

Supporting Information

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

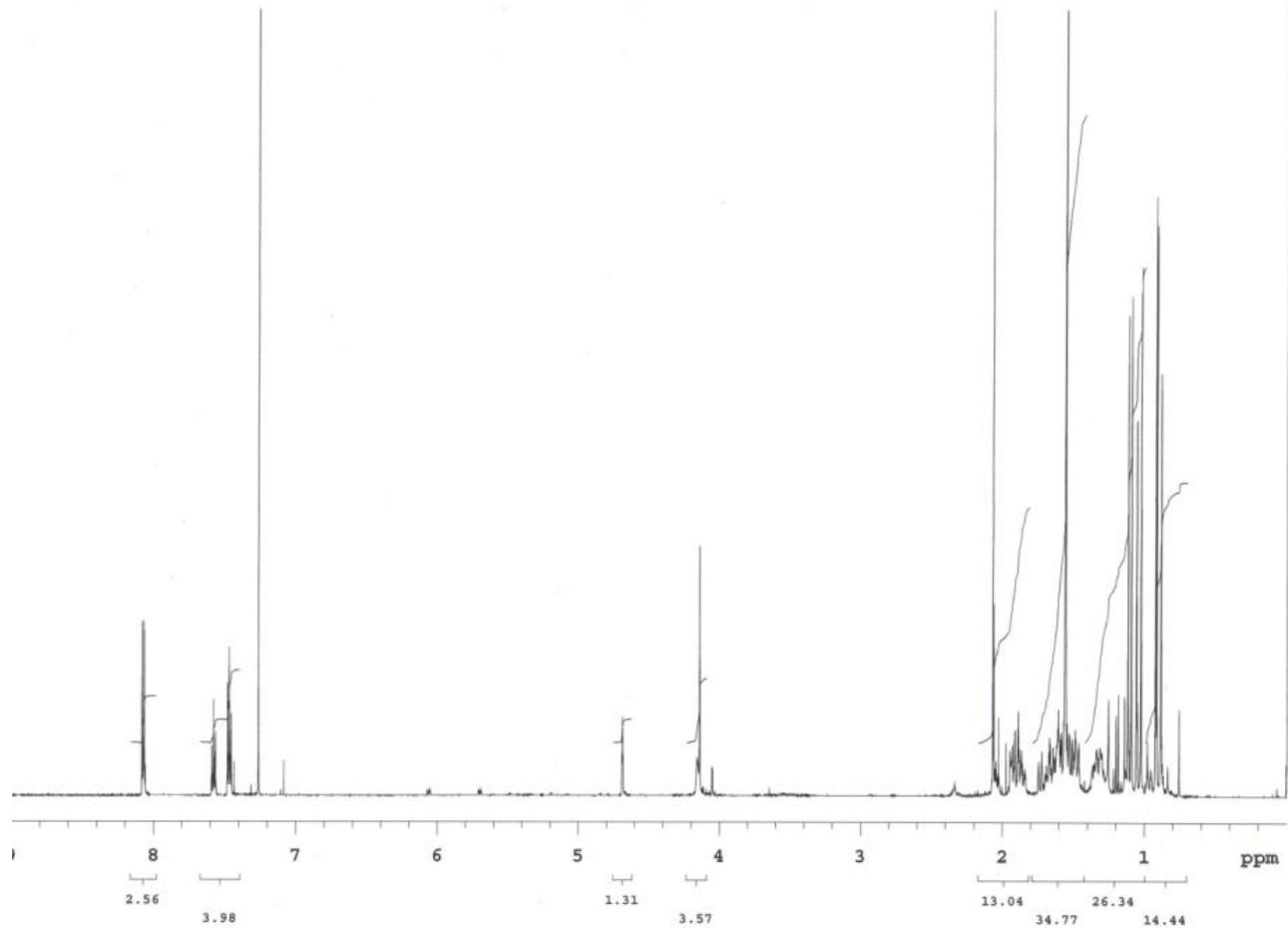


Figure S2. ^{13}C -NMR spectrum of compound **1**.

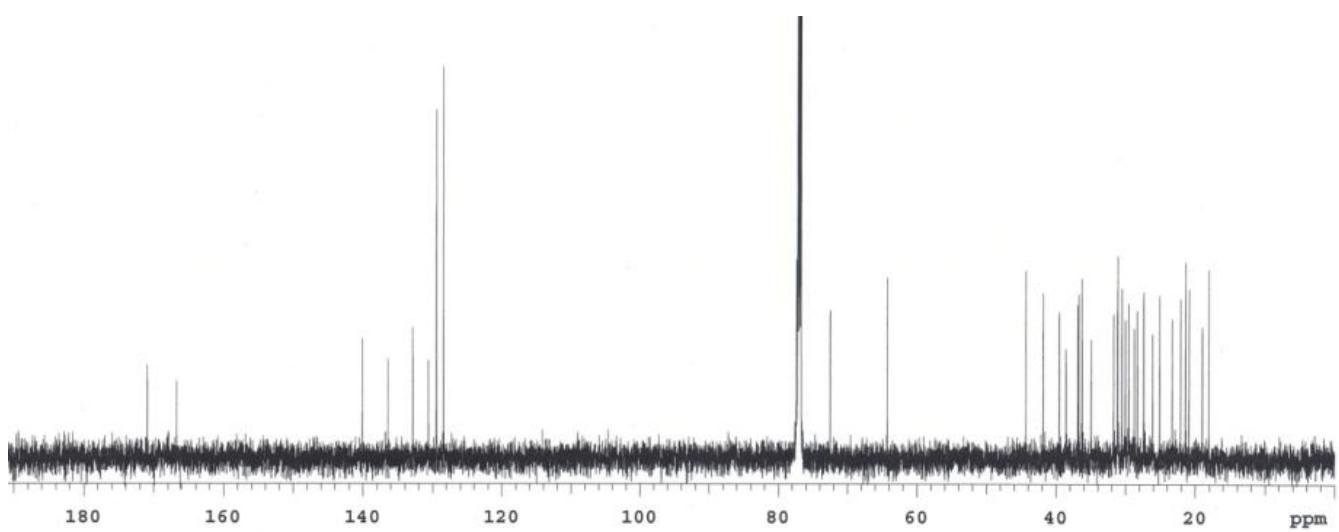


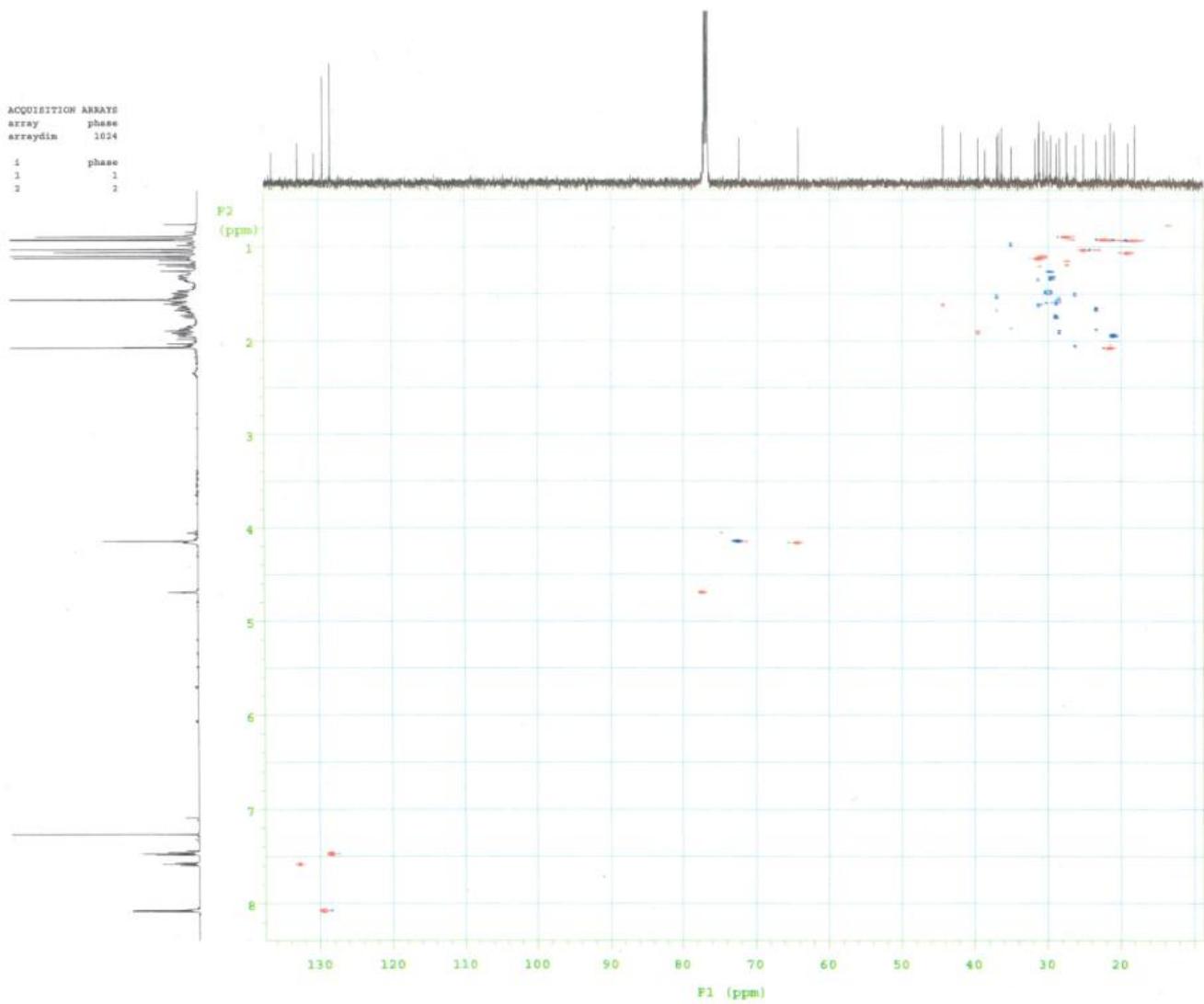
Figure S3. HSQC spectrum of compound 1.

