

## Supplementary Materials

### Hydroxytakakiamide and other Constituents from a Marine Sponge-Associated Fungus *Aspergillus fischeri* MMERU23, and Antinociceptive Activity of Ergosterol Acetate, Aszonalenin and Helvolic Acid

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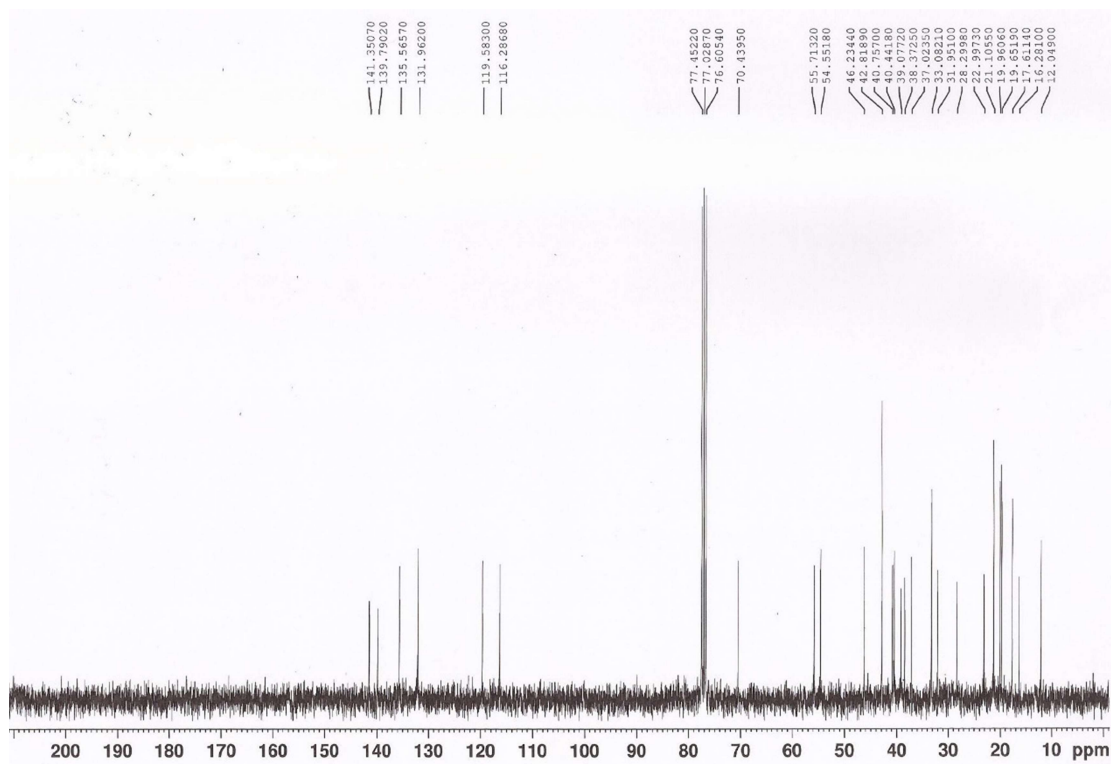
The image displays the chemical structures of two sterols:  $\beta$ -sitosterol and stigmasterol. Both molecules consist of a four-ring steroid nucleus with a hydroxyl group at C-3, a double bond at C-5, and methyl groups at C-10 and C-13. The side chain at C-17 is the primary point of difference:  $\beta$ -sitosterol has a saturated side chain ending in an ethyl group, while stigmasterol has an unsaturated side chain with a double bond between C-22 and C-23.

