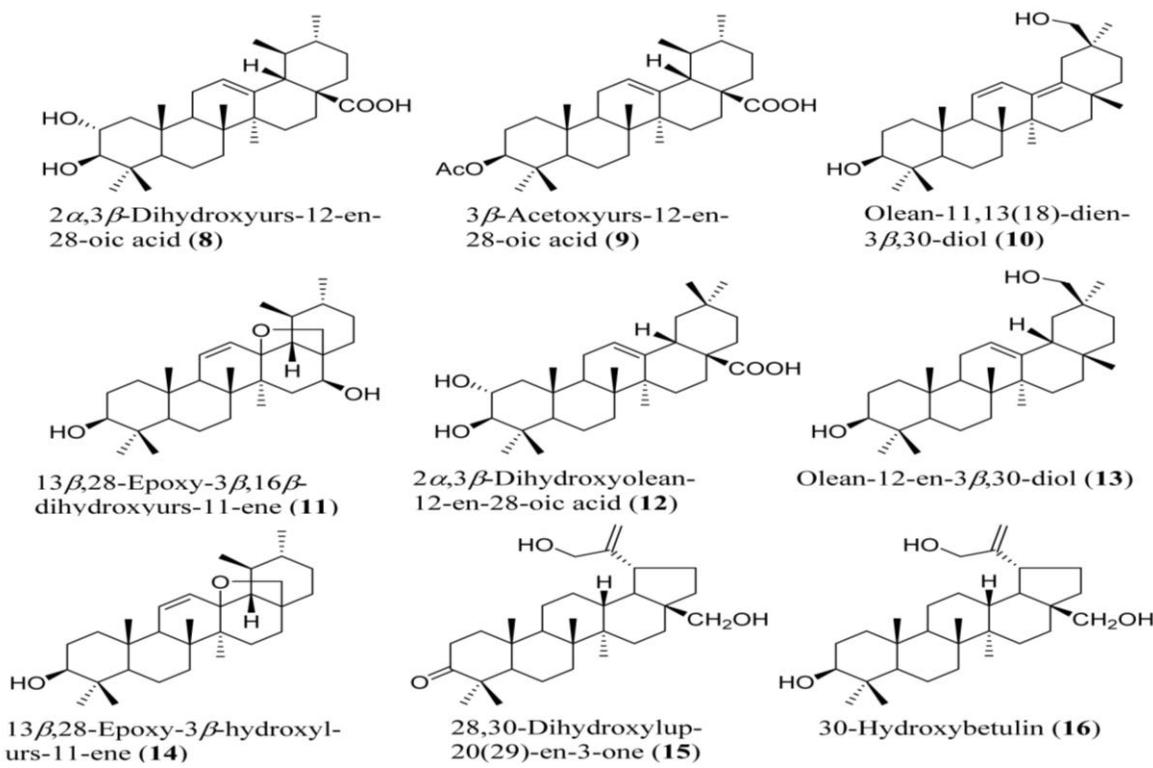
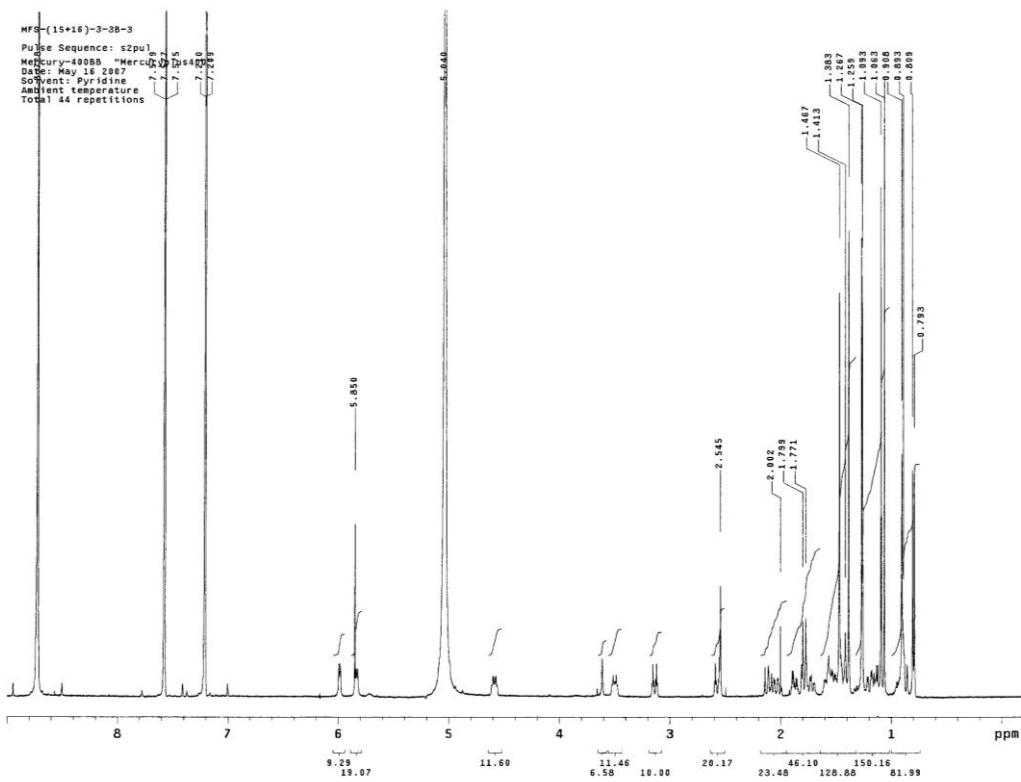
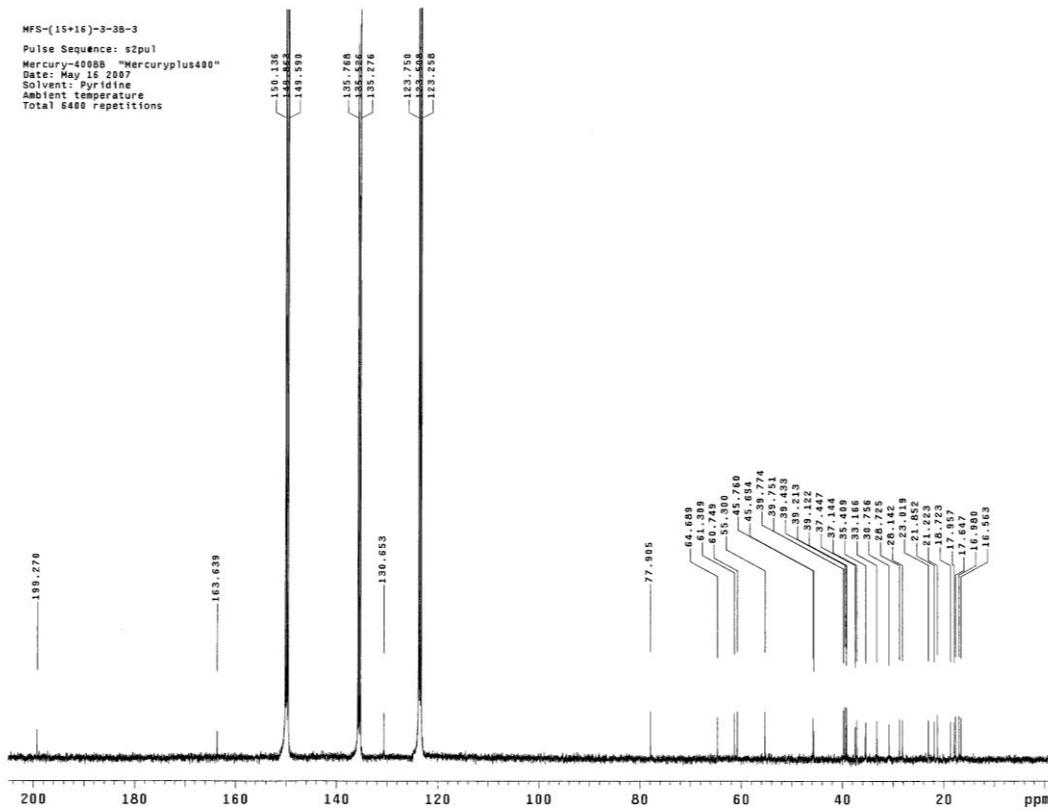
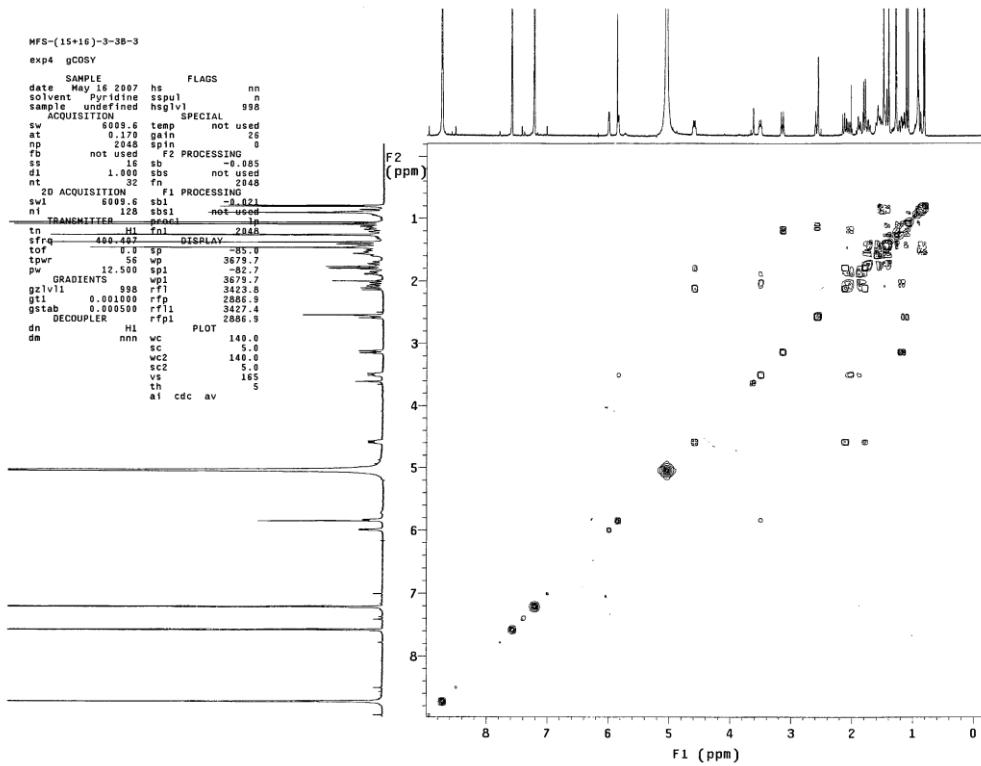
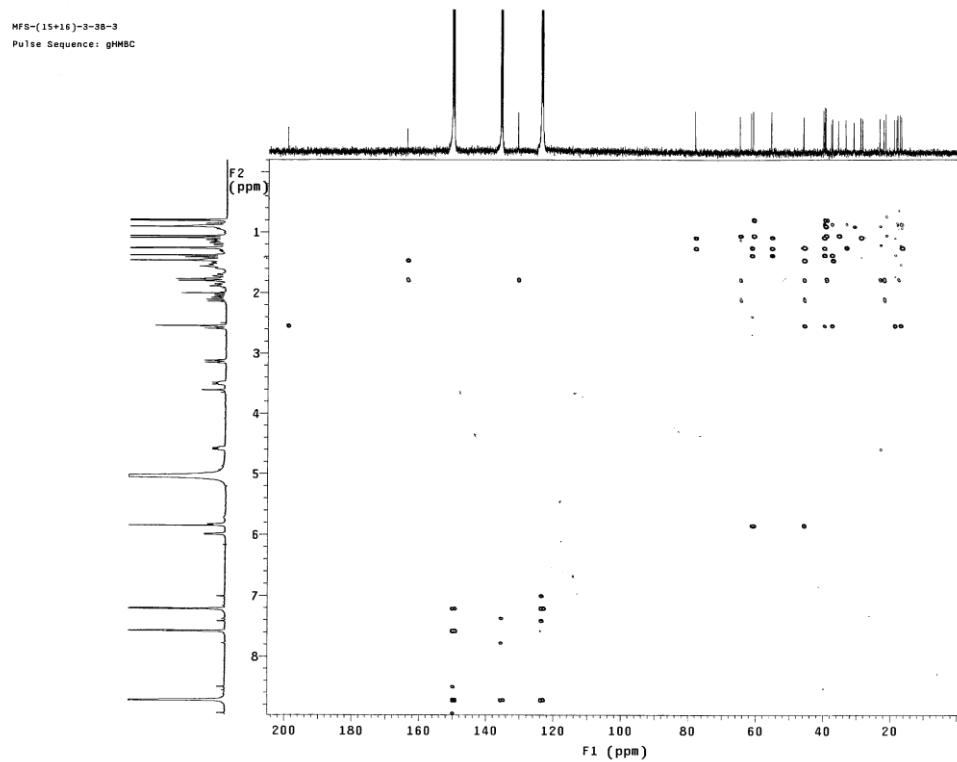