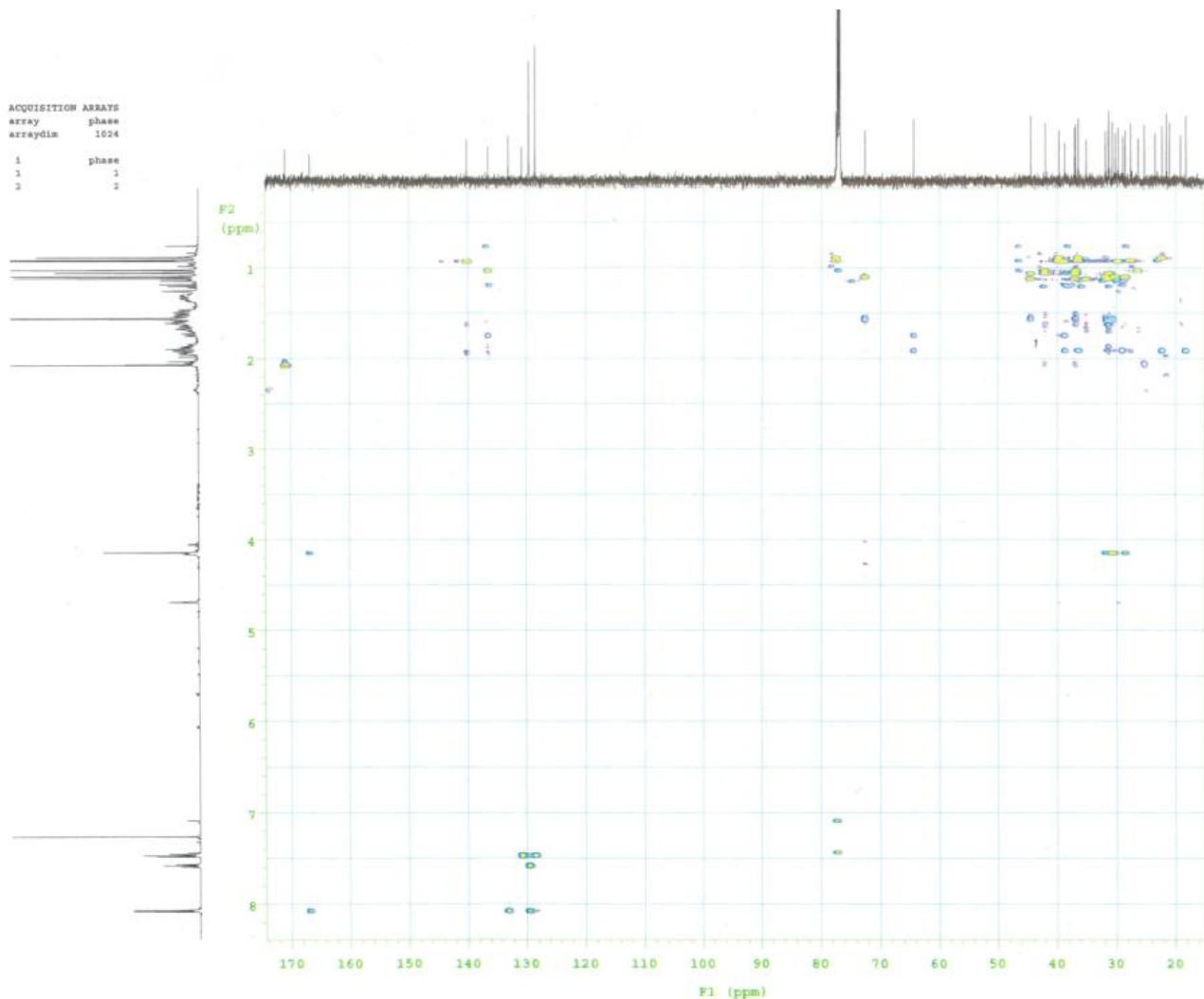
Figure S4. HMBC spectrum of compound 1.

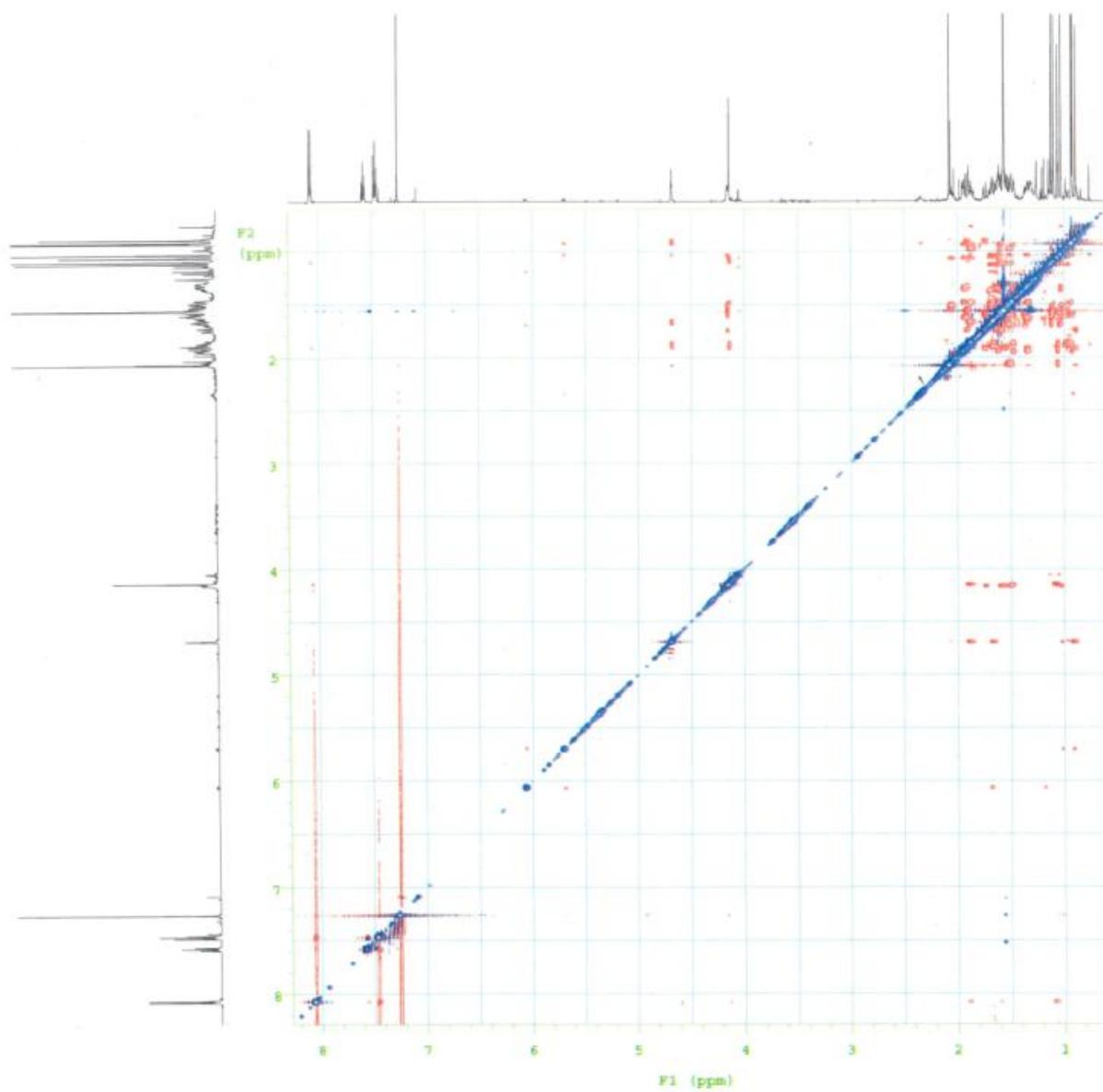
Figure S5. ^1H - ^1H COSY spectrum of compound **1**.

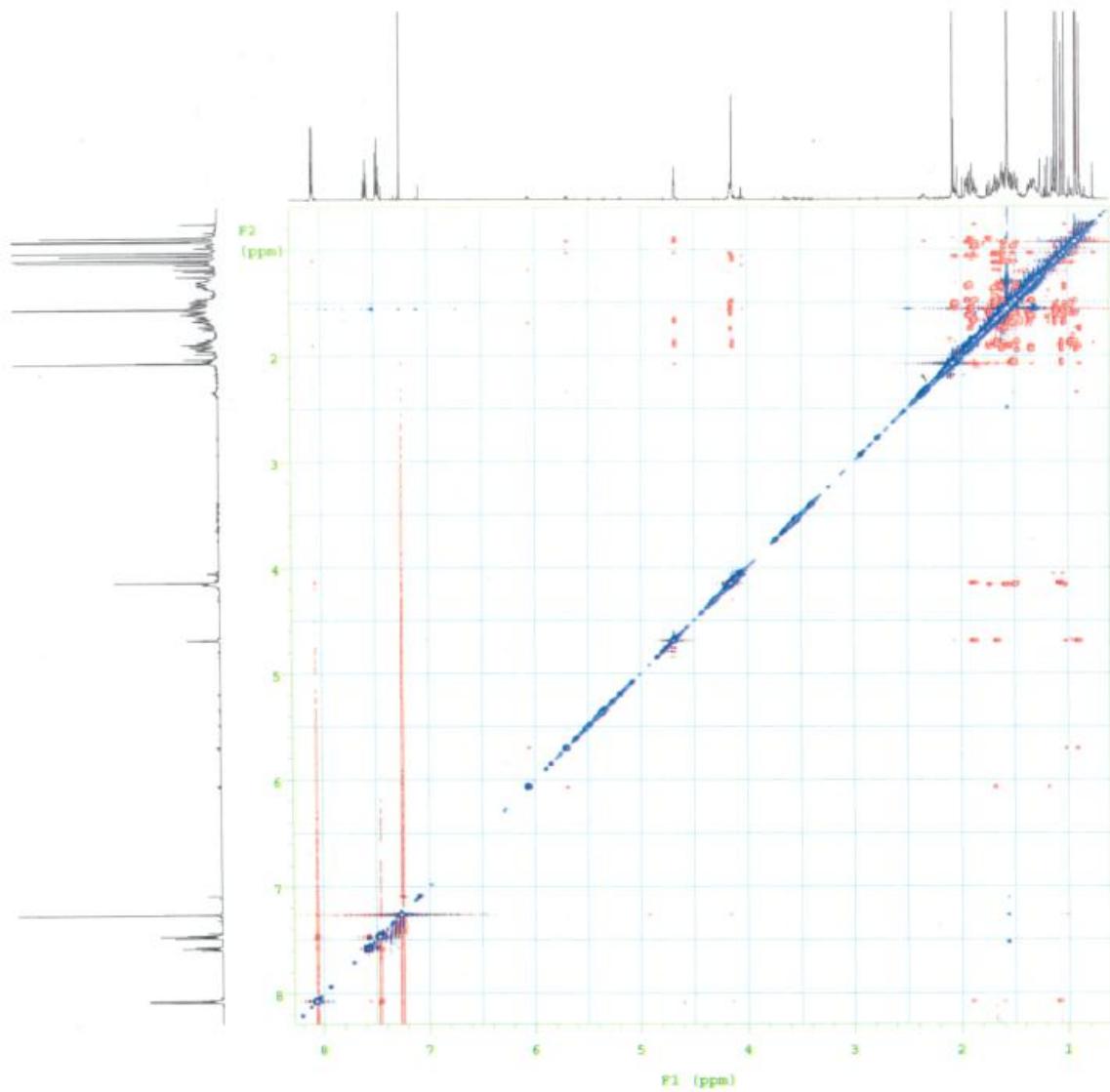
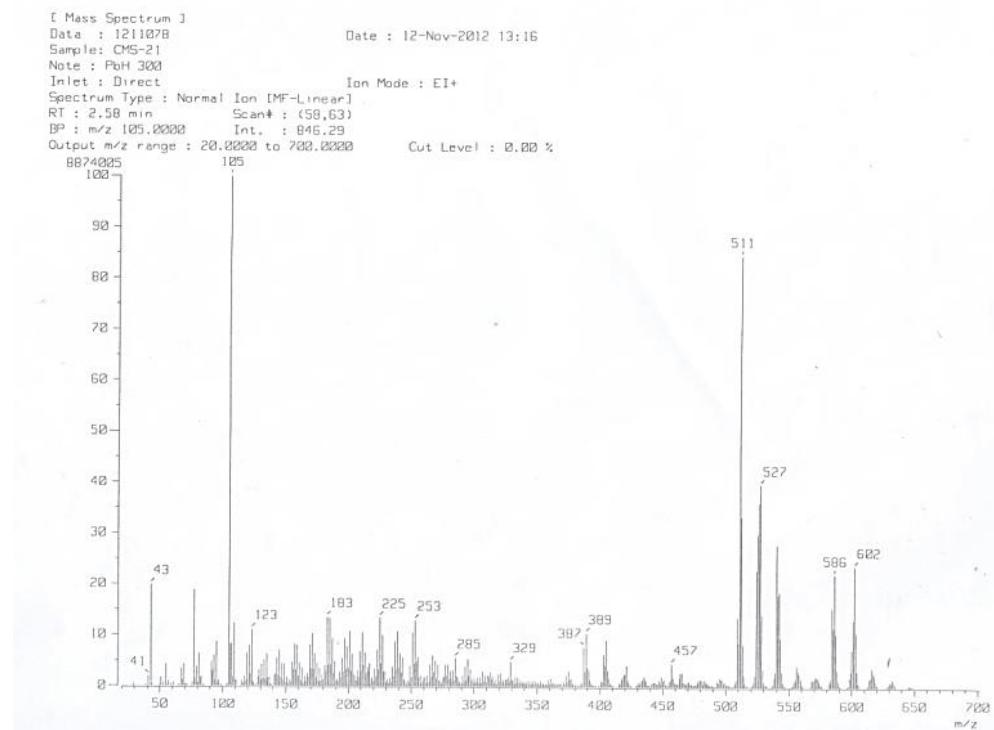
Figure S6. NOESY spectrum of compound **1**.