$\beta$ -sitosterol

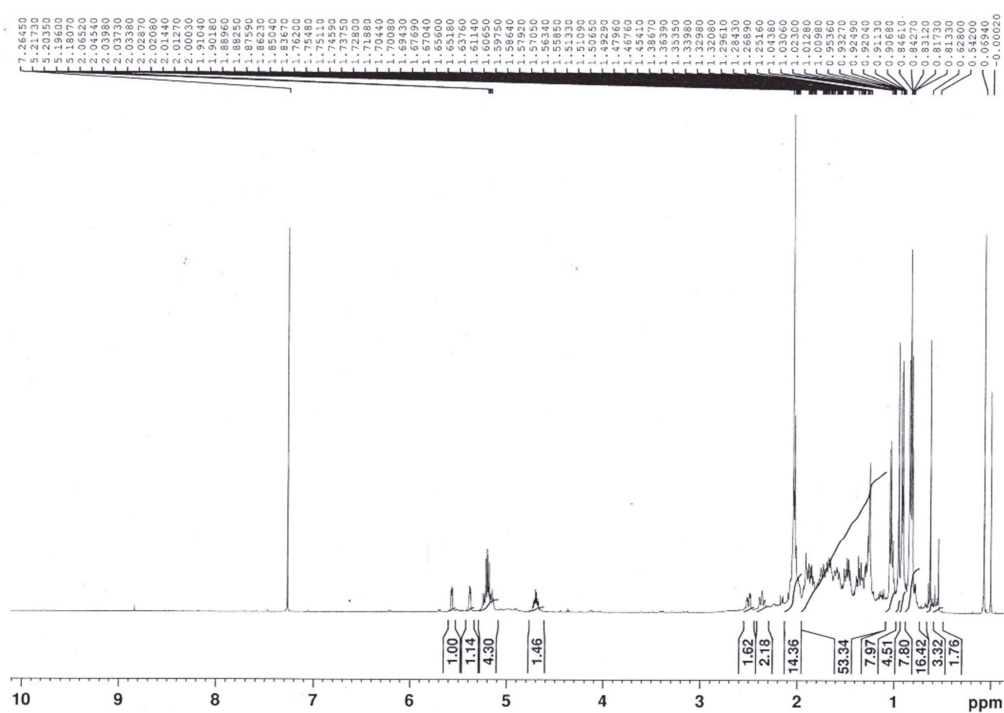
stigmasterol

[illegible]

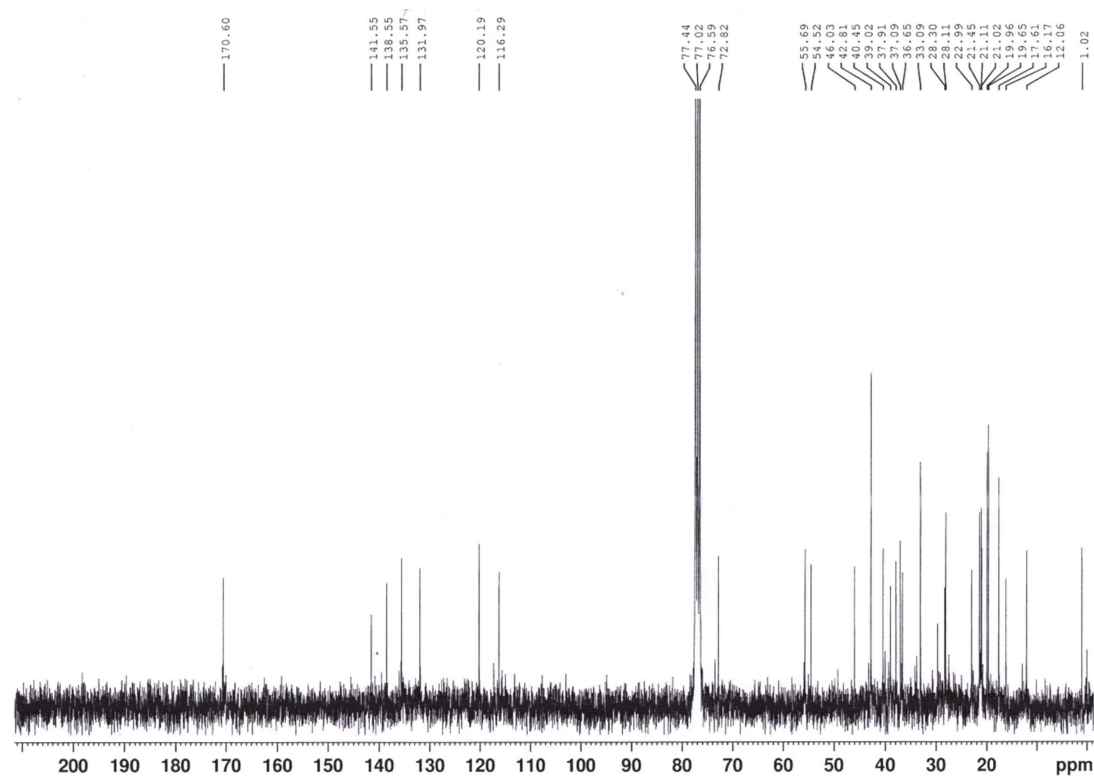
**Figure S3.**  $^{13}\text{C}$  NMR spectrum of ergosterol (**1**) ( $\text{CDCl}_3$ , 300 MHz).



