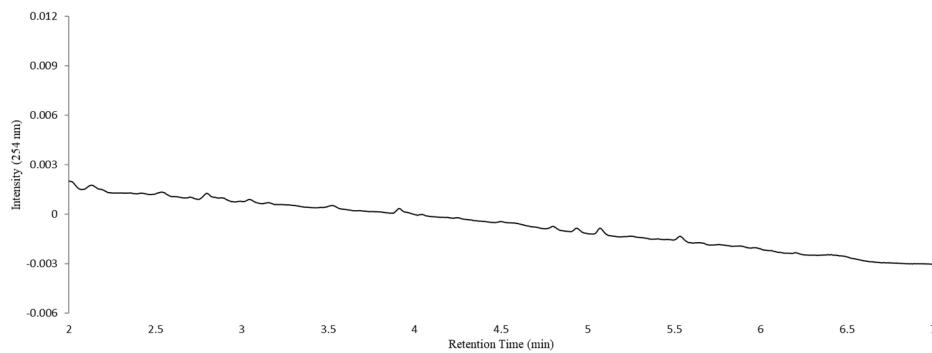


# Supplementary Materials: Biotransformation of Ergostane Triterpenoid Antcin K from *Antrodia cinnamomea* by Soil-Isolated *Psychrobacillus* sp. AK 1817

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**Table S1.** NMR spectroscopic data for compound (1)/(2) (in pyridine-d5; 700MHz).