Figure S7. EI-MS of compound 1.**Table S1.** ^1H (600 MHz) and ^{13}C (150 MHz), ^1H - ^1H COSY, NOESY, and HMBC NMR Spectroscopic Data of Compounds 1

| position | δ_{H} (J in Hz) | ^1H - ^1H COSY | | | NOE | δ_{C} , type | HMBC (H to C) | | |
|----------|-------------------------------------|----------------------------------|-------------|-------------|----------------|----------------------------|---------------|-------------|---------------------------------------|
| 1 | α 1.33, m β 1.47, m | 1 β | 2 α | 2 β | 5 α | 29.6, t | 25 | | |
| | | 1 α | 2 α | 2 β | | | | | |
| 2 | α 1.66, m β 1.88, m | 1 α | 1 β | 2 α | 3 β | 23.3, t | | | |
| | 4.69, t (3.0) | 1 α | 1 β | 2 α | 3 β | | | | |
| 3 | | 2 α | 2 β | | | 77.4, d | 23 | 24 | |
| | | | | | | | 36.3, s | 5 α | 23 24 |
| 4 | | | | | | 39.6, d | 23 | 24 | 25 |
| | | | | | | | 28.8, t | 5 α | |
| 5 | 1.91, m | 6 α | 6 β | | 1 α | 1 α | | | |
| | 1.74, m | 5 α | 6 β | 7 β | 23 | | | | |
| 6 | α 1.60, m 4.16, brs | 5 α | 6 α | 7 β | 24 25 26 | 20.9, t | | | |
| | | 6 α | 6 β | | 15 α 26 | | | | |
| 7 | | | | | | 31.19, t | 6 α | 26 | |
| | | | | | | | 136.4, s | 6 α | 11 26 |
| 8 | | | | | | 140.1, s | 11 | 12 β | 25 |
| | | | | | | | 38.6, s | 5 α | 6 α 25 |
| 9 | | | | | | 20.9, t | | | |
| | | | | | | | | | |
| 10 | | | | | | 31.2, s | 12 β | 19 β | 26 27 |
| | | | | | | | 41.9, s | 12 β | 15 α 15 β 26 27 |
| 11 | 1.93, 2H, m | 12 α | 12 β | | | 26.1, t | 16 β | | |
| | 1.34, m | 11 | 12 β | | | | 36.8, s | 19 β | 26 |
| 12 | β 1.61, m | 11 | 12 α | | 26 | 36.9, t | 15 α | 28 | |
| | | | | | | | 41.9, s | 12 β | |
| 13 | | | | | | 26.1, t | 16 β | 26 | |
| | | | | | | | 36.8, s | 19 β | 26 27 |
| 14 | | | | | | 36.9, t | 15 α | 28 | |
| | | | | | | | 41.9, s | 12 β | |
| 15 | α 2.05, m 1.50, m | 15 β | 16 α | 16 β | | 7 β 27 | 12 β | 19 β | 26 27 |
| | | 16 α | 16 β | 15 α | | | 26.1, t | 15 α | |
| 16 | α 1.54, m 1.67, m | 15 α | 15 β | 16 β | | 26.1, t | 16 β | 26 | |
| | | 15 β | 16 α | 16 α | | | 36.9, t | 15 α | 28 |
| 17 | | | | | | 26.1, t | 16 β | 18 | 19 α 19 β 22 α 28 |
| | | | | | | | 31.2, s | | |
| 18 | 1.61, m | 19 α | 19 β | | | 31.7, s | 16 β | 18 | |
| | 1.90, m | 18 β | 19 β | | | | 44.4, d | 16 α | 27 28 |
| 19 | β 1.56, m | 18 β | 19 α | | 28 | 28.4, t | 29 | 30 | |
| | | | | | | | 28.4, t | | |
| 20 | | | | | | 31.7, s | 19 β | 29 | 30 |
| | | | | | | | 31.7, s | | |
| 21 | α 1.47, m 1.59, m | 21 β | 22 α | 22 β | | 30.1, t | 29 | 30 | |
| | | 21 α | 22 α | 22 β | | | 30.1, t | | |
| 22 | α 1.87, m 0.97, m | 22 β | 21 α | 21 β | | 27 29 | 18 | 21 β | 28 |
| | | 22 α | 21 α | 21 β | | | 35.0, t | | |
| 23 | 0.89, s | | | | 6 α | 27.4, q | 5 | 24 | |
| | 0.91, s | | | | 2 β | | 22.1, q | 5 | 23 |
| 24 | 0.92, s | | | | 2 β | 18.1, q | | | |
| | | | | | 2 β | | 18.1, q | | |
| 25 | 1.03, s | | | | 7 β | 25.1, q | 15 α | | |
| | 1.06, s | | | | 12 β | | 19.0, q | | |
| 26 | 1.12, s | | | | 15 α | 29 | 12 α | 12 β | |
| | 4.14, 2H, brs | | | | 22 α | | 31.17, q | | |
| 27 | | | | | 27 | 22 α | 72.5, t | 19 β | 30 |
| | | | | | 27 | | 30.6, q | 19 β | 29 |
| 28 | | | | | | 170.9, s | 3 | 1' | |
| | | | | | | | 21.4, q | | |
| 29-OCO | | | | | | 166.7, s | 29 | 2",6" | |
| | 1" | | | | | | 130.6, s | 3",5" | |
| 3",6" | 8.07, dd (1.2, 7.4) | 3",5" | | | | 129.4, d | 4" | 2",6" | |
| | 7.47, tt (1.2, 7.4) | 2",6" | 4" | | | | 128.4, d | 3",5" | |
| 4" | 7.58, tt (1.2, 7.4) | 3",5" | | | | 132.9, d | 2",6" | | |

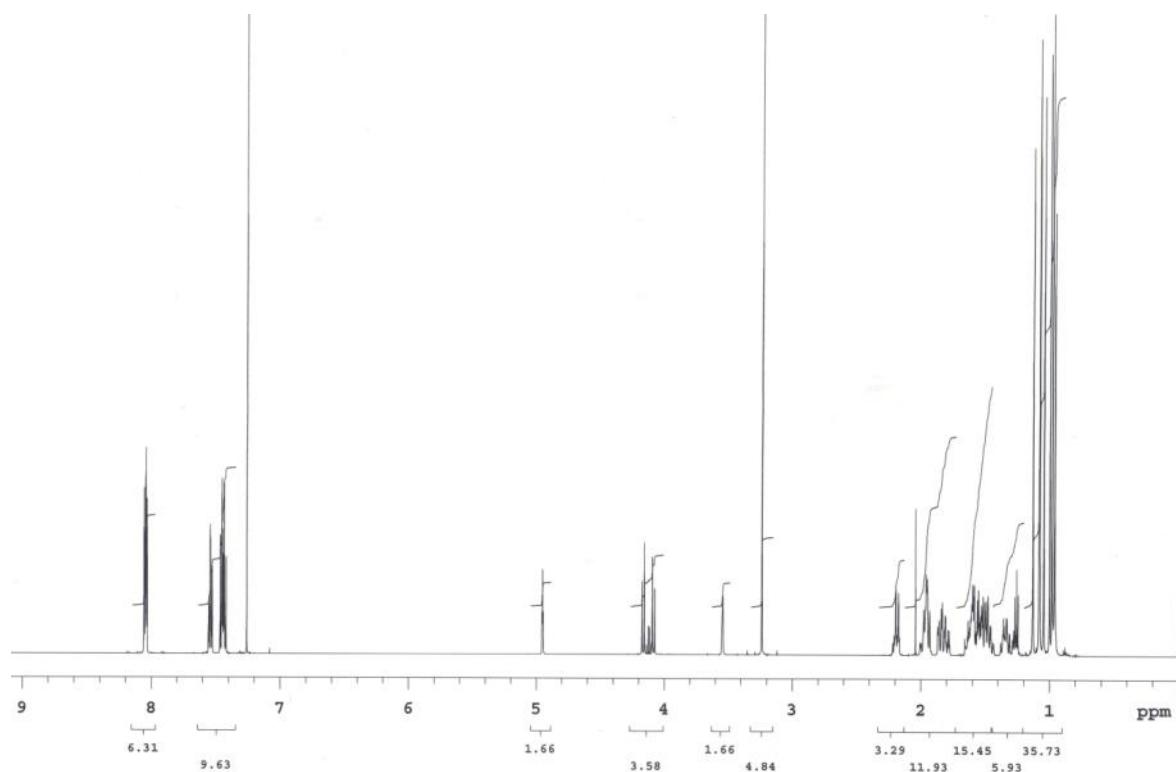
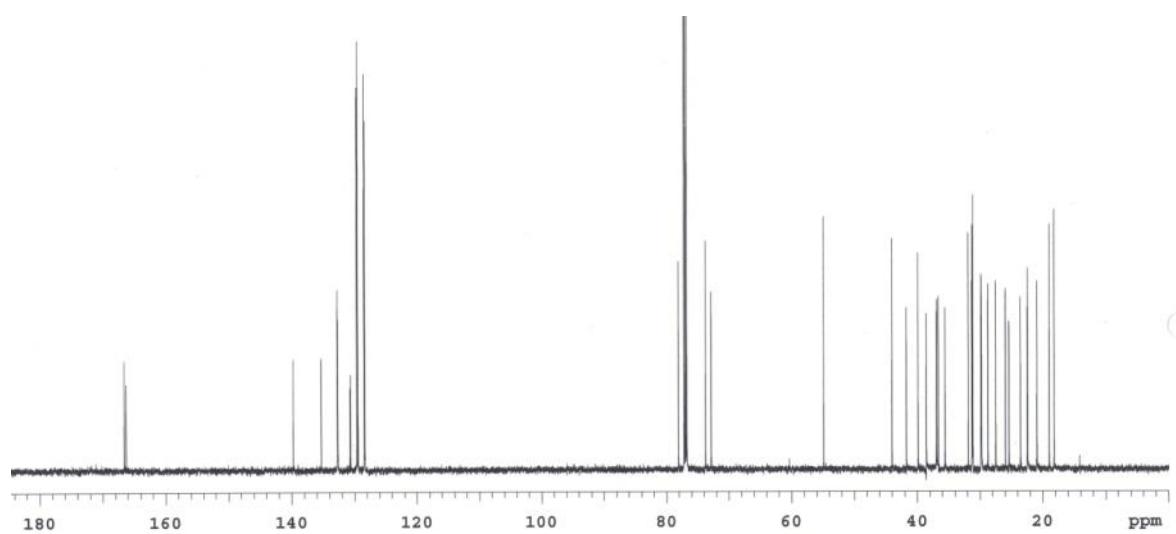
Figure S8. ^1H -NMR spectrum of compound 2.**Figure S9.** ^{13}C -NMR spectrum of compound 2.