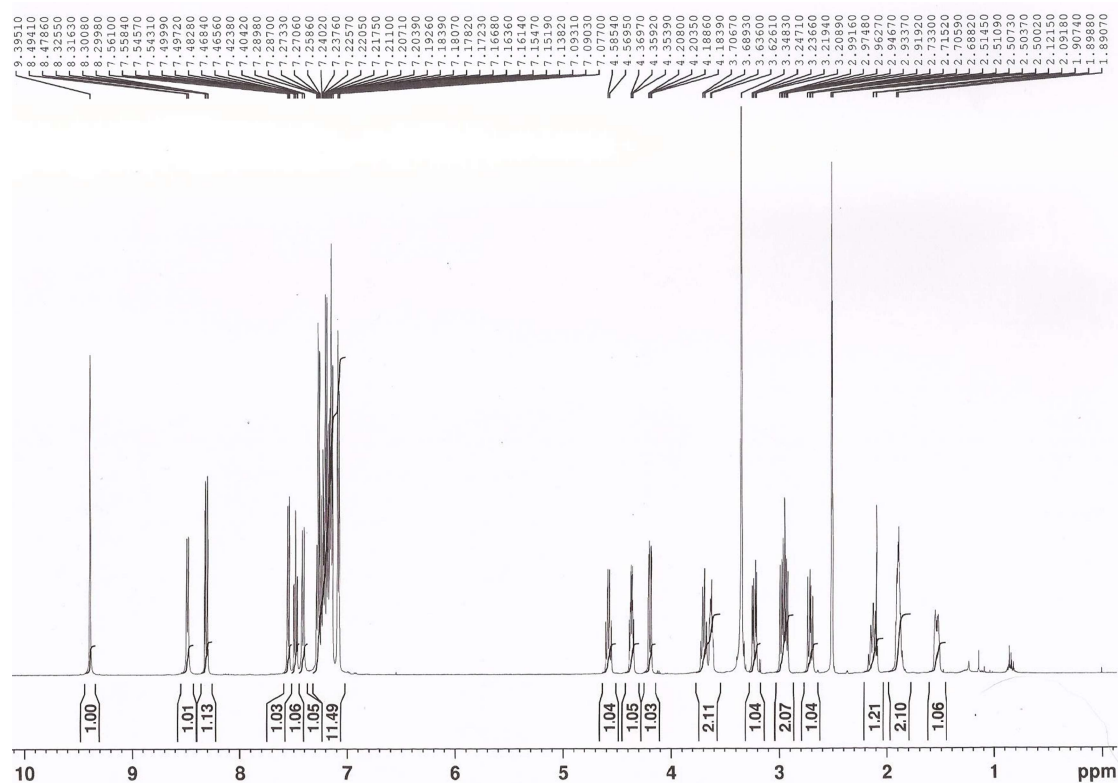
**Figure S4.**  $^1\text{H}$  NMR spectrum of ergosterol acetate (**2**) ( $\text{CDCl}_3$ , 300 MHz).