# Supporting Information

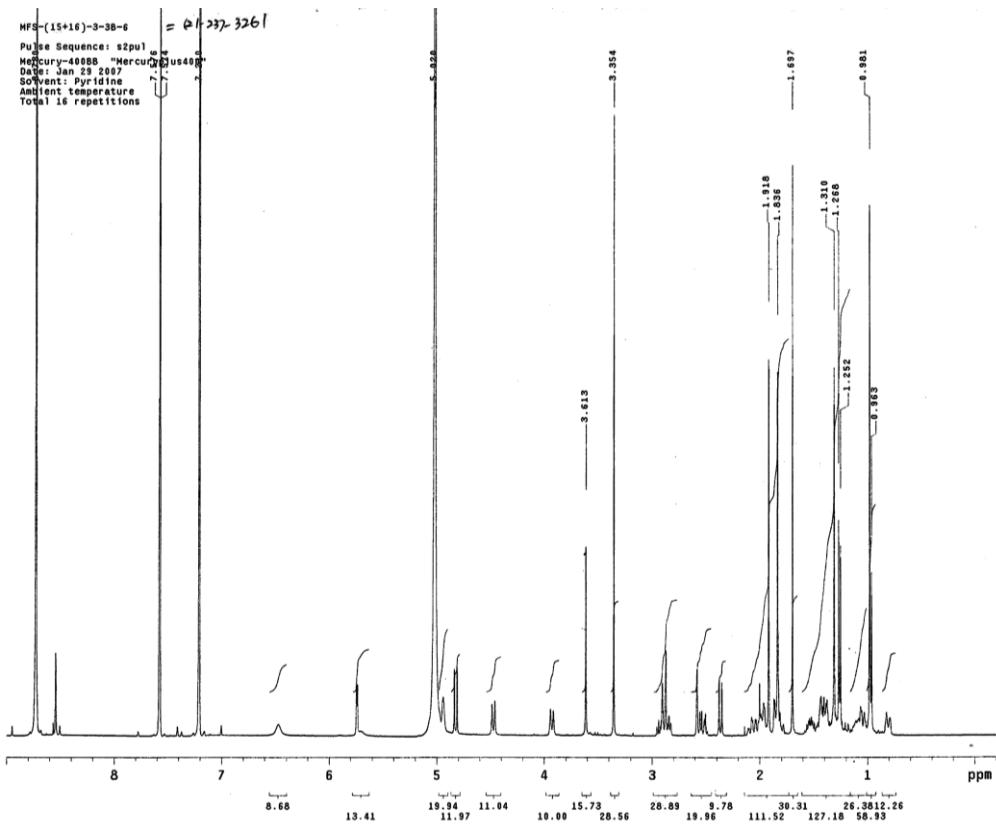
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**Figure S1.** Structures of known compounds (**8–16**).

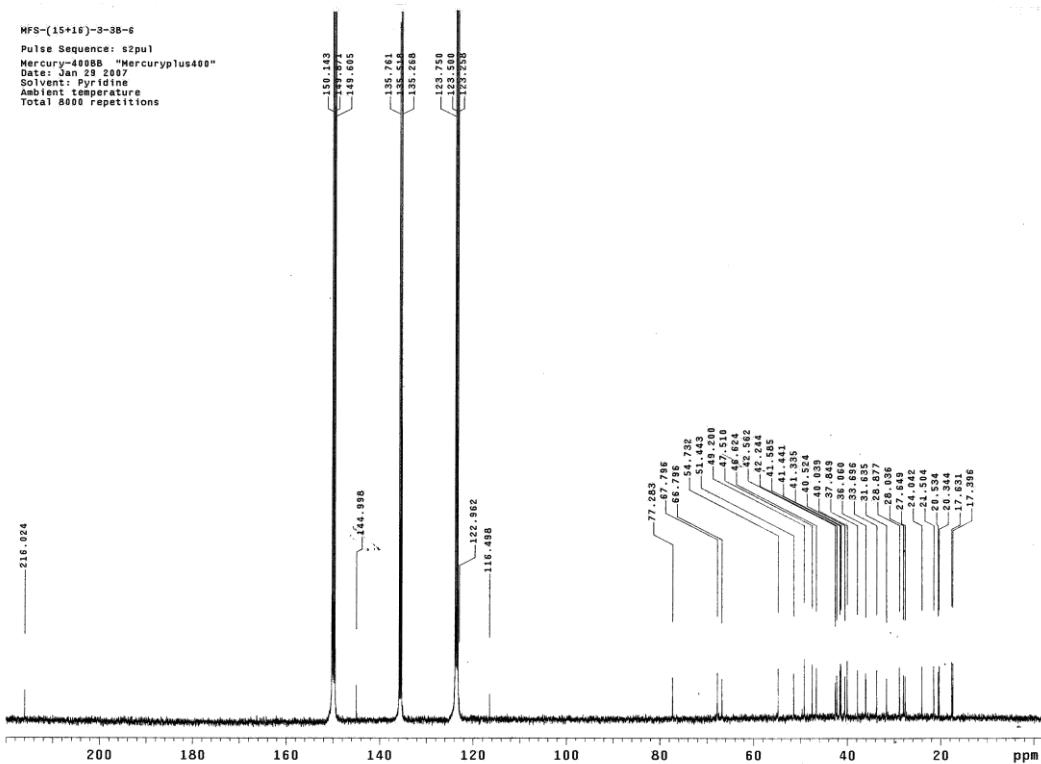
**Figure S2.** The  $^1\text{H}$ -NMR spectrum ( $\text{C}_5\text{D}_5\text{N}$ , 400 MHz) of  $3\beta,16\beta$ -dihydroxyurs-12-en-11-one (**1**).**Figure S3.** The  $^{13}\text{C}$ -NMR spectrum ( $\text{C}_5\text{D}_5\text{N}$ , 100 MHz) of  $3\beta,16\beta$ -dihydroxyurs-12-en-11-one (**1**).

