Butenolide Derivatives with α-Glucosidase Inhibitions from the Deep-Sea-Derived Fungus Aspergillus terreus YPGA10

Zhongbin Cheng ^{1,+}, Yuanli Li ^{1,+}, Wan Liu ¹, Lijun Liu ¹, Jie Liu ¹, Wangjun Yuan ^{1,*}, Zhuhua Luo ², Wei Xu ^{2,*} and Qin Li ^{1,3,*}

¹ Pharmaceutical College, Henan University, Kaifeng 475004, China; czb360@126.com (Z.C.); lyl3287439993@163.com (Y.L.); 18737806806@163.com (W.L.); 15736871748@163.com (L.L.); ll18737801136@163.com (J.L.)

- ³ Eucommia Ulmoides Cultivation and Utilization of Henan Engineering Laboratory, Kaifeng 475004, China
- * Correspondence: yuanwangjun@henu.edu.cn (W.Y.); xuwei@tio.org.cn (W.X.); liqin6006@163.com (Q.L.); Tel.: +86-371-2388-3849 (Q.L.)
- + These authors contributed equally to this work.

	Table of Contents	Page
Figure S1	¹ H NMR Spectrum of 1 in Methanol- d_4 (400 MHz)	1
Figure S2	¹³ C NMR Spectrum of 1 in Methanol- <i>d</i> ₄ (100 MHz)	1
Figure S3	HSQC Spectrum of 1 in Methanol- <i>d</i> ₄	2
Figure S4	¹ H- ¹ H COSY Spectrum of 1 in Methanol- <i>d</i> ₄	2
Figure S5	HMBC Spectrum of 1 in Methanol- <i>d</i> ₄	3
Figure S6	¹ H NMR Spectrum of 2 in Methanol- <i>d</i> ₄ (400 MHz)	3
Figure S7	¹³ C NMR Spectrum of 2 in Methanol- <i>d</i> ₄ (100 MHz)	4
Figure S8	HSQC Spectrum of 2 in Methanol- <i>d</i> ₄	4
Figure S9	¹ H- ¹ H COSY Spectrum of 2 in Methanol- <i>d</i> ₄	5
Figure S10	HMBC Spectrum of 2 in Methanol- <i>d</i> ₄	5
Figure S11	¹ H NMR Spectrum of 3 in Methanol- <i>d</i> ₄ (400 MHz)	6
Figure S12	¹³ C NMR Spectrum of 3 in Methanol- <i>d</i> ₄ (100 MHz)	6
Figure S13	HSQC Spectrum of 3 in Methanol- <i>d</i> ₄	7
Figure S14	¹ H- ¹ H COSY Spectrum of 3 in Methanol- <i>d</i> ₄	7
Figure S15	HMBC Spectrum of 3 in Methanol- <i>d</i> ₄	8
Figure S16	¹ H NMR Spectrum of 4 in Methanol- <i>d</i> ₄ (400 MHz)	8
Figure S17	¹³ C NMR Spectrum of 4 in Methanol- <i>d</i> ₄ (100 MHz)	9
Figure S18	¹ H NMR Spectrum of 5 in Methanol- <i>d</i> ₄ (400 MHz)	9

² Key Laboratory of Marine Biogenetic Resources, Third Institute of Oceanography, Ministry of Natural Resources, Xiamen 361005, China

Figure S19	¹³ C NMR Spectrum of 5 in Methanol- <i>d</i> ₄ (100 MHz)	10
Figure S20	¹ H NMR Spectrum of 6 in Methanol- <i>d</i> ₄ (400 MHz)	10
Figure S21	¹³ C NMR Spectrum of 6 in Methanol- <i>d</i> ₄ (100 MHz)	11
Figure S22	¹ H NMR Spectrum of 7 in Methanol- <i>d</i> ₄ (400 MHz)	11
Figure S23	¹³ C NMR Spectrum of 7 in Methanol- <i>d</i> ₄ (100 MHz)	12
Figure S24	¹ H NMR Spectrum of 8 in Methanol- <i>d</i> ₄ (400 MHz)	12
Figure S25	¹³ C NMR Spectrum of 8 in Methanol- d_4 (100 MHz)	13
Figure S26	¹ H NMR Spectrum of 9 in Methanol- <i>d</i> ₄ (400 MHz)	13
Figure S27	HRESIMS spectrum of 1	14
Figure S28	HRESIMS spectrum of 2	14
Figure S29	HRESIMS spectrum of 3	15















Figure S10HMBC Spectrum of 2 in Methanol-d4



















Figure S23 13 C NMR Spectrum of 7 in Methanol- d_4 (100 MHz)