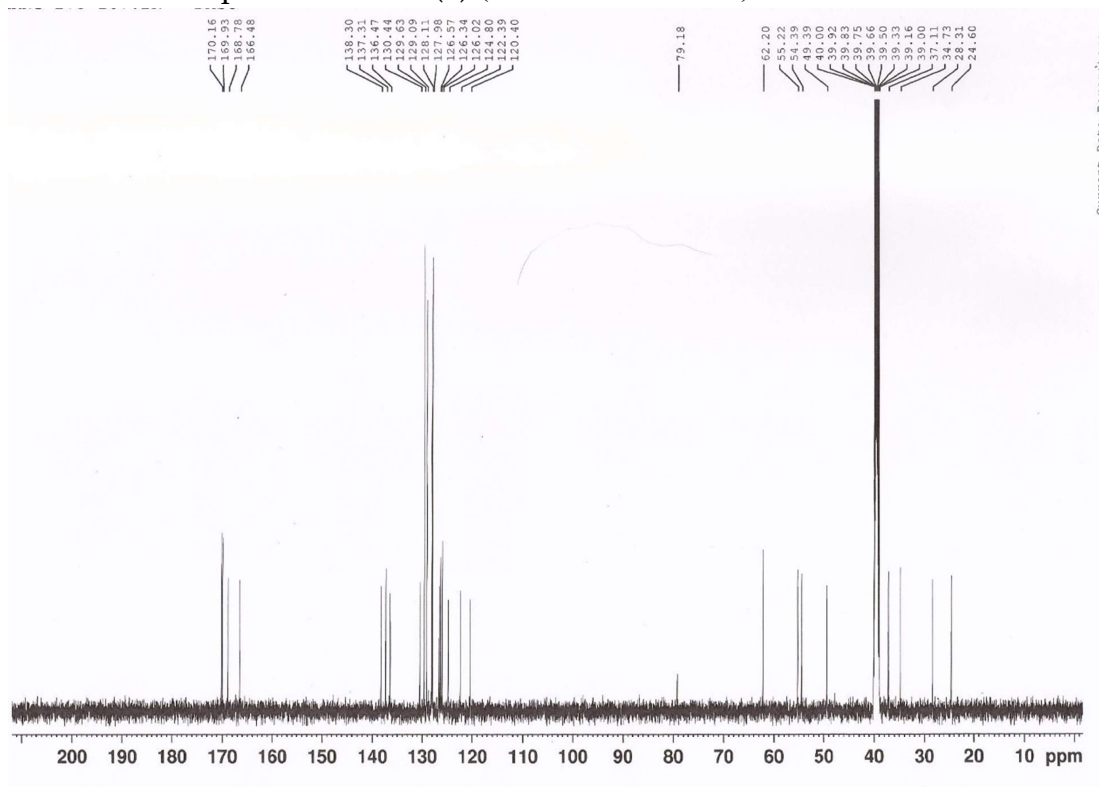
**Figure S5.**  $^{13}\text{C}$  NMR spectrum of ergosterol acetate (**2**) ( $\text{CDCl}_3$ , 300 MHz).



