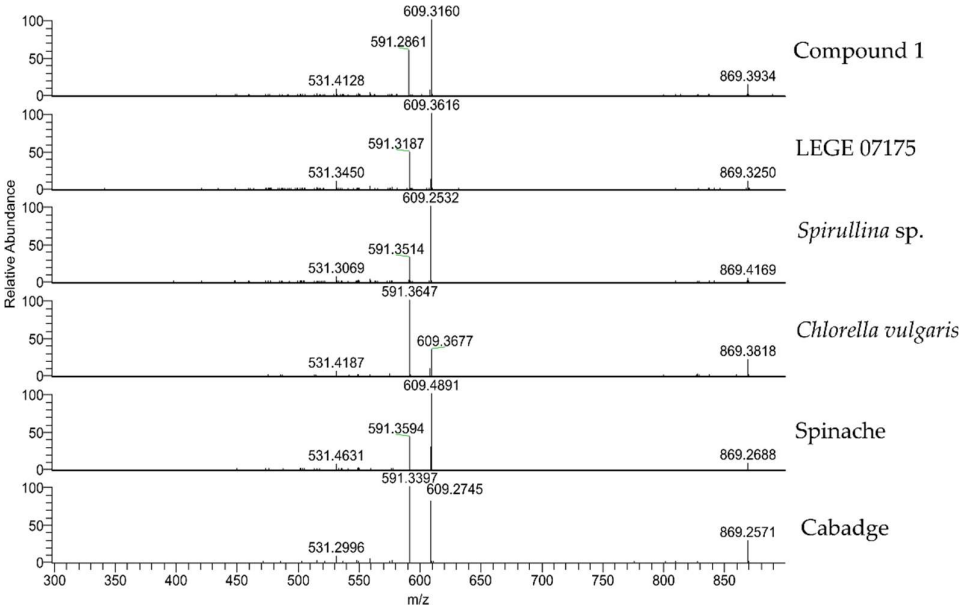

Figure S 17 – LC-ESI-HRMS/MS chromatogram comparing compound **1** in 5 different alga- plant- based materials, as well as standard compound. Samples were prepared at 0.2 mg/ml in MeOH (100%). Presence of the major fragments of **1** in all samples confirm its presence in the alga- plant- based materials (HR-ESI-MS/MS *m*/*z* 869.5542 $[M - OH]^+$, *m*/*z* 609.2696 $[M - phytol]^+$, *m*/*z* 591.2602 $[M - OH - phytol]^+$).