**SUPPLEMENTARY MATERIAL**

**A new labdane diterpene from the rhizomes of *Alpinia officinarum***

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**ABSTRACT**

A new labdane diterpene, (*Z*)-12,14-labdadien-15(16)-olide-17-oic acid (**1**) was isolated from the ethanolic extract of the rhizomes of *Alpinia officinarum*, together with four known compounds, 4-isopropyl-6-methyl-1-naphthalenemethanol (**2**) previously synthesized and obtained from a natural source for the first time, galangin (**3**), kaempferol (**4**), and quercetin (**5**). Their structures were elucidated by extensive spectroscopic methods. Compounds **1** and **2** showed no remarkable cytotoxic activity against Hela and HepG2 cancer cell lines with IC50 > 50 μg mL–1.

Keywords: *Alpinia officinarum*; labdane diterpene; cadinane sesquiterpene

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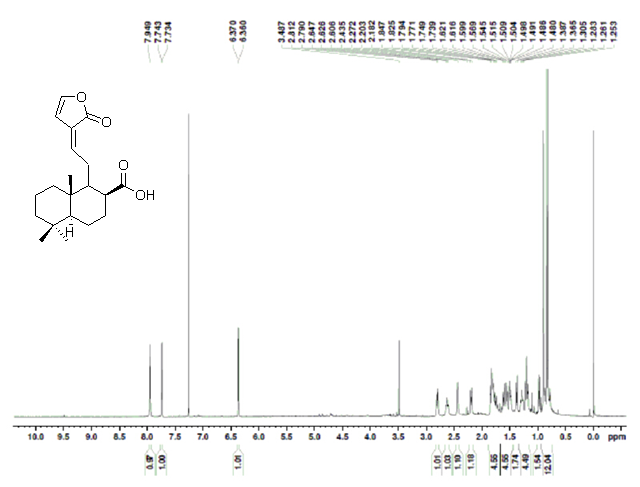
**Figure S6** The HMBC spectrum of the new compound **1**

**Figure S7.** The NOESY spectrum of the new compound **1**

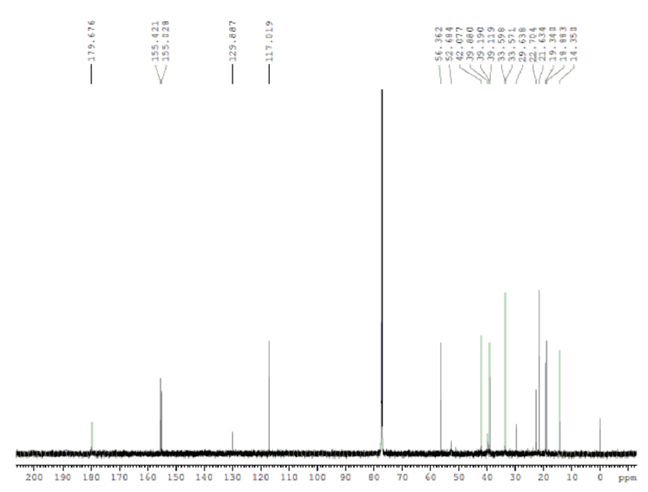
**Table S1.** 1H and 13C NMR spectroscopic data of **1** (600 and 150 MHz, CD3OD).



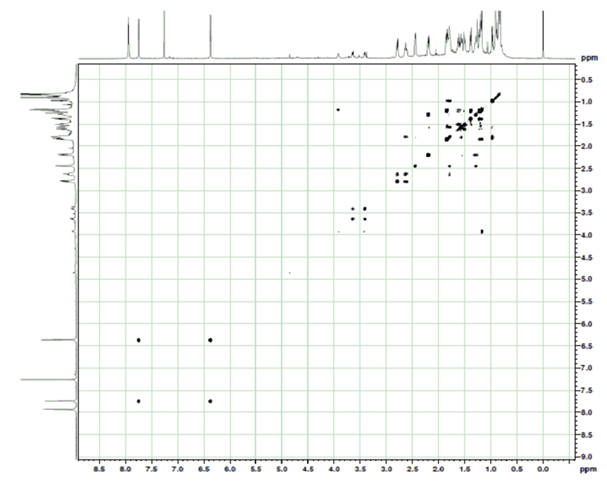
**Figure S1** Key HMBC ( ), NOESY ( ) and 1H-1H COSY ( ) correlations of **1**