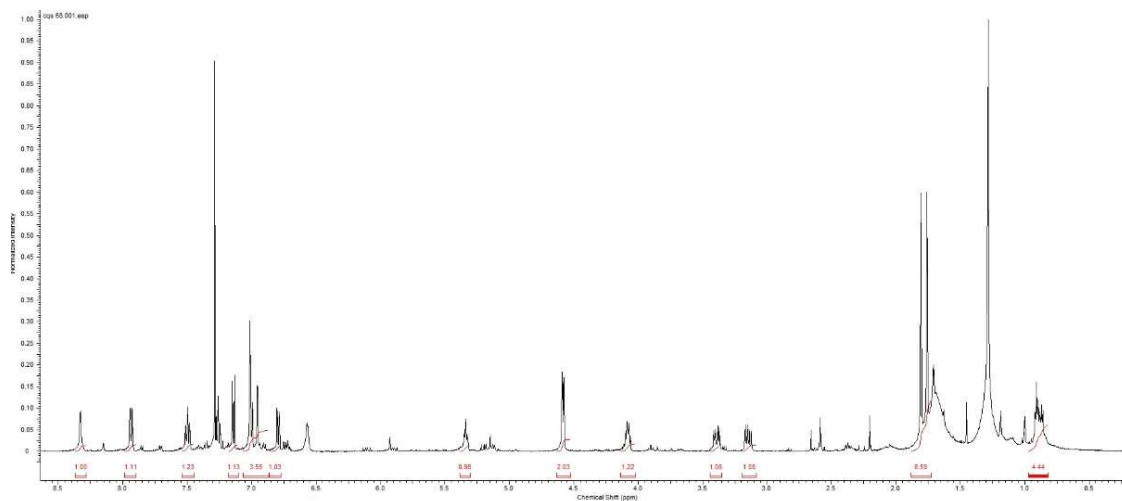
**Figure S6.**  $^1\text{H}$  NMR spectrum of (3*R*)-3-(1*H*-indol-3-ylmethyl)-3,4-dihydro-1*H*-1,4-benzodiazepine-2,5-dione (**3**) ( $\text{DMSO-d}_6$ , 500 MHz).



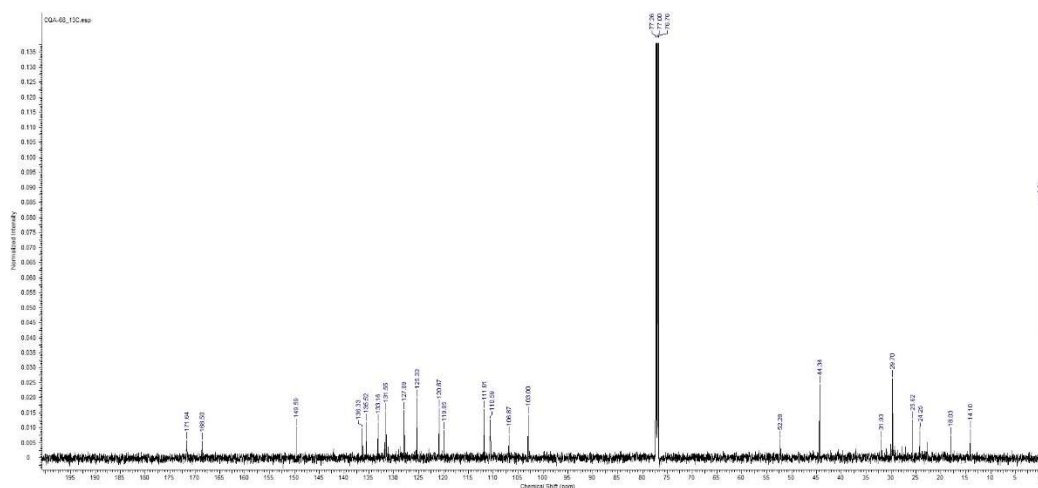
**Figure S7.**  $^{13}\text{C}$  NMR spectrum of (3*R*)-3-(1*H*-indol-3-ylmethyl)-3, 4-dihydro-1*H*-1,4-benzodiazepine-2,5-dione (**3**) ( $\text{DMSO-d}_6$ , 125 MHz)