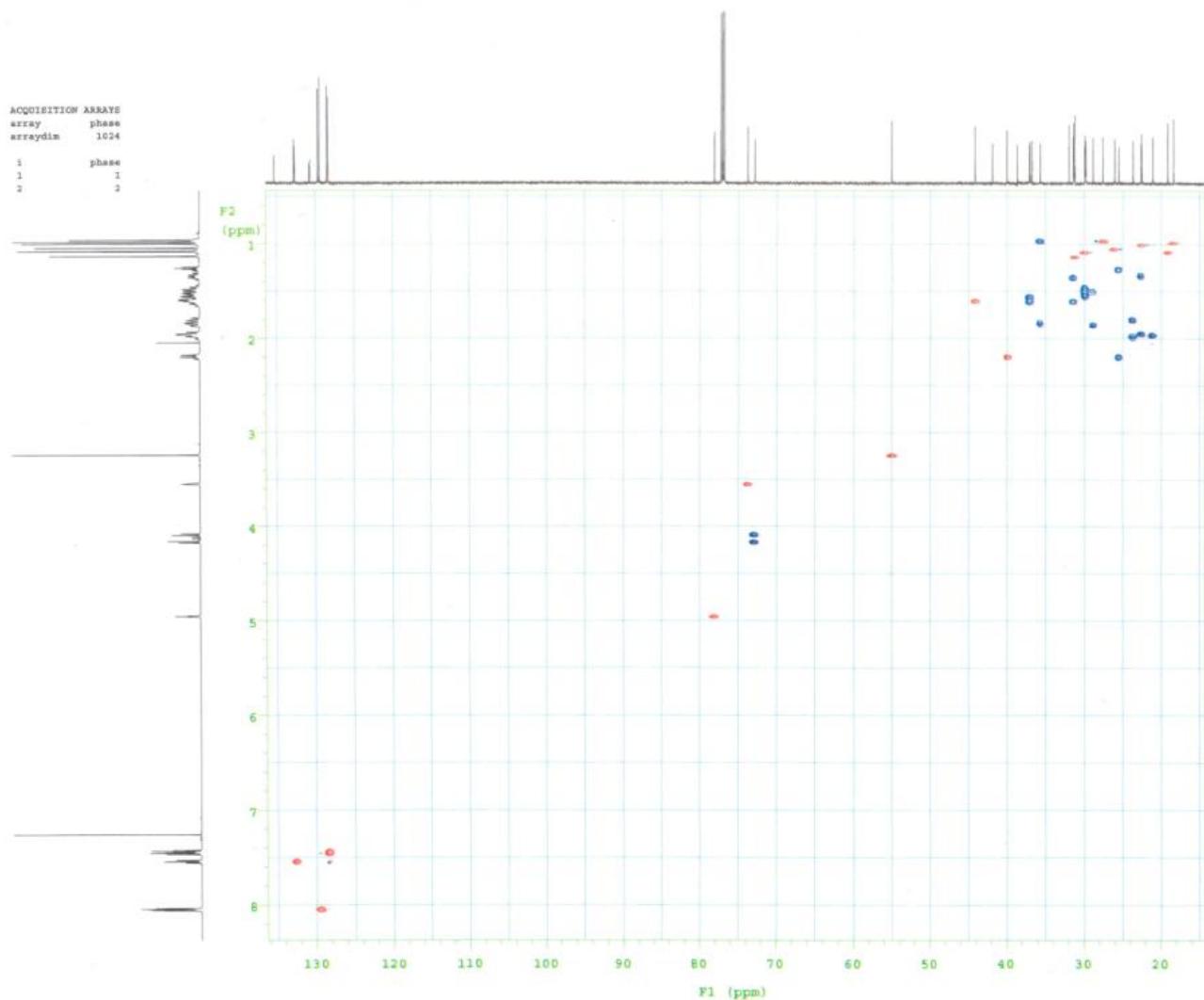
Figure S10. HSQC spectrum of compound 2.

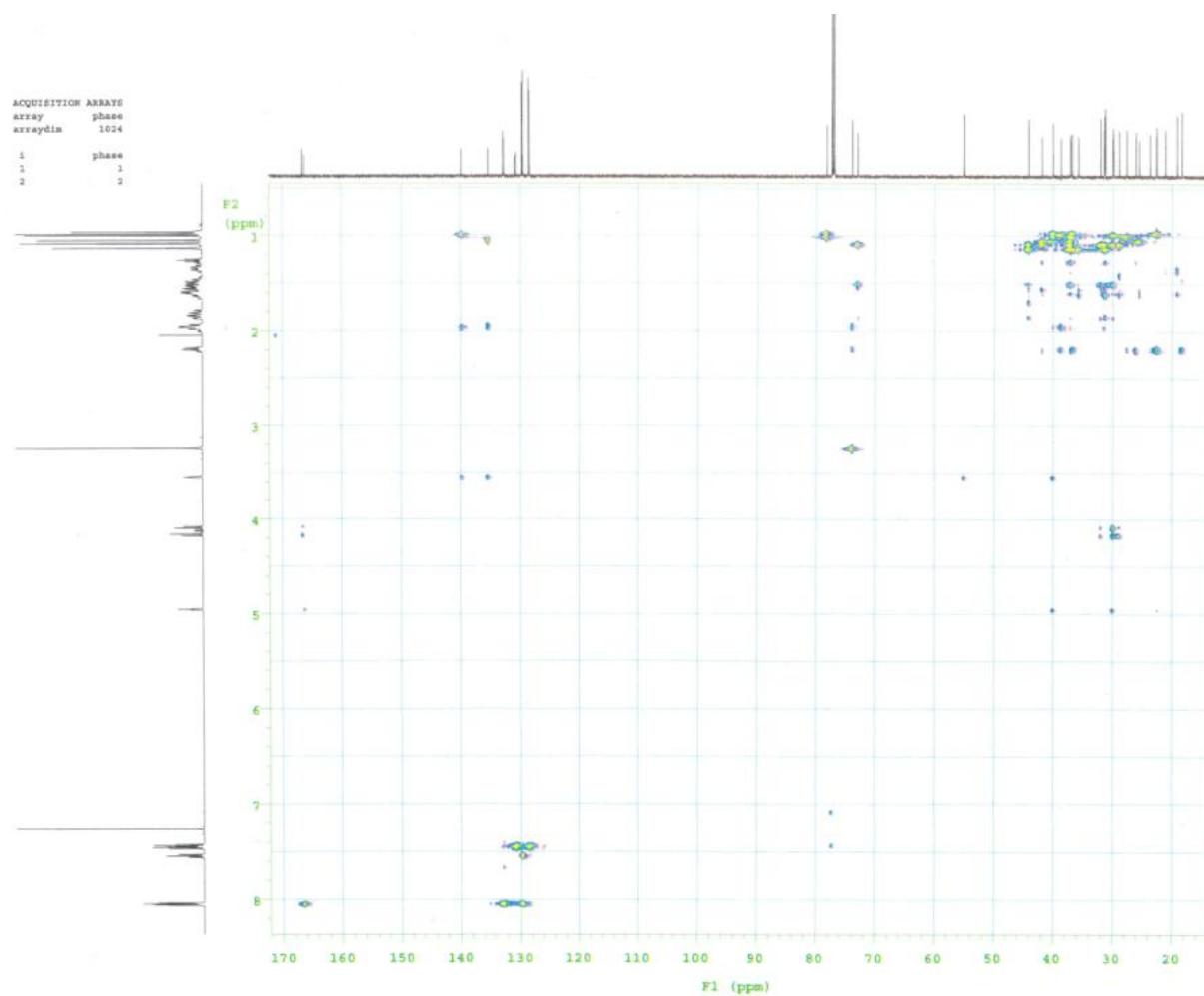
Figure S11. HMBC spectrum of compound 2.

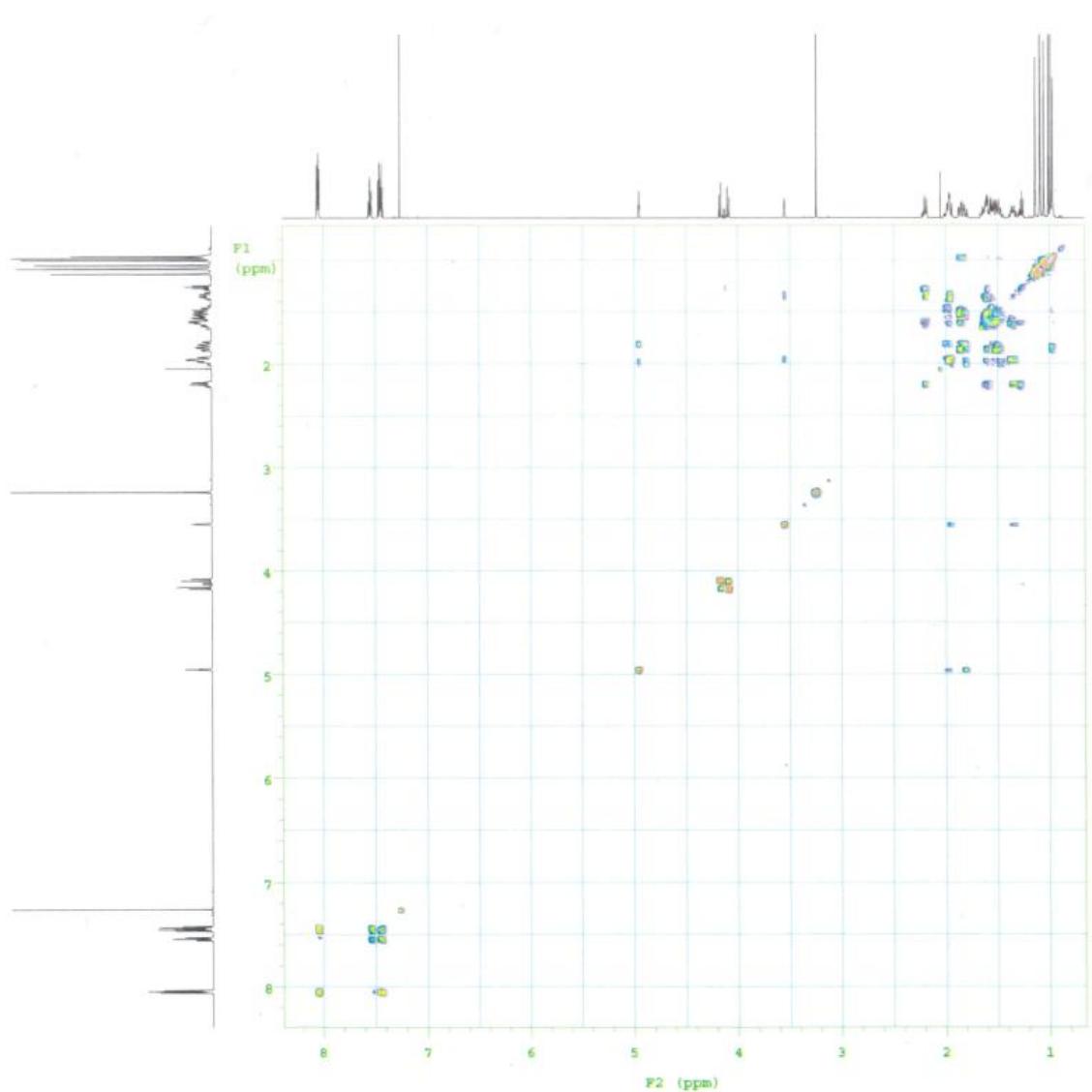
Figure S12. ^1H - ^1H COSY spectrum of compound 2.