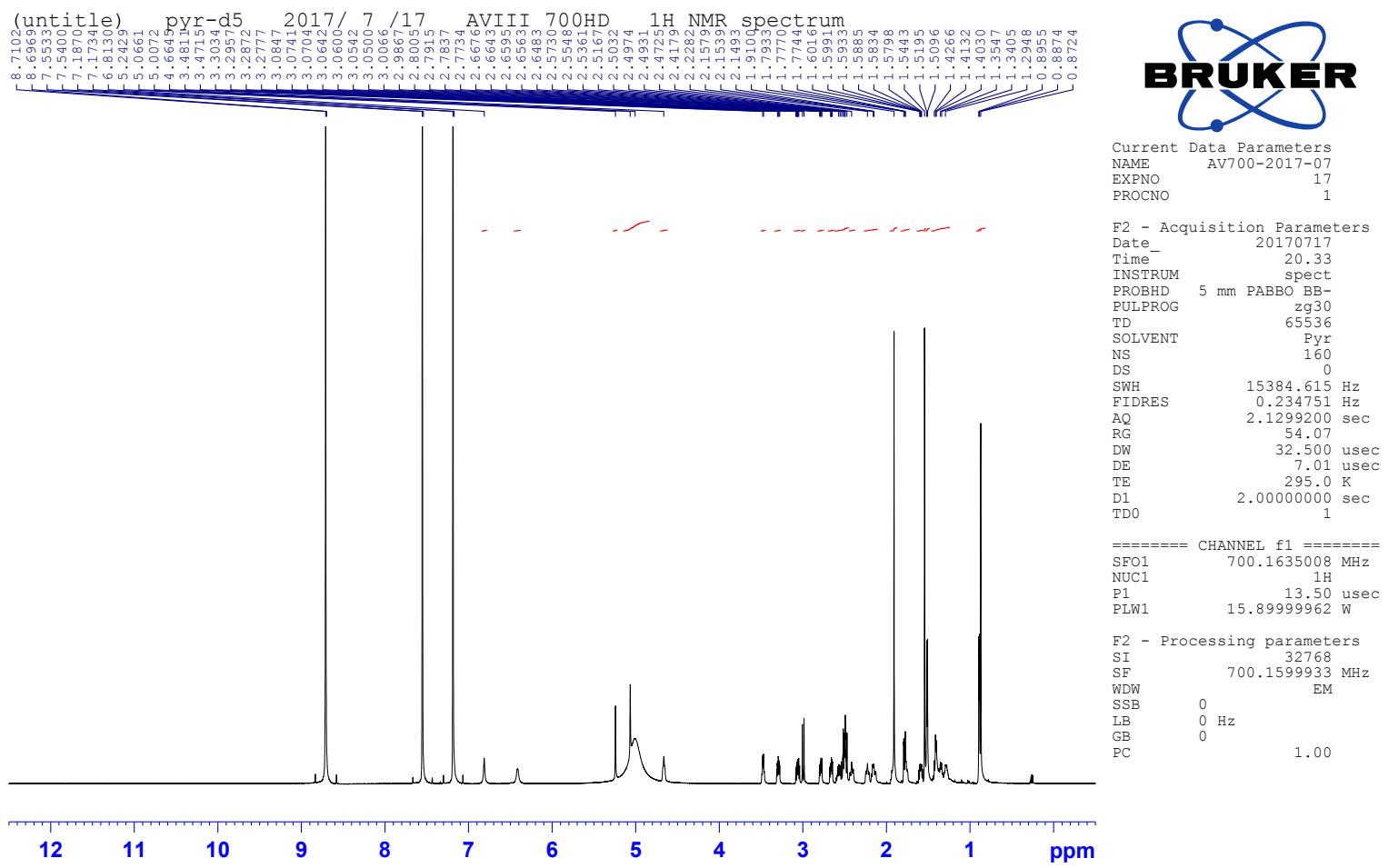
<b>Position</b>	$\delta_{\text{C}}$ ,	<b>type</b>	$\delta_{\text{H}}$ ( <i>J</i> in Hz)	<b>HMBC</b>
1	36.7,	CH <sub>2</sub>	3.30, m ; 1.60, m;	H-2, H-19
2	34.4,	CH <sub>2</sub>	3.06, m ; 2.52, m;	H-1
3	214.2,	C		H-1, H-2, H-29
4	76.3,	C		H-6, H-29
5	50.6,	CH	1.79, dd (13.3, 2.4)	H-1, H-6, H-19, H-29
6	30.5,	CH <sub>2</sub>	2.52, m ; 2.67, m	H-5
7	70.3,	CH	4.66, t (8.4)	H-5, H-6
8	155.5,	C		H-6, H-14
9	141.8,	C		H-12, H-14, H-19
10	37.7,	C		H-1, H-5, H-6
11	201.2,	C		H-12
12	58.5	CH <sub>2</sub>	3.00, d (14.0); 2.48, d (14.0);	H-18
13	47.7	C		H-12, H-14, H-15, H-18
14	53.6	CH	2.79, dd (12.9, 7.0)	H-12, H-15, H-18
15	25.6	CH <sub>2</sub>	2.57, m ; 2.16, m	H-14
16	28.3	CH <sub>2</sub>	1.92, m ; 1.35, m	H-17
17	54.8	CH	1.41, m	H-16, H-21
18	12.5	CH <sub>3</sub>	0.87, s	H-12, H-14
19	20.7	CH <sub>3</sub>	1.91, s	H-1, H-5
20	36.2	CH	1.40, m	H-17, H-21
21	18.7	CH <sub>3</sub>	0.89,d (5.6)	
22	34.5	CH <sub>2</sub>	1.78, m ; 1.29, m	H-21
23	31.7	CH <sub>2</sub>	2.42, m ; 2.23, m	H-25, H-28
24	150.2	C		H-25, H-27
25	47.2	CH	3.48, dd (14.1, 7.1)	H-27, H-28
26	177.4,	C		H-25, H-27
27	17.3	CH <sub>3</sub>	1.51, d (7.1)	H-25
28	110.1	CH <sub>2</sub>	5.24, s ; 5.07, s	H-25
29	24.3	CH <sub>3</sub>	1.54, s	H-5



