Electronic Supplementary Information

Title: Applanatumols A and B, Meroterpenoids with Unprecedented Skeletons from *Ganoderma applanatum*

**Authors:** Qi Luo a,b, Lei Di a, Xiao-Hua Yang a,c, and Yong-Xian Cheng*a

**Addresses:**

a State Key Laboratory of Phytochemistry and Plant Resources in West China, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming 650204, People’s Republic of China

b Graduate University of Chinese Academy of Sciences, Beijing 100039, People’s Republic of China

c Guangdong Pharmaceutical University, Guangzhou 510006, People’s Republic of China

**Corresponding author contact details:** *Tel/Fax: 86-871-65223048. E-mail: yxcheng@mail.kib.ac.cn (Y.-X.C.);*
Contents of Supporting Information

Figure S1. $^1$H NMR spectrum of 1 in acetone-$d_6$
Figure S2. $^{13}$C NMR and DEPT spectra of 1 in acetone-$d_6$
Figure S3. HSQC spectrum of 1 in acetone-$d_6$
Figure S4. HMBC spectrum of 1 in acetone-$d_6$
Figure S5. $^1$H-$^1$H COSY spectrum of 1 in acetone-$d_6$
Figure S6. ROESY spectrum of 1 in acetone-$d_6$
Figure S7. HRESIMS spectrum of 1
Figure S8. $^1$H NMR spectrum of 2 in methanol-$d_4$
Figure S9. $^{13}$C NMR and DEPT spectra of 2 in methanol-$d_4$
Figure S10. HSQC spectrum of 2 in methanol-$d_4$
Figure S11. HMBC spectrum of 2 in methanol-$d_4$
Figure S12. $^1$H-$^1$H COSY spectrum of 2 in methanol-$d_4$
Figure S13. ROESY spectrum of 2 in methanol-$d_4$
Figure S14. HREIMS spectrum of 2
Figure S15. $^1$H NMR spectrum of 2 in DMSO-$d_6$
Figure S16. $^{13}$C NMR spectrum of 2 in DMSO-$d_6$
Figure S17. HSQC spectrum of 2 in DMSO-$d_6$
Figure S18. HMBC spectrum of 2 in DMSO-$d_6$
Figure S19. ROESY spectrum of 2 in DMSO-$d_6$

X-ray crystal data of 1

MTT assay (Figure S22)
Figure S1. $^1$H NMR spectrum of 1 in acetone-$d_6$

Figure S2. $^{13}$C NMR and DEPT spectra of 1 in acetone-$d_6$
Figure S3. HSQC spectrum of 1 in acetone-$d_6$. 
Figure S4. HMBC spectrum of 1 in acetone-$d_6$

Figure S5. $^1$H-$^1$H COSY spectrum of 1 in acetone-$d_6$
Enlarged $^1$H-$^1$H COSY spectrum of I (up-field region) in acetone-$d_6$
Figure S6. ROESY spectrum of \( \text{I} \) in acetone-\( d_6 \)

Enlarged ROESY spectrum of \( \text{I} \) (up-field region) in acetone-\( d_6 \)

--- End Of Report ---
Figure S7. HRESIMS spectrum of 1

Figure S8. $^1$H NMR spectrum of 2 in methanol-$d_4$

Figure S9. $^{13}$C NMR and DEPT spectra of 2 in methanol-$d_4$
Figure S10. HSQC spectrum of 2 in methanol-$d_4$
Figure S11. HMBC spectrum of 2 in methanol-$d_4$

Figure S12. $^1$H-$^1$H COSY spectrum of 2 in methanol-$d_4$
Enlarged $^1\text{H}-^1\text{H}$ COSY spectrum of 2 (up-field region) in methanol-$d_4$

Figure S13. ROESY spectrum of 2 in methanol-$d_4$
Enlarged ROESY spectrum of 2 (up-field region) in methanol-$d_4$

Figure S14. HREIMS spectrum of 2

<table>
<thead>
<tr>
<th>Mass Calor. Mass</th>
<th>mA</th>
<th>PPM</th>
<th>DBE</th>
<th>1+FIT</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>366.1692</td>
<td>366.1103</td>
<td>-1.1</td>
<td>-3.6</td>
<td>8.0</td>
<td>C16 H18 O6</td>
</tr>
</tbody>
</table>
Figure S15. $^1$H NMR spectrum of 2 in DMSO-$d_6$

Figure S16. $^{13}$C NMR spectrum of 2 in DMSO-$d_6$

Figure S17. HSQC spectrum of 2 in DMSO-$d_6$
Figure S18. HMBC spectrum of 2 in DMSO-$d_6$.

Figure S19. ROESY spectrum of 2 in DMSO-$d_6$. 
Figure S20. Enlarged ROESY spectrum of 2 (low-field region) in DMSO-$d_6$.

Figure S21. Enlarged ROESY spectrum of 2 (up-field region) in DMSO-$d_6$. 
**X-ray crystal data**

Crystal data for 1: 2(C_{16}H_{16}O_{6})·H_{2}O, \( M = 626.59 \), monoclinic, \( a = 7.0996(2) \) Å, \( b = 17.4669(6) \) Å, \( c = 11.5838(4) \) Å, \( \alpha = 90.00^\circ \), \( \beta = 96.2500(10)^\circ \), \( \gamma = 90.00^\circ \), \( V = 1427.95(8) \) Å\(^3\), \( T = 100(2) \) K, space group \( P2_1 \), \( Z = 2 \), \( \mu(\text{CuK}\alpha) = 0.960 \) mm\(^{-1}\), 10353 reflections measured, 4483 independent reflections (\( R_{int} = 0.0495 \)). The final \( R_f \) values were 0.0530 (\( I > 2\sigma(I) \)). The final \( wR(F^2) \) values were 0.1452 (\( I > 2\sigma(I) \)). The final \( R_f \) values were 0.0539 (all data). The final \( wR(F^2) \) values were 0.1466 (all data). The goodness of fit on \( F^2 \) was 1.041. Flack parameter = -0.12(16). The Hooft parameter is 0.02(9) for 1801 Bijvoet pairs. The deposition number CCDC 1439639 for 1 can be obtained free of charge from The Cambridge Crystallographic Data Centre via www.ccdc.cam.ac.uk/data_request/cif.

**MTT assay**

Figure S22. MTT assay of compounds 1, (+)-2 and (–)-2. NRK-52E cells were treated with indicated concentrations of the compounds for 24 h and detected by MTT assay.