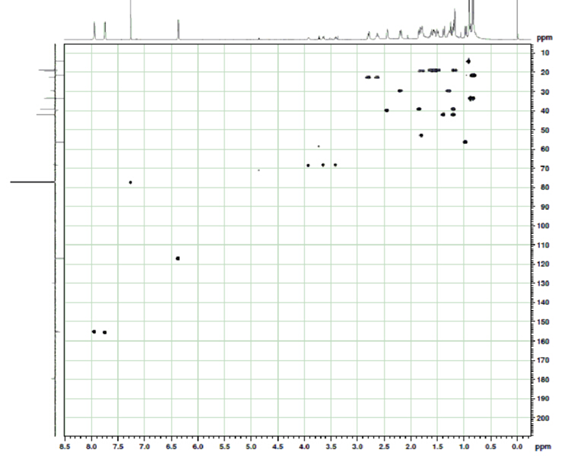
**Figure S2.** The 1H NMR (600 MHz, CDCL3) spectrum of the new compound **1**



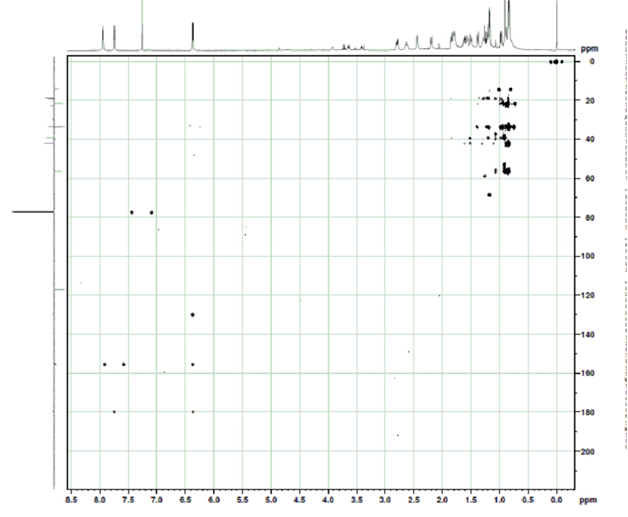
**Figure S3.** The 13C NMR (150 MHz, CDCL3) spectrum of the new compound **1**



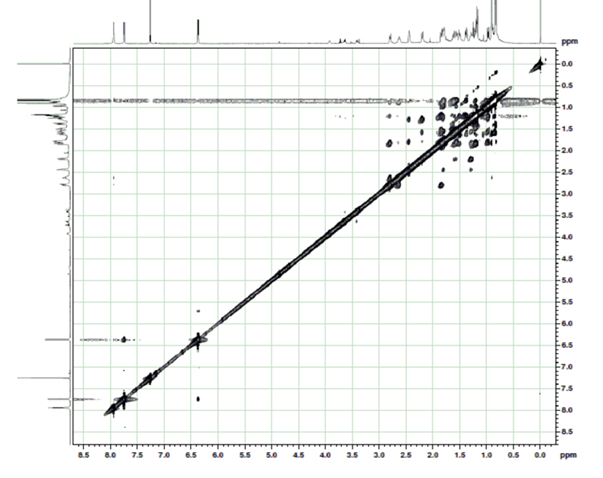
**Figure S4.** The 1H-1H COSY spectrum spectrum of the new compound **1.**



**Figure S5.** The HSQC spectrum of the new compound **1**



**Figure S6.** The HMBC spectrum of the new compound 1



**Figure S7.** The NOESY spectrum of the new compound 1

**Table S1** 1H and 13C NMR spectroscopic data of **1** (600 and 150 MHz, CDCL3).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | *δ*C *δ*H (*J* in Hz) | | No. | *δ*C *δ*H (*J* in Hz) | |
| 1 | 39.2 | 1.20 m | 9 | 52.7 | 1.79 ddd (12.0, 4.0, 2.0) |
|  |  | 1.83 m | 10 | 39.1 |  |
| 2 | 18.9 | 1.37 m | 11 | 22.7 | 2.80 ddd (15.0,12.0, 1.0) |
|  |  | 1.55 m |  |  | 2.62 ddd (15.0, 2.0, 1.0) |
| 3 | 42.1 | 1.15 m | 12 | 155.4 | 7.74 dd (1.0, 1.0) |
|  |  | 1.38 m | 13 | 129.9 |  |
| 4 | 33.6 |  | 14 | 117.0 | 6.37 d (6.0) |
| 5 | 56.4 | 0.97 dd (13.0, 3.0) | 15 | 155.0 | 7.95 d (6.0) |
| 6 | 19.3 | 1.81 dddd (13.0, 5.0, 3.1, 3.0) | 16 | 179.7 |  |
|  |  | 1.61 dddd (13.0, 13.0, 12.0, 3.1) | 17 | 179.7 |  |
| 7 | 29.6 | 1.28 m | 18 | 33.6 | 0.84 (3H, s) |
|  |  | 2.19 m | 19 | 21.6 | 0.82 (3H, s) |
| 8 | 39.9 | 2.43 m | 20 | 14.4 | 0.90 (3H, s) |