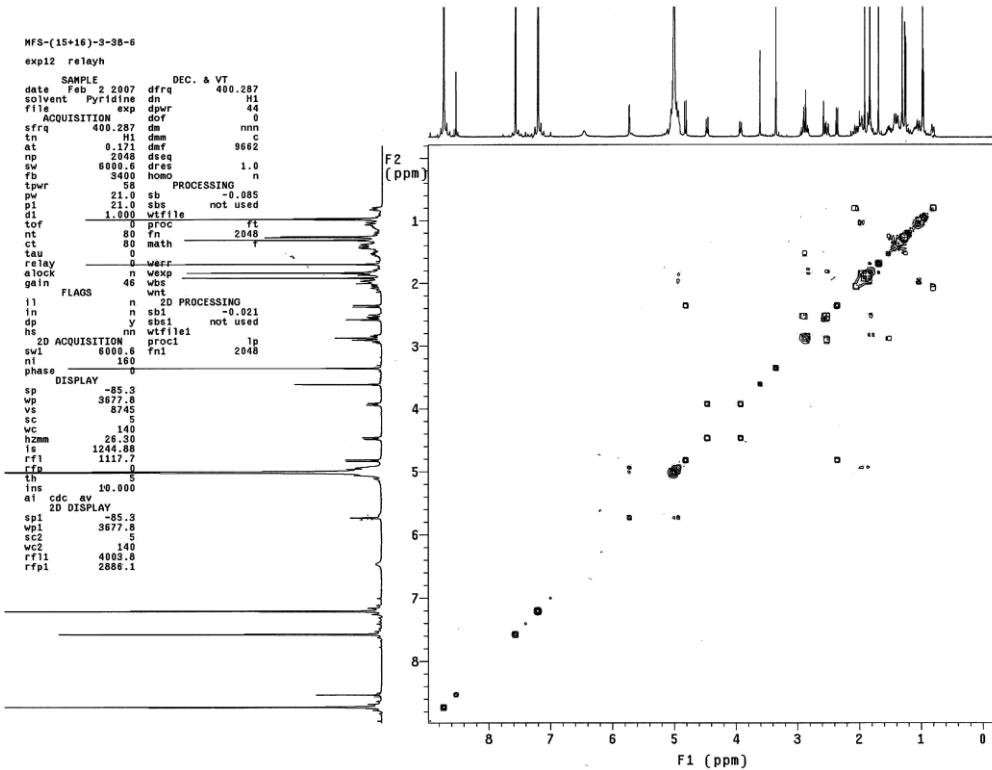
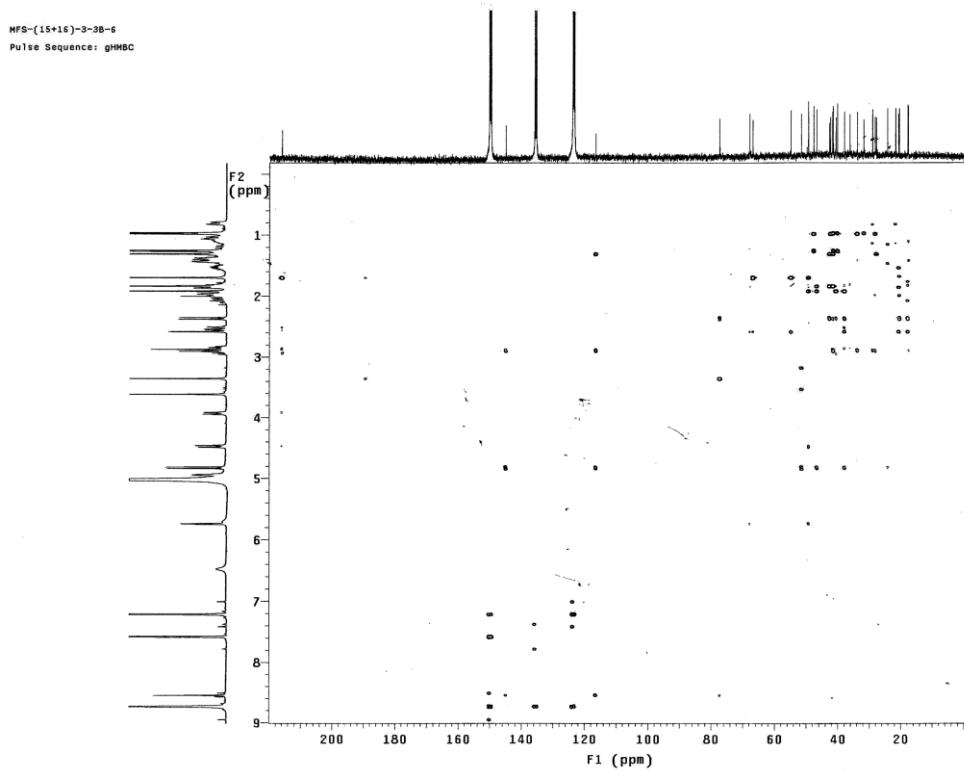
**Figure S4.** The COSY spectrum of  $3\beta,16\beta$ -dihydroxyurs-12-en-11-one (**1**).**Figure S5.** The HMBC spectrum of  $3\beta,16\beta$ -dihydroxyurs-12-en-11-one (**1**).

**Figure S6.** The  $^1\text{H}$ -NMR spectrum ( $\text{C}_5\text{D}_5\text{N}$ , 400 MHz) of  $6\beta,12,23$ -trihydroxy- $11\alpha$ -methoxyurs-12-en-3-one (**2**).