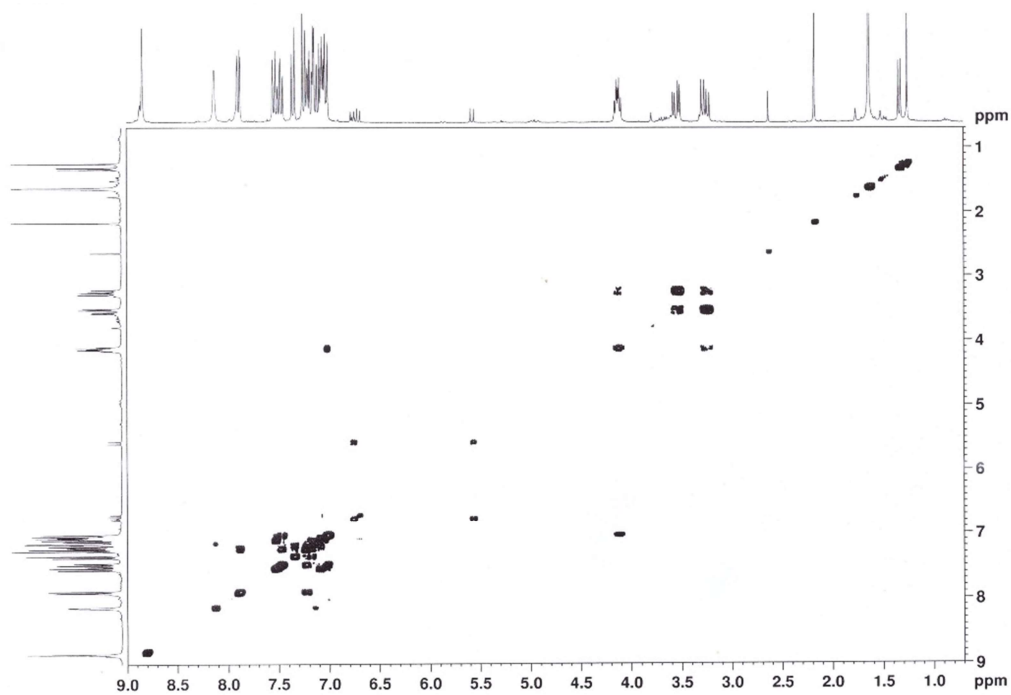
**Figure S8.**  $^1\text{H}$  NMR spectrum of hydroxytakakiamide (**4**) ( $\text{CDCl}_3$ , 500 MHz).



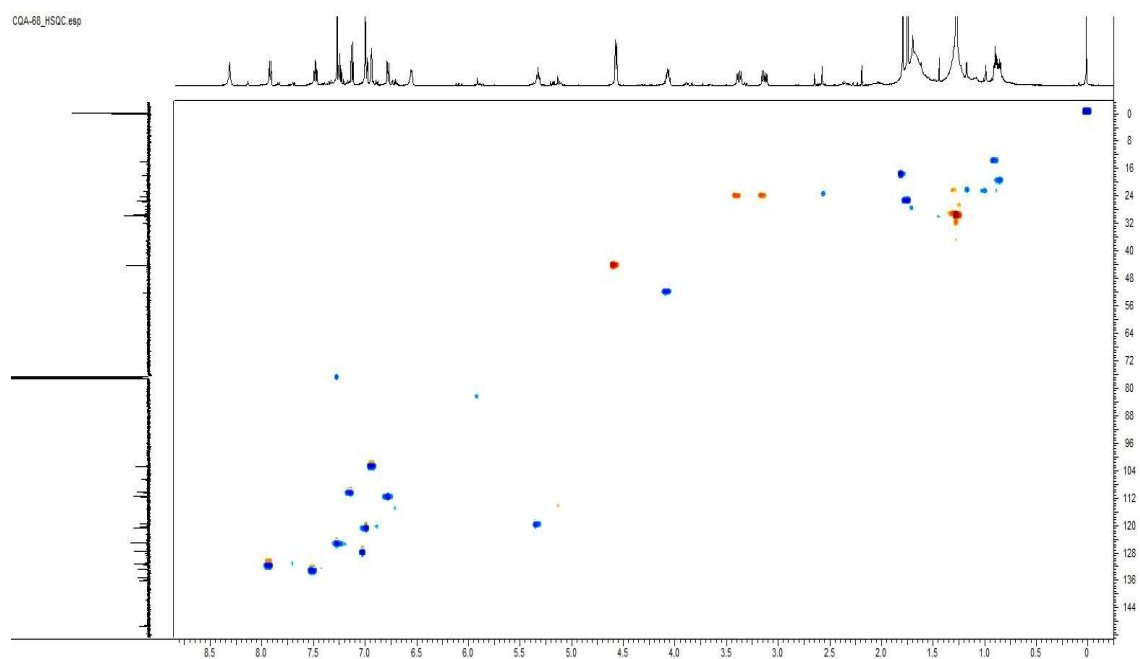
**Figure S9.**  $^{13}\text{C}$  NMR spectrum of hydroxytakakiamide (**4**) ( $\text{CDCl}_3$ , 125 MHz).