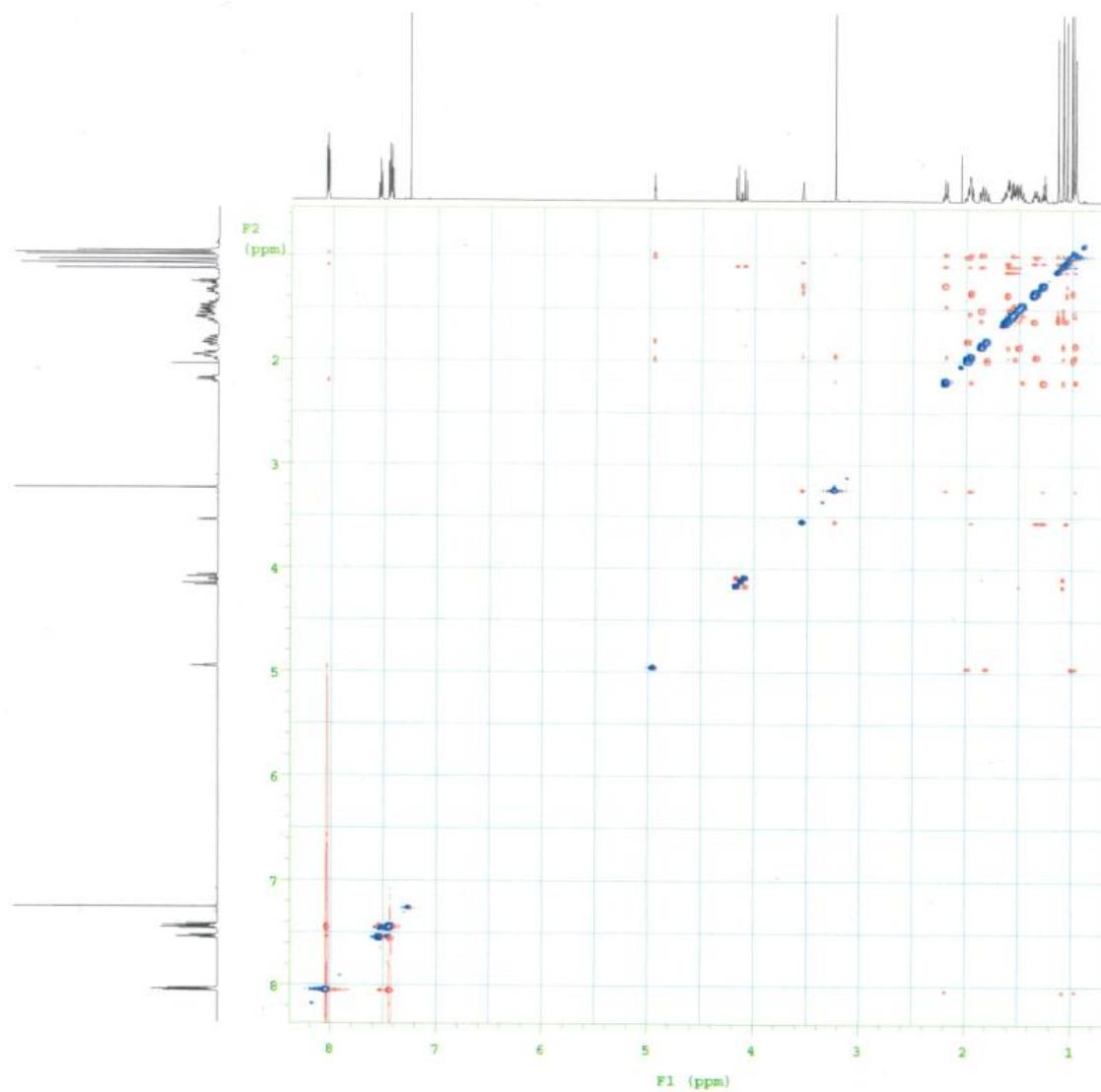
Figure S13. NOESY spectrum of compound 2.

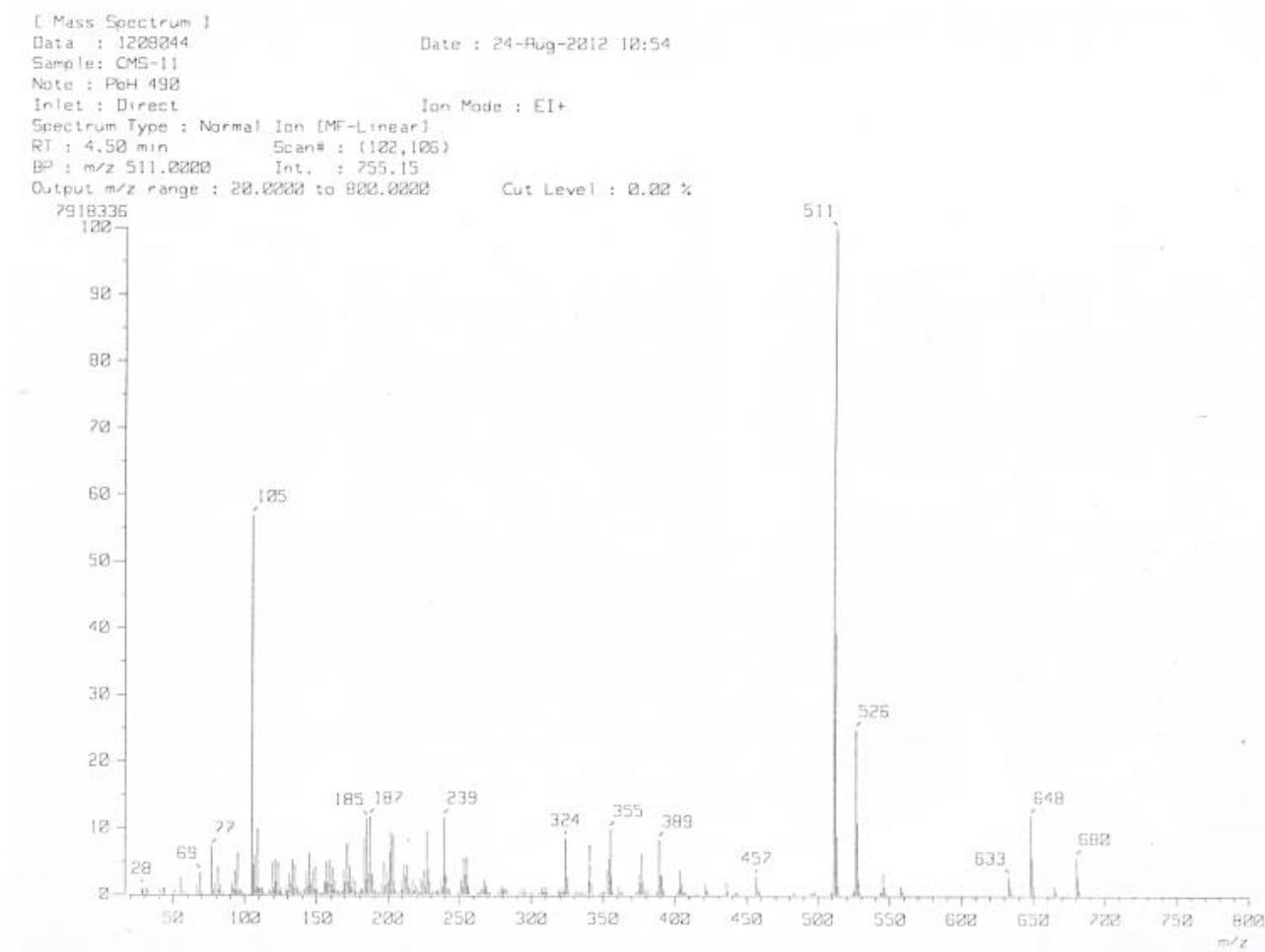
Figure S14. EI-MS of compound 2.

Table S2. ^1H (600 MHz) and ^{13}C (150 MHz), ^1H - ^1H COSY, NOESY, and HMBC NMR Spectroscopic Data of Compounds 2