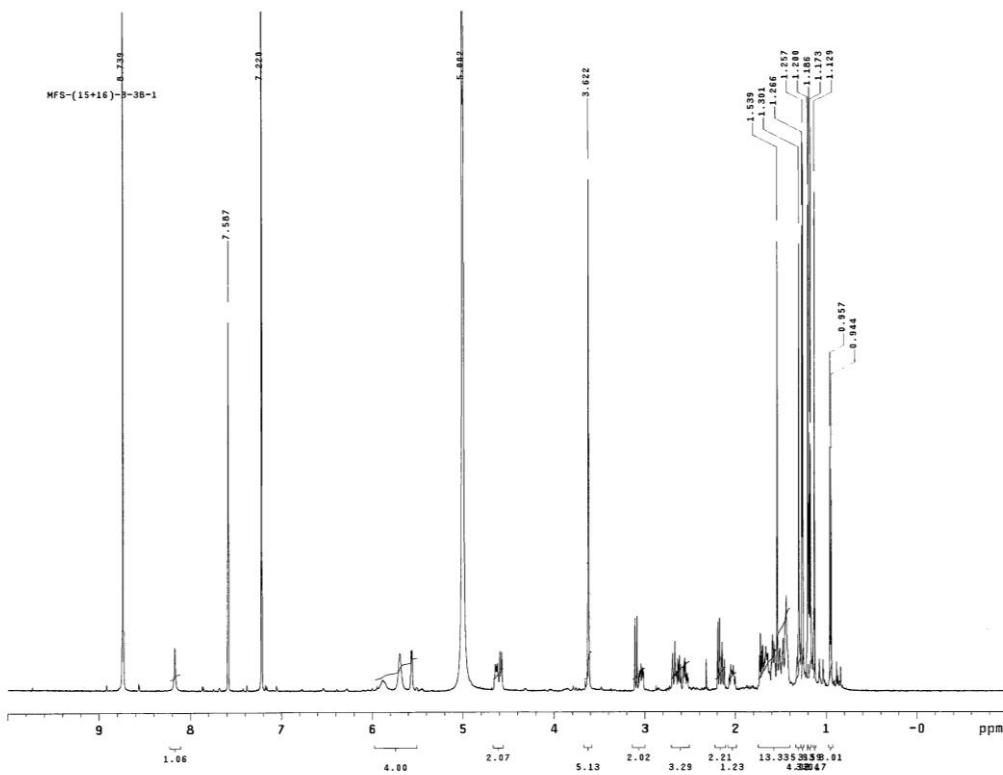


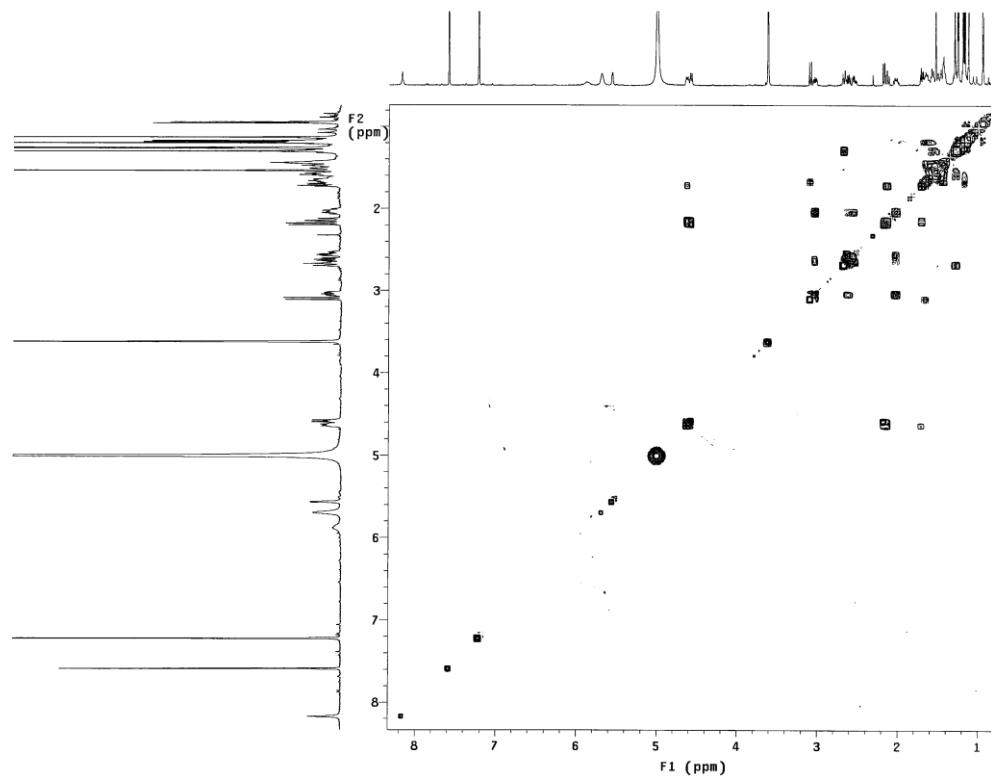
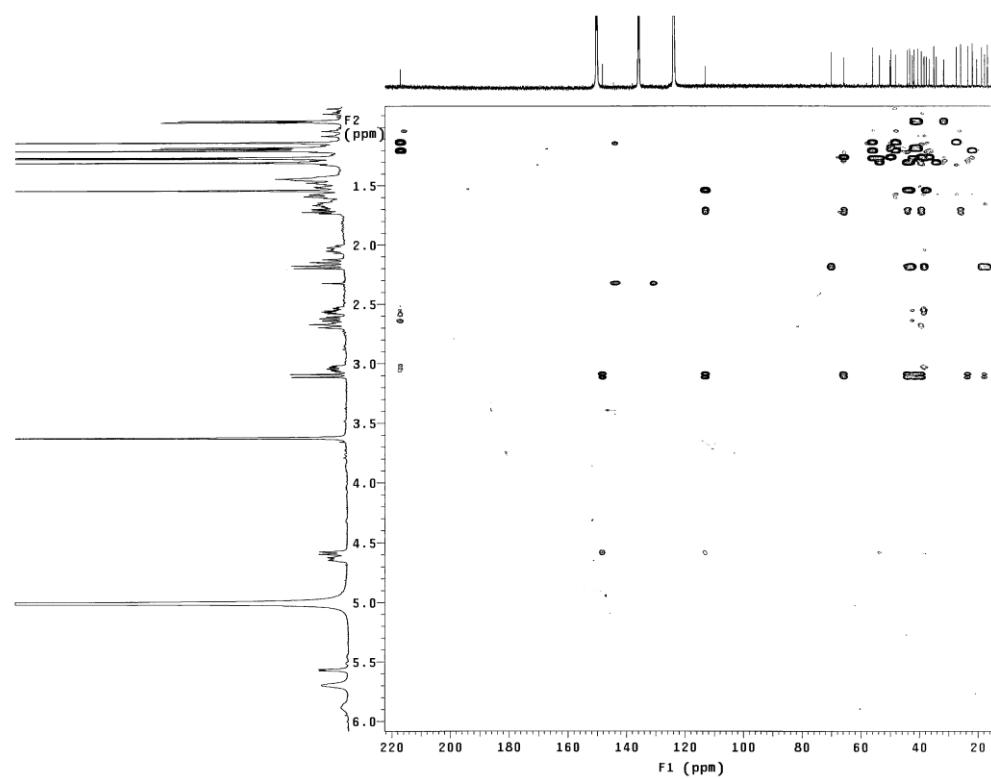
**Figure S7.** The  $^{13}\text{C}$ -NMR spectrum ( $\text{C}_5\text{D}_5\text{N}$ , 100 MHz) of  $6\beta,12,23$ -trihydroxy- $11\alpha$ -methoxyurs-12-en-3-one (**2**).



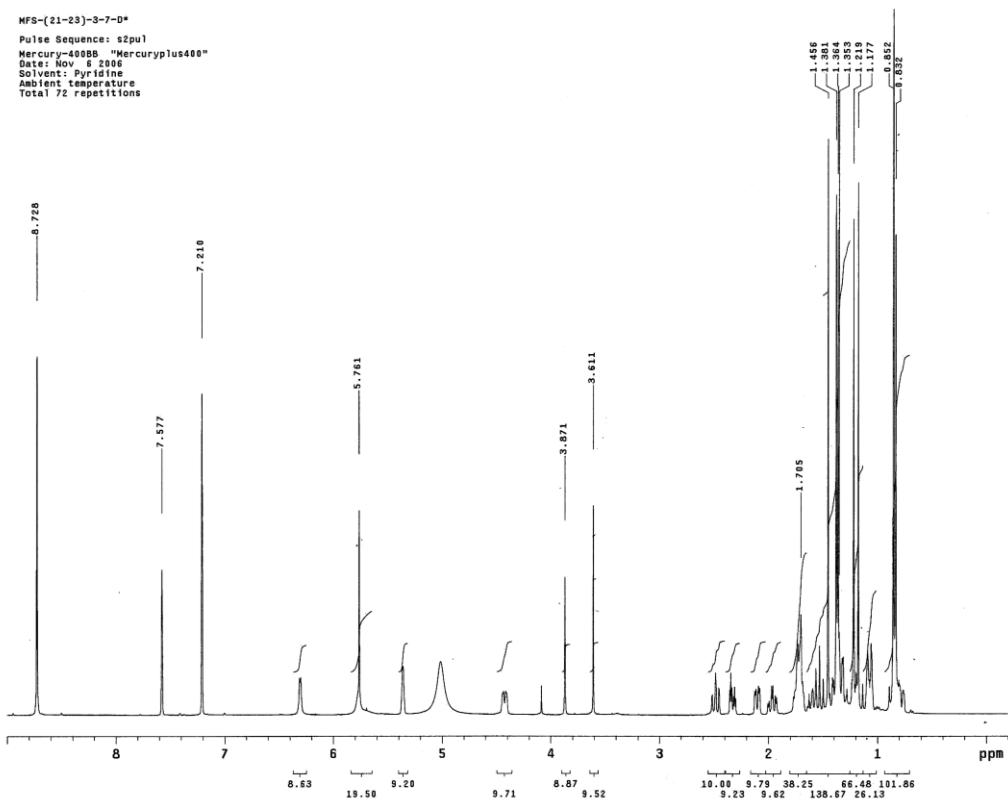
**Figure S8.** The COSY spectrum of  $6\beta,12,23$ -trihydroxy- $11\alpha$ -methoxyurs-12-en-3-one (**2**).**Figure S9.** The HMBC spectrum of  $6\beta,12,23$ -trihydroxy- $11\alpha$ -methoxyurs-12-en-3-one (**2**).

**Figure S10.** The  $^1\text{H}$ -NMR spectrum ( $\text{C}_5\text{D}_5\text{N}$ , 500 MHz) of  $11\alpha,12,16\beta$ -trihydroxyurs-12-en-3-one (**3**).