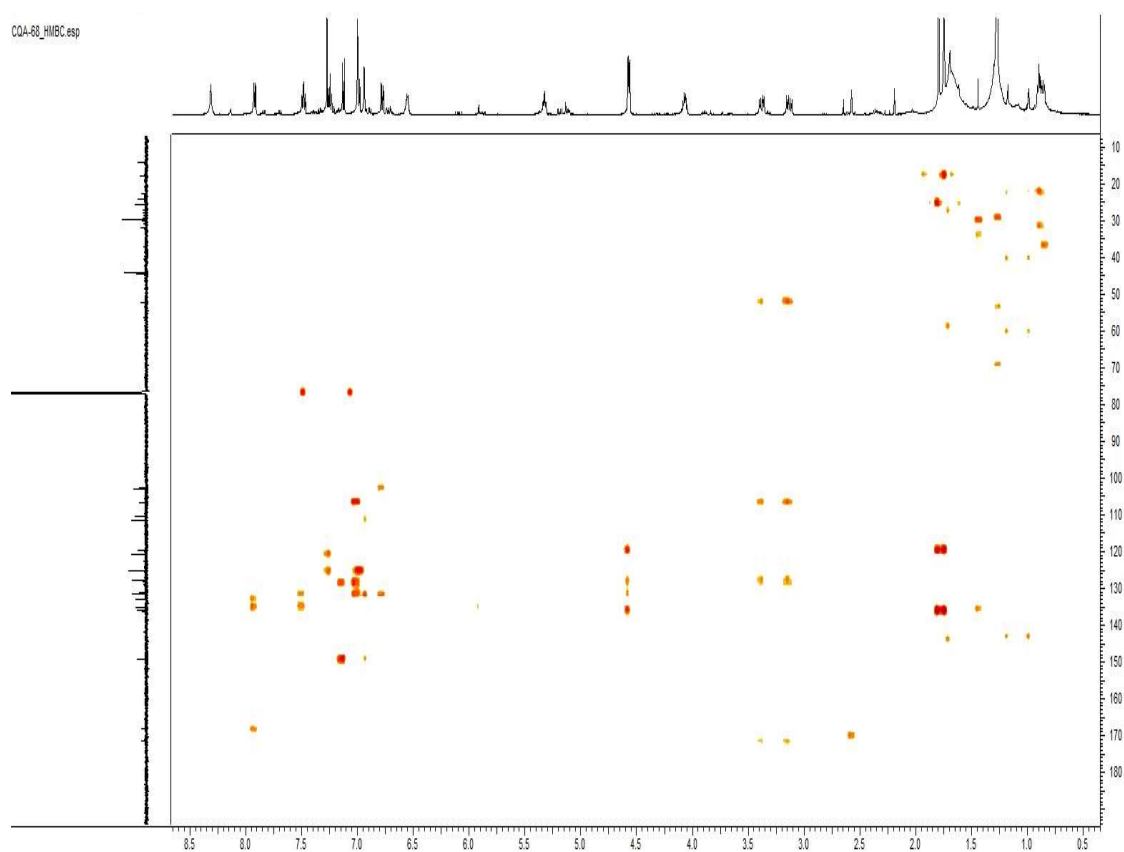
**Figure S10.** COSY spectrum of hydroxytakakiamide (**4**) ( $\text{CDCl}_3$ , 500 MHz).