| position | | δ_{H} (J in Hz) | ^1H - ^1H COSY | | | | NOE | | δ_{C} , type | HMBC (H to C) | | | | | | | | |
|----------------------|----------|-----------------------------------|----------------------------------|-------------|-------------|---------------|--------|---------------|----------------------------|---------------|-------------|-------------|-------------|-------------|-------------|------------|----|--|
| 1 | α | 1.48, m | 1 β | 2 α | 2 β | 5 α | | | 29.8, t | 3 β | 25 | | | | | | | |
| | β | 1.53, m | 1 α | 2 α | 2 β | | | | | | | | | | | | | |
| 2 | α | 1.80, m | 1 α | 1 β | 3 β | | | | 23.6, t | | | | | | | | | |
| | β | 1.98, m | 1 α | 1 β | 3 β | 24 | 25 | | | | | | | | | | | |
| 3 | | 4.95, t (2.9) | 2 α | 2 β | | | | | 78.1, d | 23 | 24 | | | | | | | |
| | | | | | | | | | 36.7, s | 5 α | 23 | 24 | | | | | | |
| 4 | | | | | | | | | 39.9, d | 3 β | 6 α | 7 β | 23 | 24 | 25 | | | |
| | | | | | | | | | 22.5, t | 5 α | | | | | | | | |
| 5 | | 2.19, dd (1.2, 12.6) | 6 α | 6 β | | 1 α | 27 | 7-O <u>Me</u> | | | | | | | | | | |
| | α | 1.95, m | 5 α | 6 β | 7 β | 23 | | | | | | | | | | | | |
| 6 | α | 1.95, m | 5 α | 6 β | 7 β | 24 | | | | | | | | | | | | |
| | β | 1.34, m | 5 α | 6 α | 7 β | | | | | | | | | | | | | |
| 7 | | 3.54, brs | 6 α | 6 β | | 15 β | 26 | | 73.8, d | 5 α | 6 α | | | | | | | |
| | | | | | | | | | 135.3, s | 6 α | 7 β | 26 | | | | | | |
| 8 | | | | | | | | | 139.7, s | 7 β | 11 | 25 | | | | | | |
| | | | | | | | | | 38.6, s | 5 α | 6 α | 25 | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| 11 | | 1.97, m | 12 α | 12 β | | | | | 20.9, t | 12 α | | | | | | | | |
| | α | 1.35, m | 11 | 12 β | | | | | 31.3, t | 11 | 27 | | | | | | | |
| 12 | β | 1.61, m | 11 | 12 α | | 26 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | 37.0, s | 11 | 15 β | 18 β | 19 α | 19 β | 26 | 27 | | |
| | | | | | | | | | 41.8, s | 15 α | 15 β | 16 β | 26 | 27 | | | | |
| 14 | | | | | | | | | 25.4, t | 16 α | 26 | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| 15 | α | 2.19, m | 15 β | 16 α | 16 β | 7-O <u>Me</u> | | | | | | | | | | | | |
| | β | 1.26, m | 15 α | 16 α | 16 β | 7 β | | | | | | | | | | | | |
| 16 | α | 1.56, m | 15 α | 15 β | 16 β | | | | 36.9, t | 15 β | 22 β | 28 | | | | | | |
| | β | 1.61, m | 15 α | 15 β | 16 α | 26 | | | | | | | | | | | | |
| 17 | | | | | | | | | 31.1, s | 15 β | 16 α | 16 β | 18 | 21 α | 22 α | 22 β | 28 | |
| | | | | | | | | | 44.0, d | 16 β | 21 β | 22 α | 27 | 28 | | | | |
| 18 | | 1.60, m | 19 α | 19 β | | 26 | | | 28.8, t | 18 β | 29 a | 29 b | 30 | | | | | |
| | α | 1.86, m | 18 β | 19 β | | 28 | | | | | | | | | | | | |
| 19 | β | 1.49, m | 18 β | 19 α | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | 31.9, s | 19 β | 22 α | 29 a | 29 b | 30 | | | | |
| | | | | | | | | | 29.9, t | 19 β | 22 α | 22 β | 29 a | 29 b | 30 | | | |
| 21 | α | 1.48, m | 21 β | 22 α | 22 β | | | | | | | | | | | | | |
| | β | 1.53, m | 21 α | 22 α | 22 β | 28 | | | | | | | | | | | | |
| 22 | α | 1.84, d (4.4) | 21 α | 21 β | 22 β | 27 | | | 35.6, t | 16 α | 16 β | 18 | 28 | | | | | |
| | β | 0.96, m | 21 α | 21 β | 22 α | | | | | | | | | | | | | |
| 23 | | 0.97, s | | 6 α | | | | | 27.5, q | 5 | 24 | | | | | | | |
| | | 1.00, s | | 2 β | 6 β | 25 | | | 22.4, q | 5 | 23 | | | | | | | |
| 24 | | 0.98, s | | 2 β | 24 | | | | 18.2, q | 5 | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| 25 | | 1.05, s | | 7 β | 12 β | 16 β | 18 | | 26.0, q | 15 α | 15 β | | | | | | | |
| | | 1.082, s | | 5 α | 22 α | 29 a | 29 b | | 19.0, q | 12 α | 12 β | 18 | | | | | | |
| 26 | | 1.13, s | | 19 β | 21 β | | | | 31.3, q | 16 α | 16 β | 18 | 22 α | 22 β | | | | |
| | | | | | | | | | 72.9, t | 19 β | 21 α | 21 β | 30 | | | | | |
| 27 | a | 4.16, d (10.8) | | | 27 | | | | | | | | | | | | | |
| | b | 4.08, d (10.8) | | | 27 | | | | | | | | | | | | | |
| 28 | | 1.084, s | | | | | | | 29.8, q | 29 a | 29 b | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| 3-O<u>CO</u> | | | | | | | | | 166.3, s | 3 | 2',6' | | | | | | | |
| 1' | | | | | | | | | 130.8 ^a , s | 3',5' | | | | | | | | |
| | | | | | | | | | 129.6 ^b , d | 4' | 2',6' | | | | | | | |
| 2'', 6'' | | 8.05 ^a , dd (1.4, 7.4) | 3',5' | | | | | | 128.4 ^c , d | 4' | | | | | | | | |
| | | 7.45 ^b , tt (1.4, 7.4) | 2',6' | 4' | | | | | 132.7 ^d , d | 3',5' | | | | | | | | |
| 3'', 5'' | | 7.43 ^b , tt (1.4, 7.4) | 2'',6'' | 4'' | | | | | | | | | | | | | | |
| | | 7.55 ^c , tt (1.4, 7.4) | 3',5' | | | | | | | | | | | | | | | |
| 29-O<u>CO</u> | | | | | | | | | 166.6, s | 29 a | 29 b | 2'',6'' | | | | | | |
| 1'' | | | | | | | | | 130.7 ^a , s | 3'',5'' | | | | | | | | |
| | | | | | | | | | 129.4 ^b , d | 2'',6'' | 4'' | | | | | | | |
| 2'', 6'' | | 8.04 ^a , dd (1.4, 7.4) | 3'',5'' | | | | | | 128.3 ^c , d | 4'' | | | | | | | | |
| | | 7.43 ^b , tt (1.4, 7.4) | 2'',6'' | 4'' | | | | | 132.6 ^d , d | 2'',6'' | | | | | | | | |
| 3'', 5'' | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| 4'' | | 7.54 ^c , tt (1.4, 7.4) | 3'',5'' | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| 7-O<u>Me</u> | | 3.24, s | | | 5 α | 15 α | | | 54.9, q | | | | | | | | | |

a—d Interchangeable.

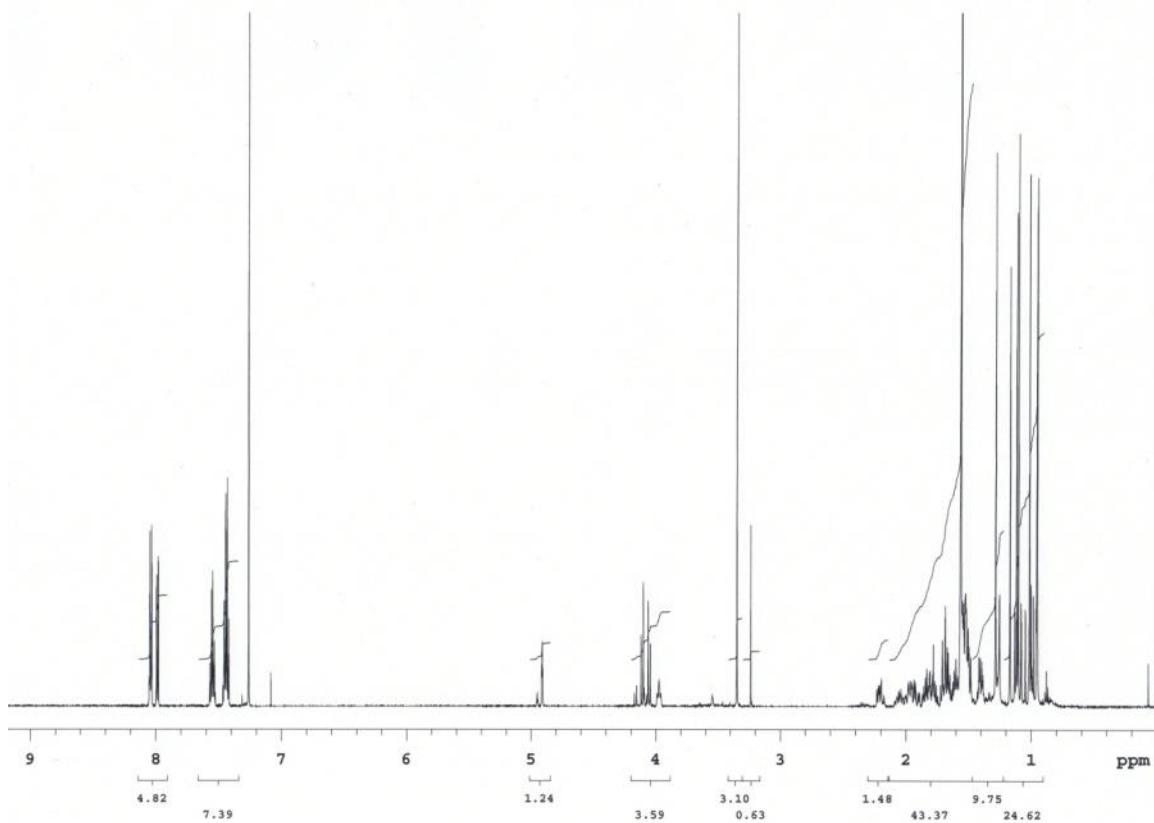
Figure S15. ^1H -NMR spectrum of compound 3.

Figure S16. ^{13}C -NMR spectrum of compound 3.

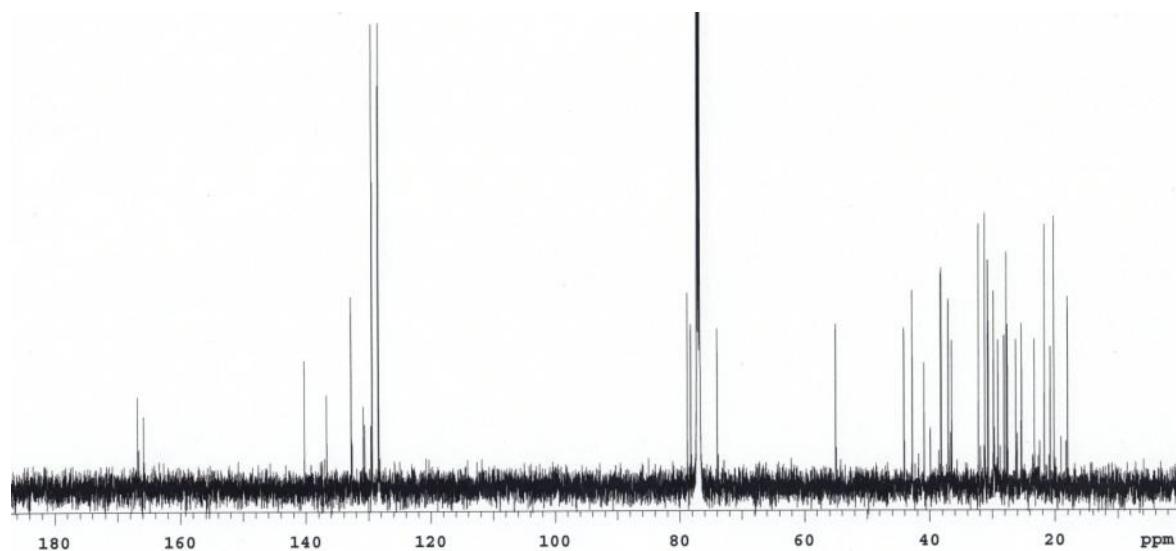


Figure S17. HSQC spectrum of compound 3.