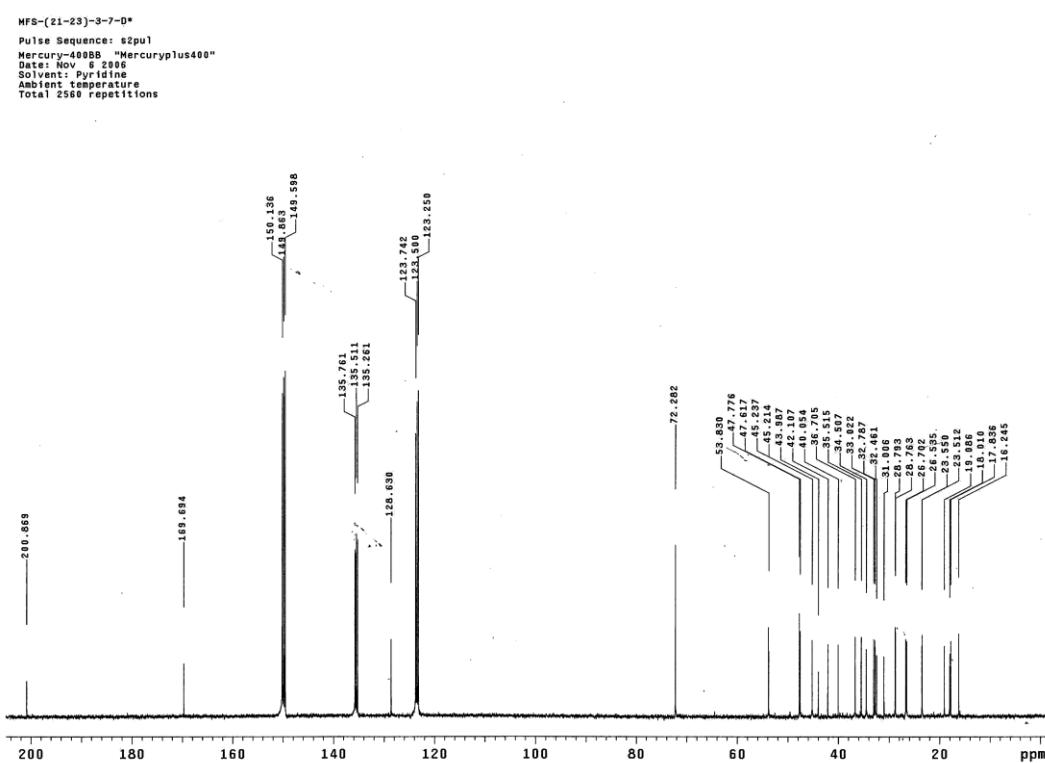


**Figure S12.** The COSY spectrum of  $11\alpha,12,16\beta$ -trihydroxyurs-12-en-3-one (**3**).**Figure S13.** The HMBC spectrum of  $11\alpha,12,16\beta$ -trihydroxyurs-12-en-3-one (**3**).

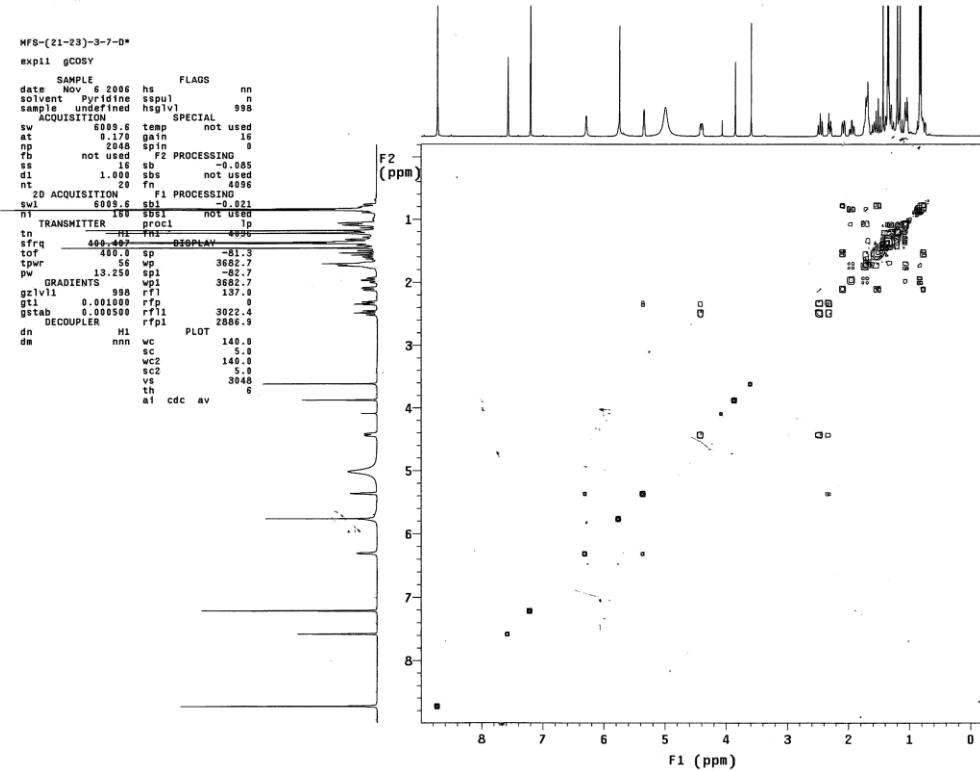
**Figure S14.** The  $^1\text{H}$ -NMR spectrum ( $\text{C}_5\text{D}_5\text{N}$ , 400 MHz) of  $1\alpha,3\beta$ -dihydroxyolean-12-en-11-one (**4**).



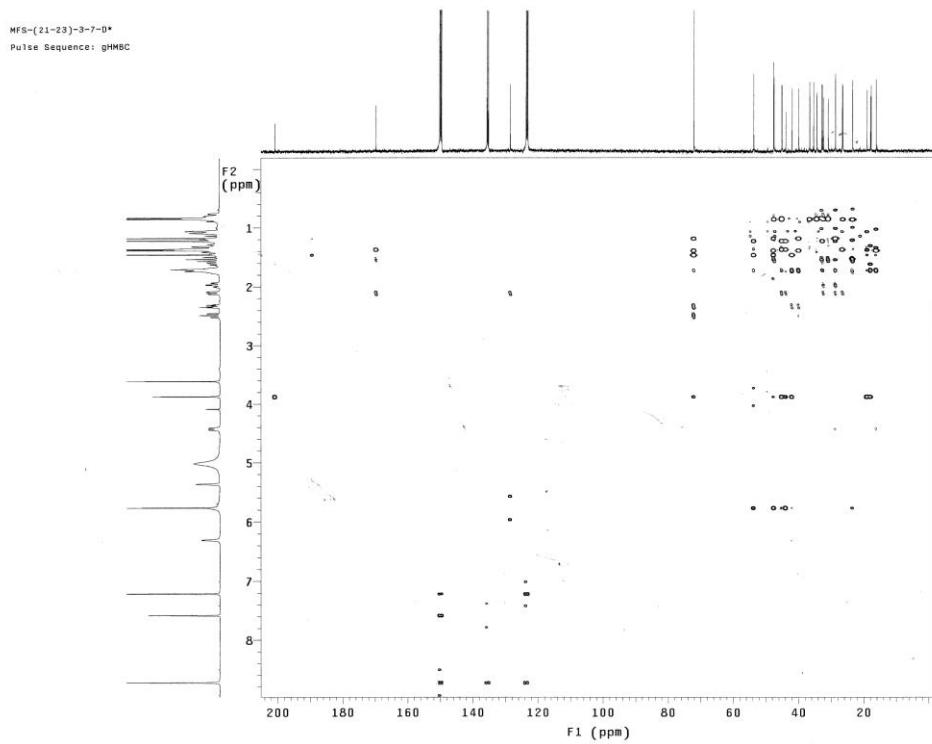
**Figure S15.** The  $^{13}\text{C}$ -NMR spectrum ( $\text{C}_5\text{D}_5\text{N}$ , 100 MHz) of  $1\alpha,3\beta$ -dihydroxyolean-12-en-11-one (**4**).



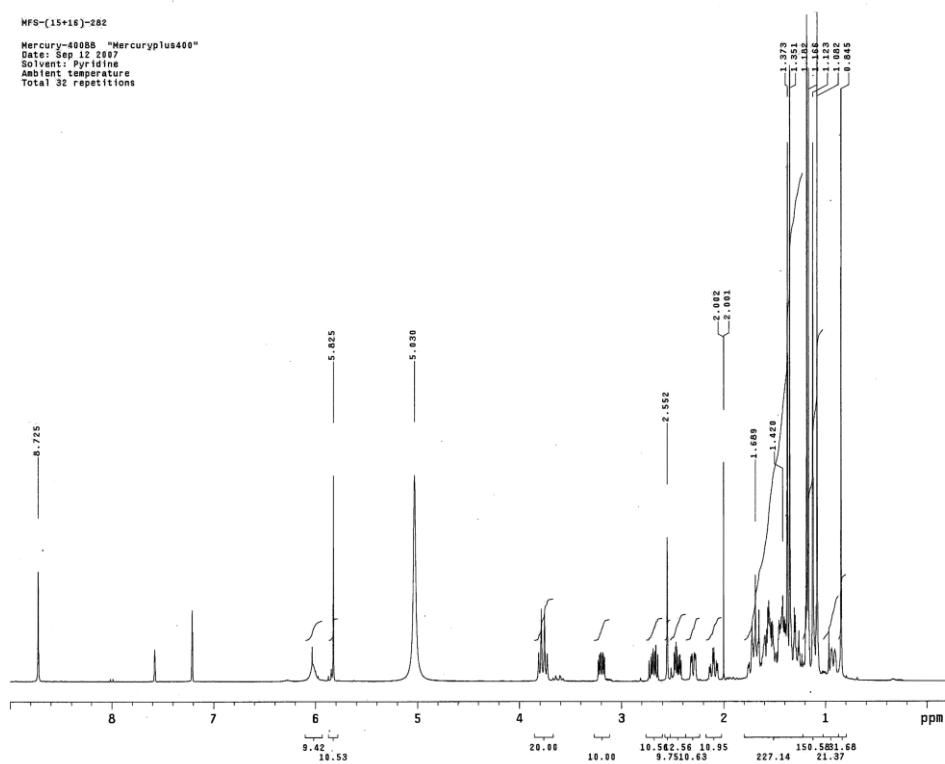
**Figure S16.** The COSY spectrum of  $1\alpha,3\beta$ -dihydroxyolean-12-en-11-one (**4**).