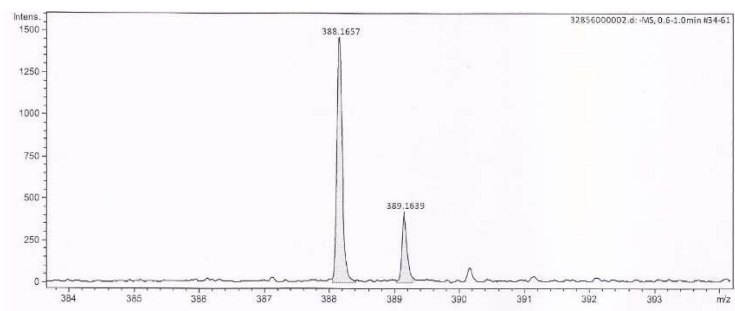
**Figure S11.** HSQC spectrum of hydroxytakakiamide (**4**) (CDCl<sub>3</sub>, 500 MHz).



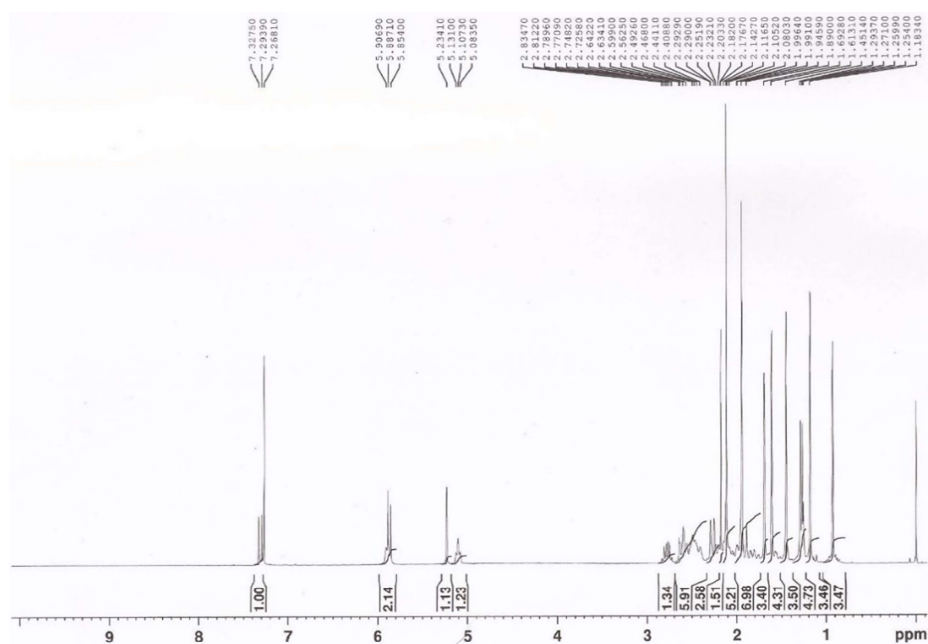
**Figure S12.** HMBC spectrum of hydroxytakakiamide (**4**) (CDCl<sub>3</sub>, 500 MHz).



**Figure S13.** (-)-HRMS spectrum of hydroxytakakiamide (**4**)



**Figure S14.**  $^1\text{H}$  NMR spectrum of helvolic acid (**5**) ( $\text{CDCl}_3$ , 300 MHz).



**Figure S15.**  $^{13}\text{C}$  NMR spectrum of helvolic acid (**5**) ( $\text{CDCl}_3$ , 75 MHz).