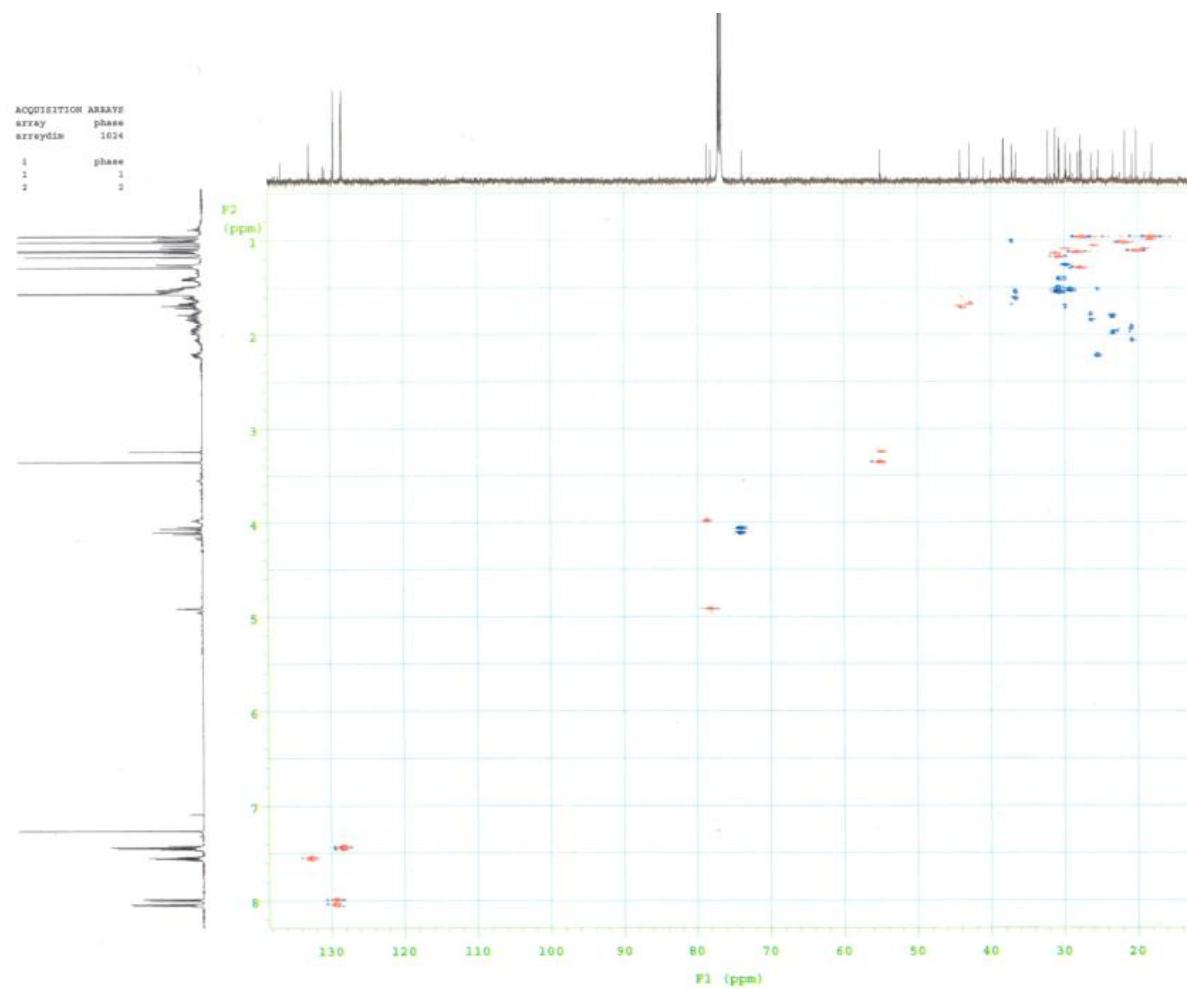


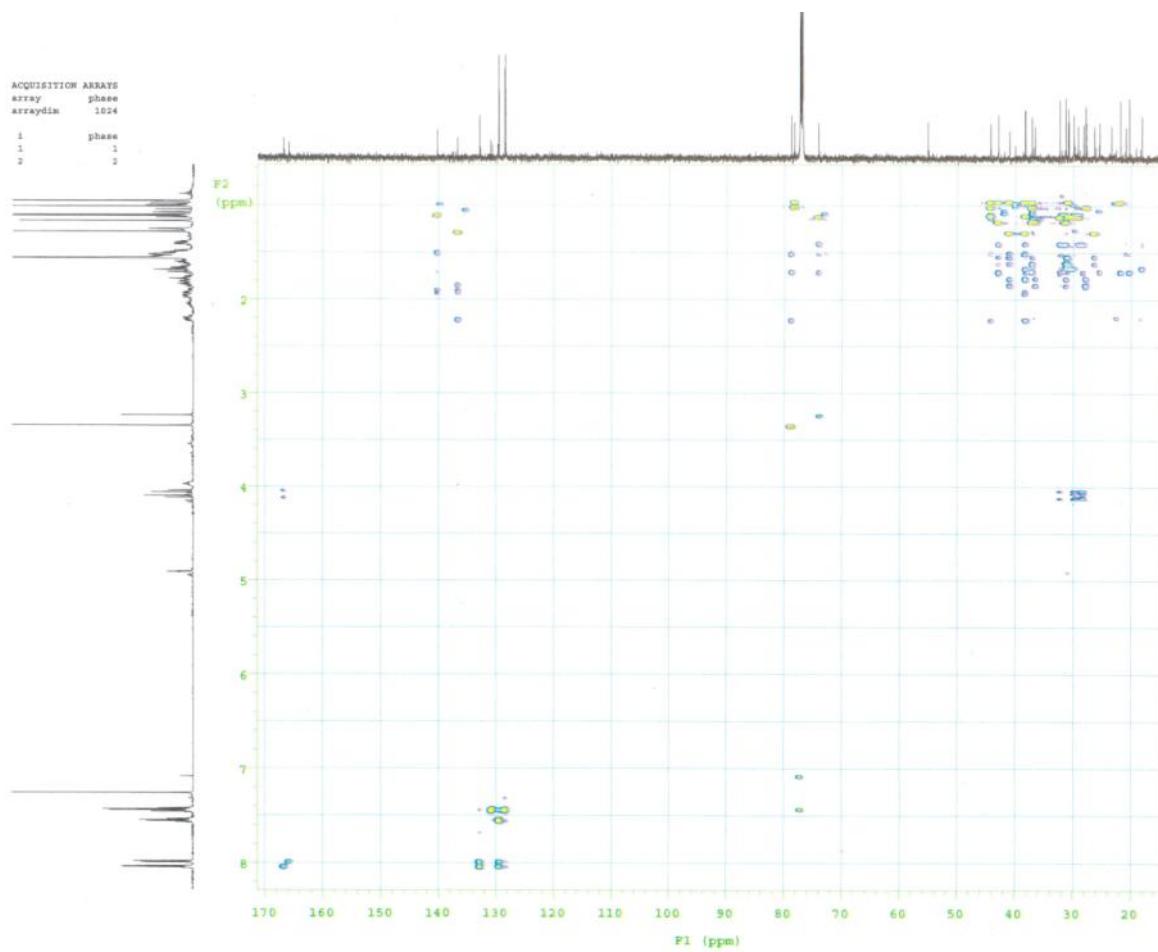
Figure S18. HMBC spectrum of compound 3.

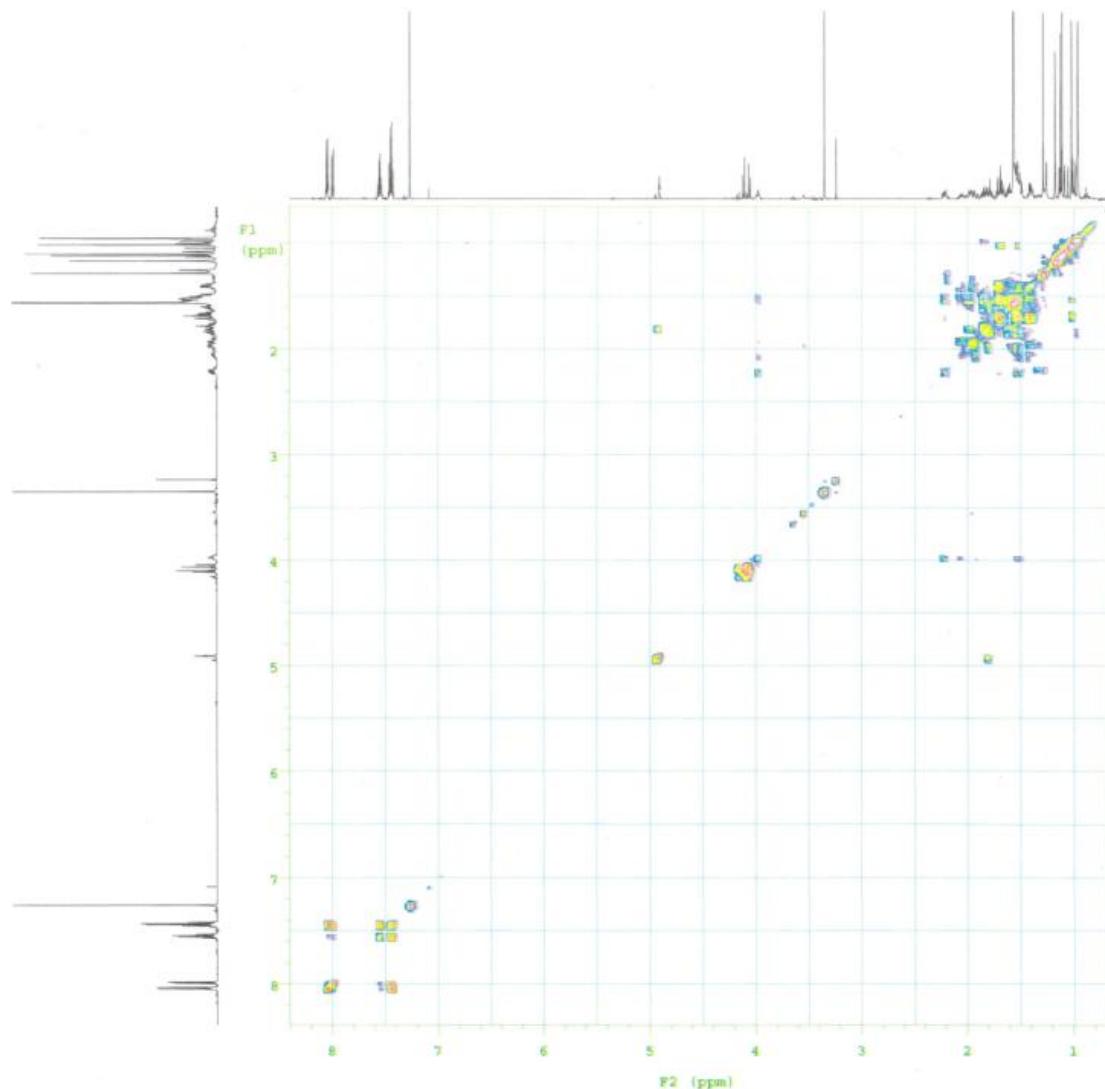
Figure S19. ^1H - ^1H COSY spectrum of compound 3.