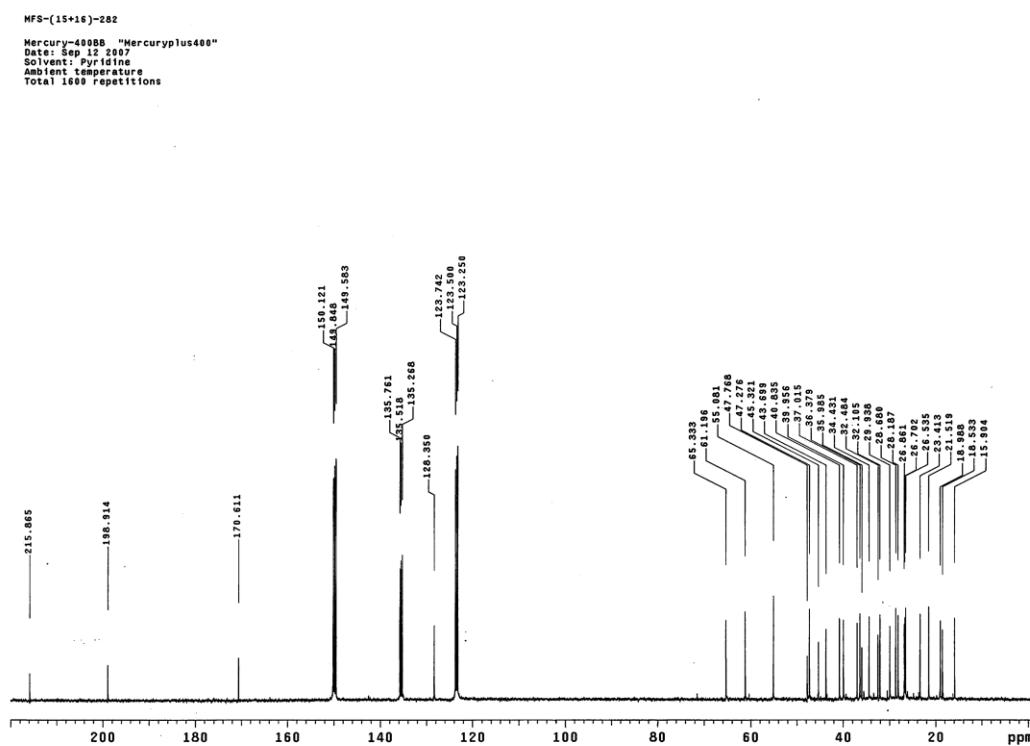
**Figure S17.** The HMBC spectrum of  $1\alpha,3\beta$ -dihydroxyolean-12-en-11-one (**4**).

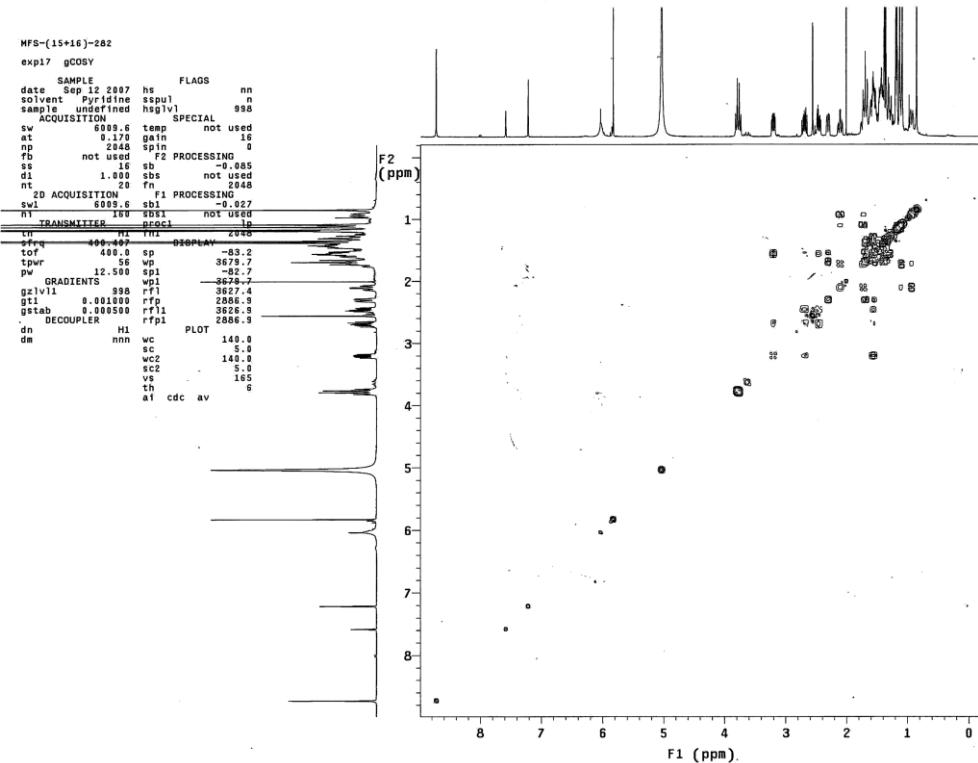
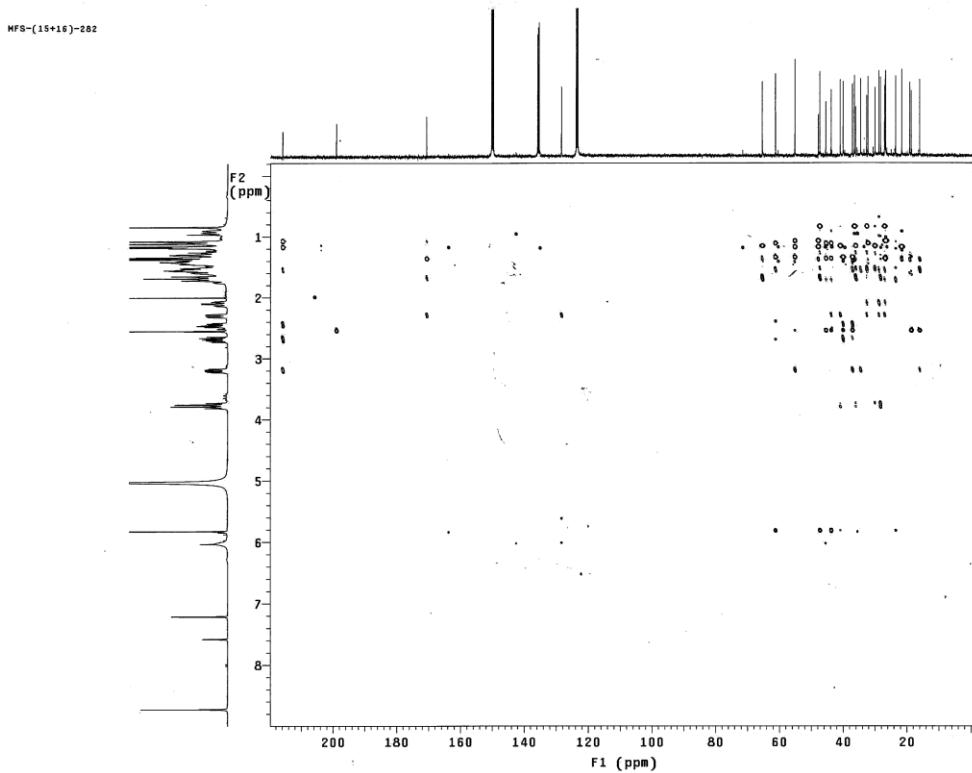


**Figure S18.** The  $^1\text{H}$ -NMR spectrum ( $\text{C}_5\text{D}_5\text{N}$ , 400 MHz) of 30-hydroxyolean-12-en-3, 11-dione (5).

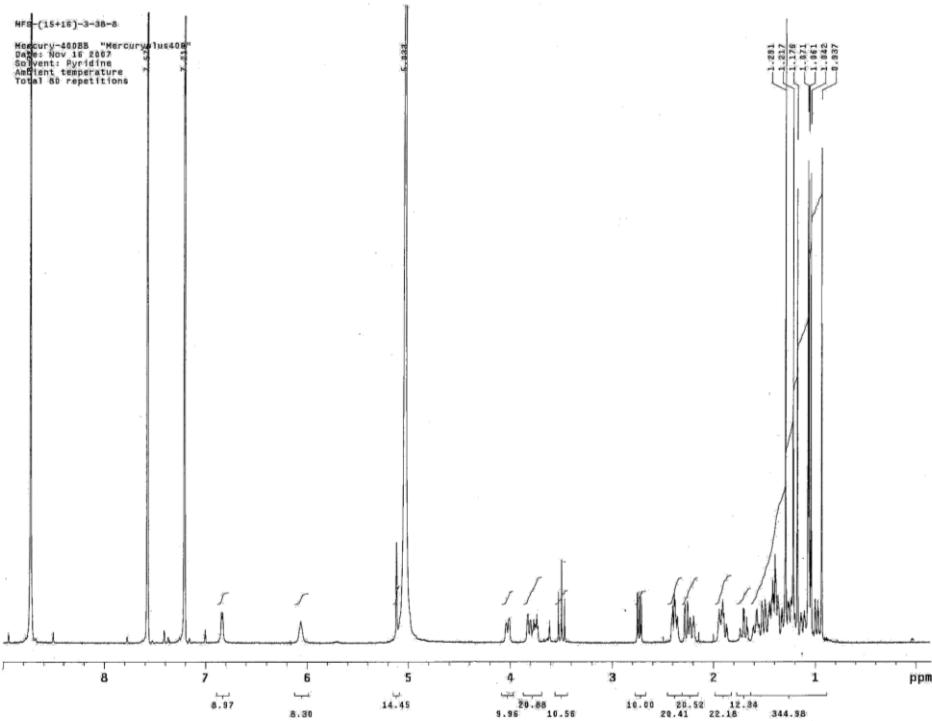


**Figure S19.** The  $^{13}\text{C}$ -NMR spectrum ( $\text{C}_5\text{D}_5\text{N}$ , 100 MHz) of 30-hydroxyolean-12-en-3, 11-dione (5).

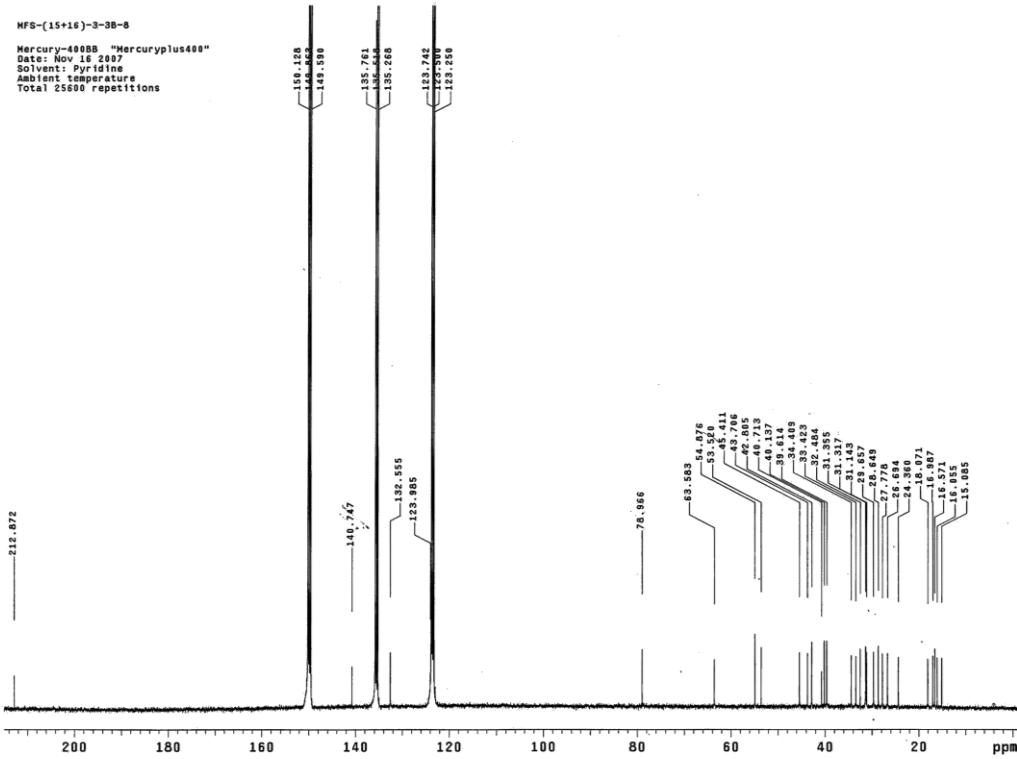


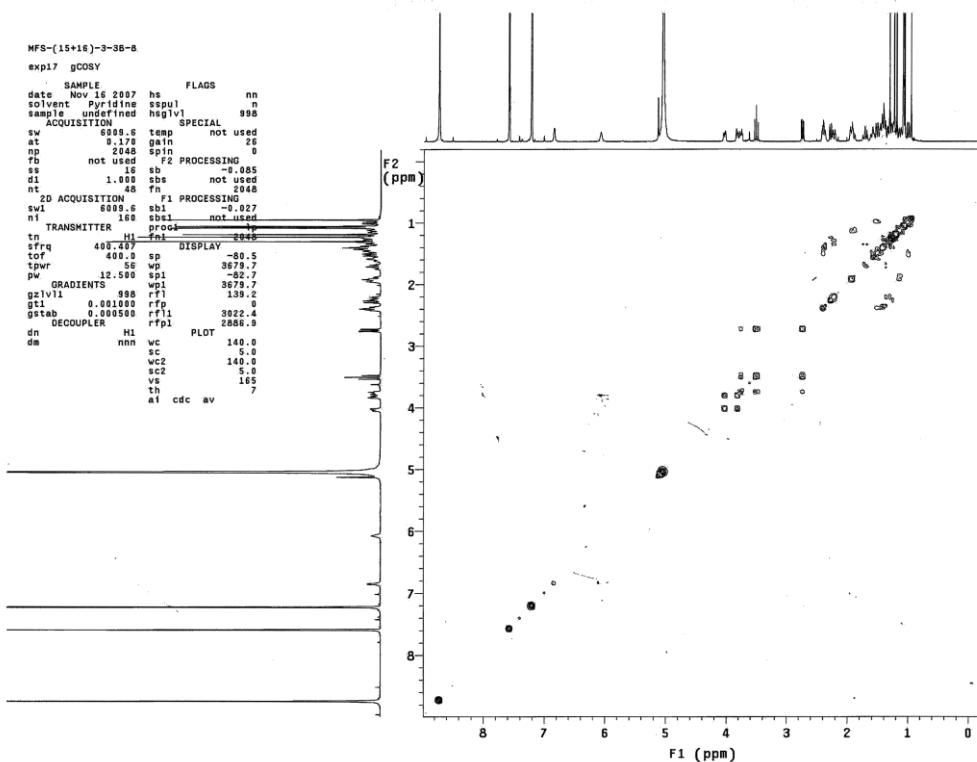
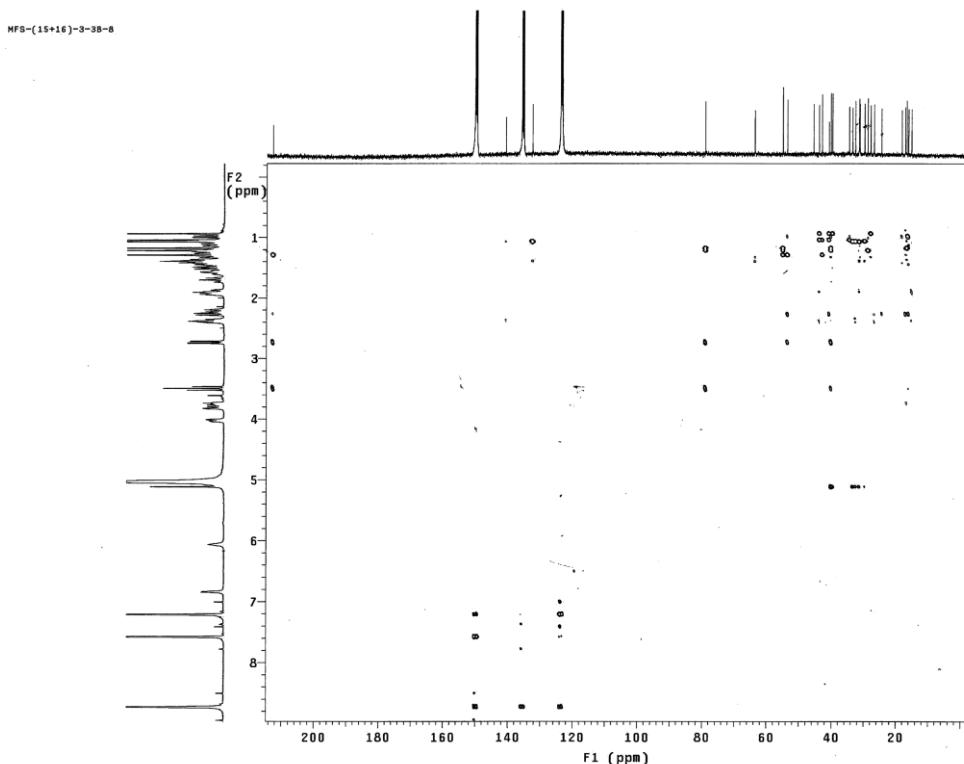
**Figure S20.** The COSY spectrum of 30-hydroxyolean-12-en-3,11-dione (**5**).**Figure S21.** The HMBC spectrum of 30-hydroxyolean-12-en-3,11-dione (**5**).