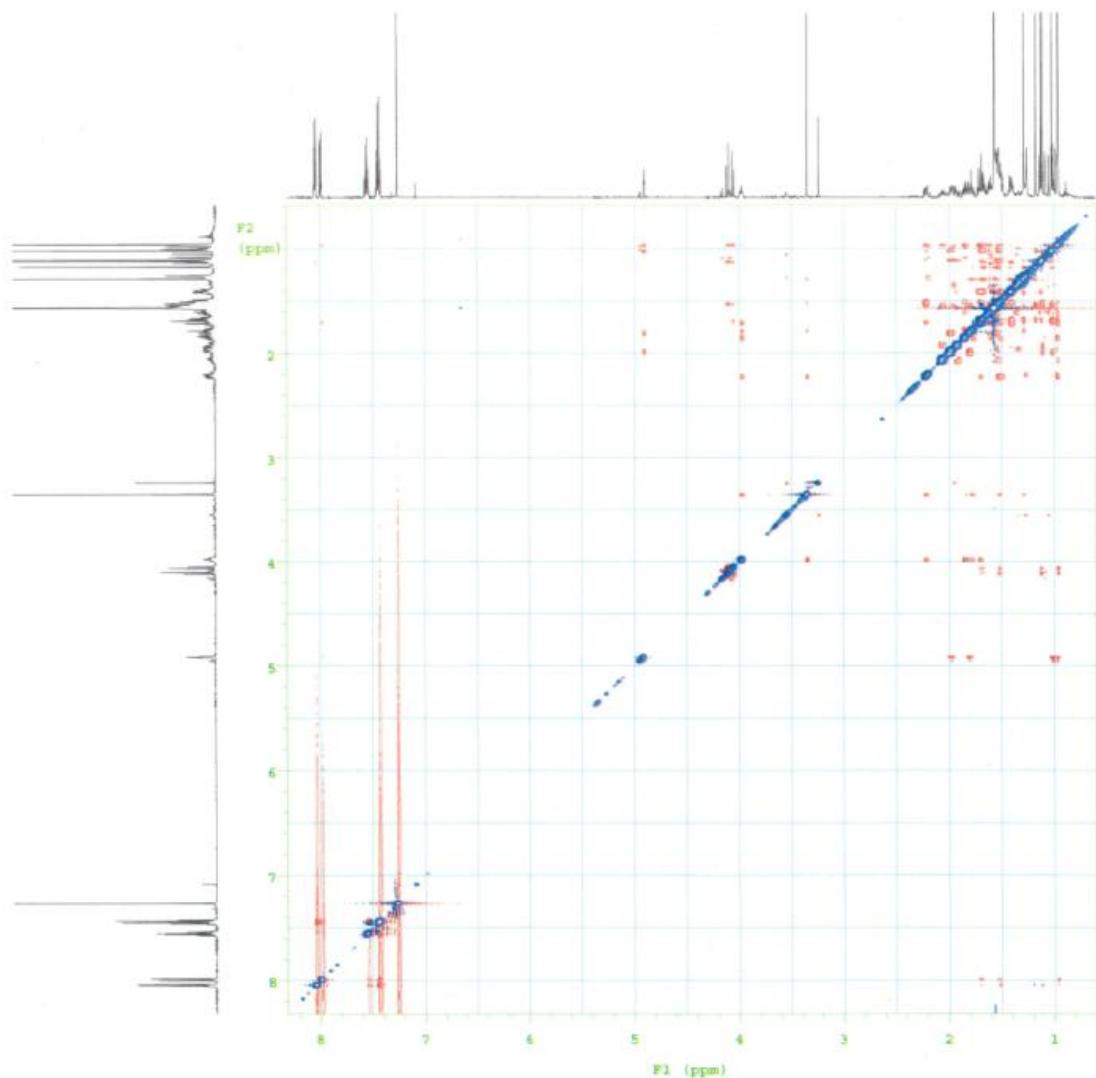
Figure S20. NOESY spectrum of compound 3.

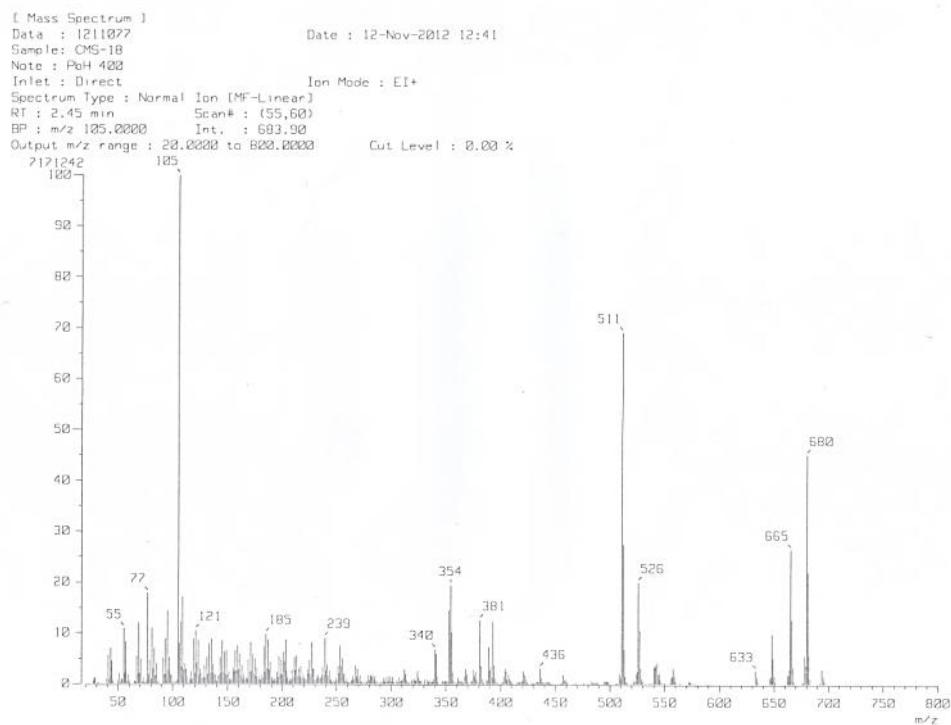
Figure S21. EI-MS of compound 3.

Table S3. ^1H (600 MHz) and ^{13}C (150 MHz), ^1H - ^1H COSY, NOESY, and HMBC NMR Spectroscopic Data of Compounds 3

| position | | δ_{H} (J in Hz) | ^1H - ^1H COSY | | | | NOE | | δ_{C} , type | HMBC (H to C) | | | |
|----------------|----------|----------------------------------|----------------------------------|-------------|-------------|-------------|-------------|---------------|----------------------------|---------------|-------------|-------------|---------------|
| 1 | α | 1.40, m | 1 β | 2 α | 2 β | | 5 α | | 30.6, t | 25 | | | |
| | β | 1.52, m | | 1 α | 2 α | 2 β | | | | | | | |
| 2 | α | 1.80, m | 1 α | 1 β | 2 β | 3 β | | | 23.3, t | | | | |
| | β | 1.97, m | 1 α | 1 β | 2 α | 3 β | 24 | 25 | | | | | |
| 3 | | 4.91, t (3.0) | 2 α | 2 β | | | | | 78.2, d | 23 | 24 | | |
| | | | | | | | | | 37.0, s | 5 α | 23 | 24 | |
| 4 | | | | | | | 1 α | 7 α | 44.1, d | 6 α | 23 | 24 | 25 |
| | | | | | | | | | 25.3, t | 5 α | | | |
| 5 | | 1.70, m | 6 α | 6 β | | | | | 78.8, d | 5 α | 6 α | 6 β | 7-O <u>Me</u> |
| | α | 2.21, m | 5 α | 6 β | 7 α | | | | 136.7, s | 7 α | 11 α | 11 β | 15 β |
| 6 | β | 1.51, m | 5 α | 6 α | 7 α | | | | 140.3, s | 1 β | 11 β | 25 | |
| | | 3.98, brt (7.6) | 6 α | 6 β | | | 5 α | 15 α | 38.2, s | 1 α | 1 β | 5 | 6 α |
| 7 | | | | | | | | | 20.8, t | 12 α | | | |
| | | | | | | | | | 30.7, t | 18 β | 27 | | |
| 8 | | | | | | | | | 38.2, s | 26 | | | |
| | | | | | | | | | 40.9, s | 15 α | 15 β | 16 α | 16 β |
| 9 | | | | | | | | | 26.3, t | 16 α | 16 β | 26 | 27 |
| | | | | | | | | | | | | | |
| 10 | | | | | | | | | 36.5, t | 15 α | 15 β | 28 | |
| | | | | | | | | | 31.2, s | 15 α | 15 β | 19 α | 28 |
| 11 | α | 2.03, m | 11 β | 12 α | 12 β | | 27 | | 42.8, d | 16 β | 19 α | 27 | 28 |
| | β | 1.91, m | 11 α | 12 α | 12 β | | | | 29.8, t | 18 β | 29 a | 29 b | 30 |
| 12 | α | 1.51, m | 11 α | 11 β | 12 α | | | | 32.2, s | 19 α | 19 β | 22 β | 29 a |
| | β | 1.40, m | 11 α | 11 β | 12 β | | 26 | | 29.1, t | 29 a | 29 b | 30 | 28 |
| 13 | | | | | | | | | 37.1, t | 16 α | 16 β | 21 | |
| | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 15 | α | 1.78, m | 15 β | 16 α | 16 β | | 7 α | | | | | | |
| | β | 1.83, m | 15 α | 16 α | 16 β | | | | | | | | |
| 16 | α | 1.61, m | 15 α | 15 β | 16 β | | | | | | | | |
| | β | 1.53, m | 15 α | 15 β | 16 α | | 18 β | | | | | | |
| 17 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 18 | | 1.66, m | 19 α | 19 β | | | 16 β | 26 | | | | | |
| | | | 18 β | 19 α | 19 β | | | | | | | | |
| 19 | α | 1.40, m | 18 β | 19 α | 19 β | | 28 | | | | | | |
| | β | 1.50, m | 18 β | 19 α | 19 β | | | | | | | | |
| 20 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 21 | | 1.52, m | 22 α | 22 β | | | | | | | | | |
| | | | 21 | 22 β | | | 27 | | | | | | |
| 22 | α | 1.68, m | 21 | 22 β | | | | | | | | | |
| | β | 1.01, m | 21 | 22 α | | | | | | | | | |
| 23 | | 0.96, s | | | | 6 α | | | 27.6, q | 24 | | | |
| | | | | | | | | | 21.7, q | 5 α | 23 | | |
| 24 | | 1.02, s | | | | 6 β | | | 20.2, q | 5 α | | | |
| | | | | | | | | | 27.8, q | 15 α | 15 β | | |
| 25 | | 1.10, s | | | | 2 β | | | 18.0, q | 12 β | 18 β | | |
| | | | | | | | | | 30.7, q | | | | |
| 26 | | 1.29, s | | | | 12 β | 18 β | 7-O <u>Me</u> | | | | | |
| | | | | | | | | | | | | | |
| 27 | | 0.95, s | | | | 11 α | 22 α | 29 a | 29 b | | | | |
| | | | | | | | | | | | | | |
| 28 | | 1.17, s | | | | 19 β | 26 | | | | | | |
| | | | | | | | | | | | | | |
| 29 | a | 4.11, d (10.6) | | | | 27 | | | 74.0, t | 19 α | 30 | | |
| | b | 4.05, d (10.6) | | | | 27 | | | | | | | |
| 30 | | 1.12, s | | | | | | | 28.1, q | 19 α | 29 a | 29 b | |
| | | | | | | | | | | | | | |
| 3-O <u>CO</u> | | | | | | | | | 165.9, s | 3 β | 2',6' | | |
| 1' | | | | | | | | | 130.6, s | | | | |
| 2'',6'' | | 7.99, dd (1.4, 7.4) | 3',5' | | | | | | 129.4, d | 2',6' | 4' | | |
| 3'',5'' | | 7.45, tt (1.4, 7.4) | 2',6' | 4' | | | | | 128.5, d | 3',5' | | | |
| 4'' | | 7.56, tt (1.4, 7.4) | 3',5' | | | | | | 132.8, d | 2',6' | | | |
| 29-O <u>CO</u> | | | | | | | | | 166.8, s | 29 a | 29 b | 2'',6'' | |
| 1'' | | | | | | | | | 130.9, s | | | | |
| 2'',6'' | | 8.04, dd (1.7, 7.3) | 3'',5'' | | | | | | 129.5, d | 2'',6'' | 4'' | | |
| 3'',5'' | | 7.43, tt (1.7, 7.3) | 2'',6'' | 4'' | | | | | 128.4, d | 3'',5'' | | | |
| 4'' | | 7.55, tt (1.7, 7.3) | 3'',5'' | | | | | | 132.8, d | 2'',6'' | | | |
| 7-O <u>Me</u> | | 3.35, s | | | | 26 | | | 55.0, q | | | | |