**Figure S22.** The  $^1\text{H}$ -NMR spectrum ( $\text{C}_5\text{D}_5\text{N}$ , 400 MHz) of  $3\beta,28$ -dihydroxyolean-18-en-1-one (**6**).

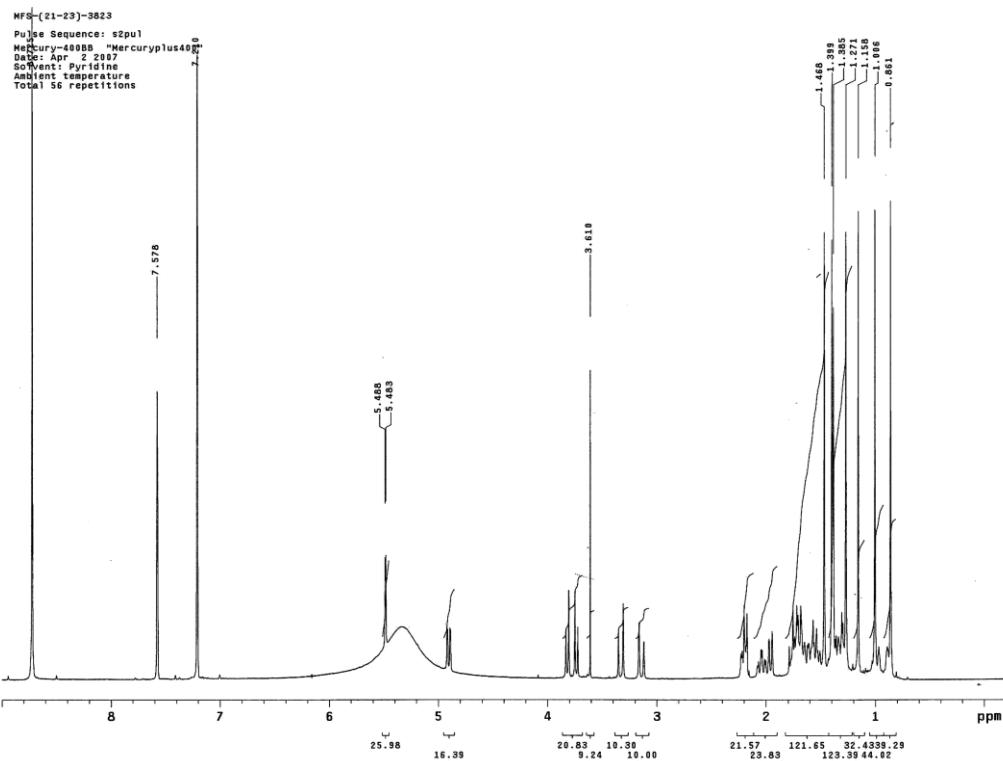


**Figure S23.** The  $^{13}\text{C}$ -NMR spectrum ( $\text{C}_5\text{D}_5\text{N}$ , 100 MHz) of  $3\beta,28$ -dihydroxyolean-18-en-1-one (**6**).

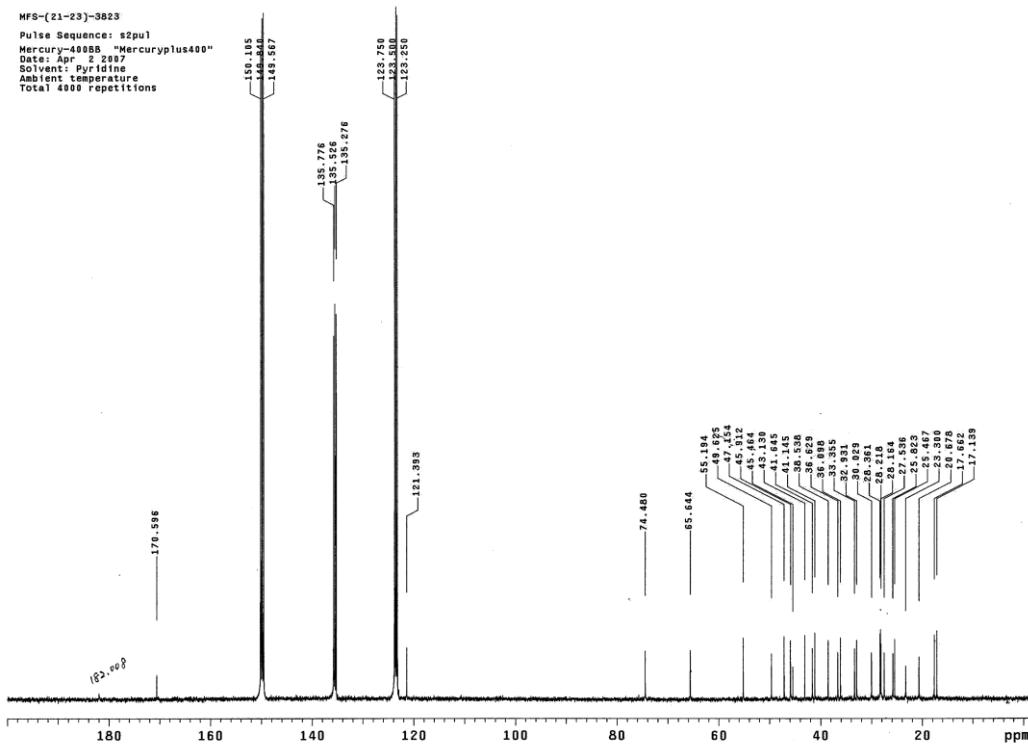


**Figure S24.** The COSY spectrum of 3 $\beta$ ,28-dihydroxyolean-18-en-1-one (**6**).**Figure S25.** The HMBC spectrum of 3 $\beta$ ,28-dihydroxyolean-18-en-1-one (**6**).

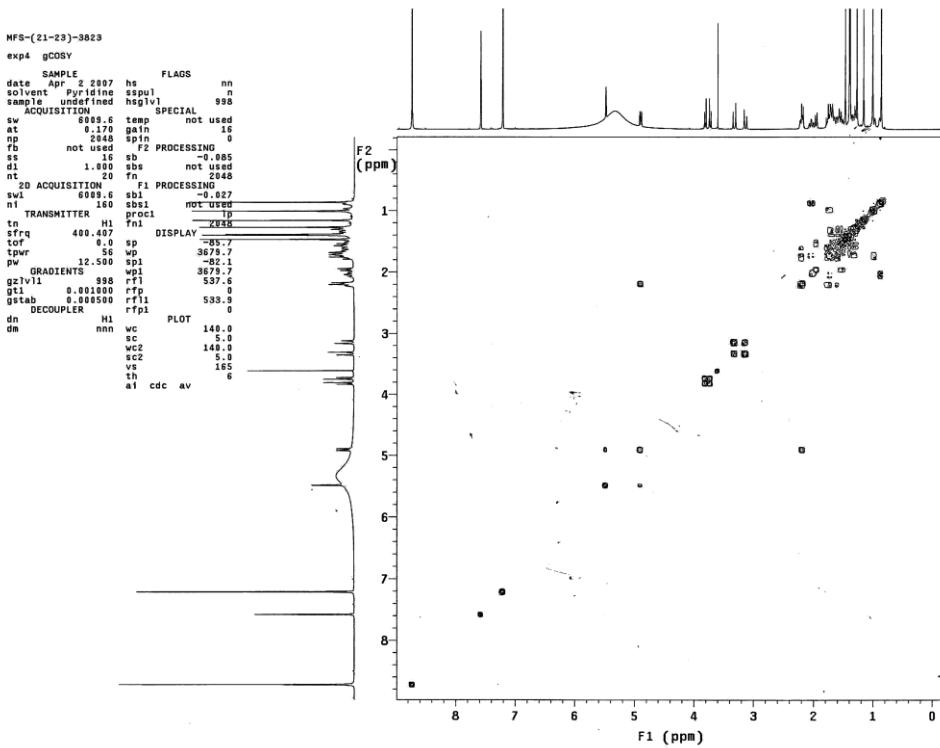
**Figure S26.** The  $^1\text{H}$ -NMR spectrum ( $\text{C}_5\text{D}_5\text{N}$ , 400 MHz) of  $11\alpha,30$ -dihydroxy-2,3-seco-olean-12-en-2,3-dioic anhydride (7).



**Figure S27.** The  $^{13}\text{C}$ -NMR spectrum ( $\text{C}_5\text{D}_5\text{N}$ , 100 MHz) of  $11\alpha,30$ -dihydroxy-2,3-seco-olean-12-en-2,3-dioic anhydride (7).



**Figure S28.** The COSY spectrum of  $11\alpha,30$ -dihydroxy- $2,3$ -seco-olean-12-en-2,3-dioic anhydride (7).



**Figure S29.** The HMBC spectrum of  $11\alpha,30$ -dihydroxy- $2,3$ -seco-olean-12-en-2,3-dioic anhydride (7).