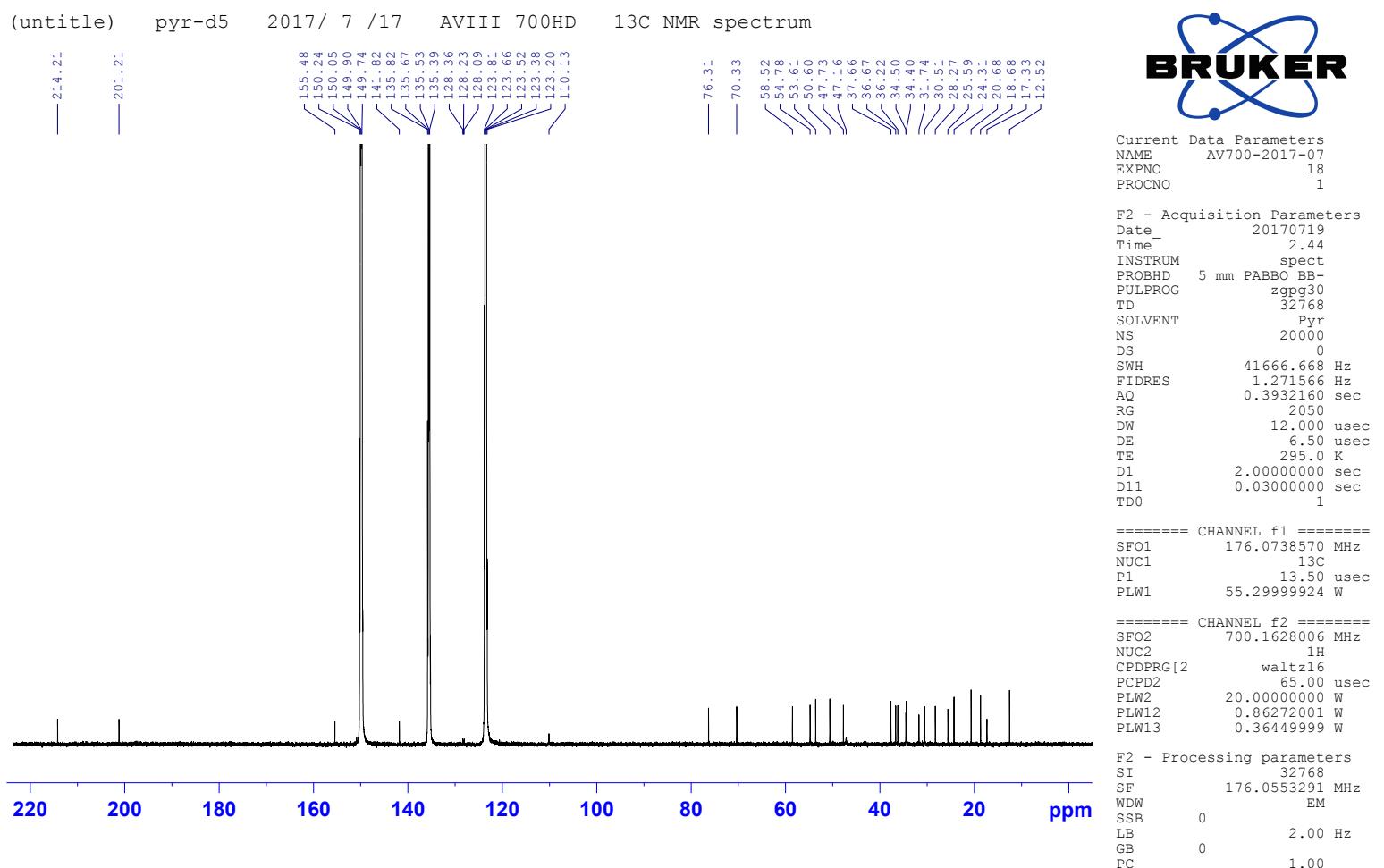
**Figure S1.** UPLC analysis of fermentation broth of the AK 1817 strain. The strain was cultivated in LB media without antcin K. The fermentation broth with cultivation of 72-h was analyzed by UPLC. The UPLC operation conditions were described in Materials and Methods.

TGAGGGAGGTGCTATACATGCAGTCAGCGAATGATGAAGAAGCTTGCTTCTTC  
TGATTAGCGCGGACGGGTGAGTAACACGTGGCAACCTGCCCTGTAGATTGG  
GATAACTCCGGAAACCGGGCTAACCGAATAATCCATTCTCACATGAGG  
AAATGTTAAAAGACGGTTCCGGCTGTCACTACAGGATGGGCCGCGGCATTA  
GCTAGTTGGTGAGGTAACGGCTACCAAGGCAGATGCGTAGCCGACCTGAGA  
GGGTGATCGGCCACACTGGACTGAGACACGGCCAGACTCCTACGGGAGGCA  
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GTGAAGAAGGTTTCGGATCGTAAACTCTGTTGTGAGGAAAGAACAGTACGA  
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GGATTAGATAACCTGGTAGTCCACGCCGAAACGATGAGTGTGCTAAGTGTAGGG  
GGTTCCGCCCTTAGTGCTGCAGCTAACGCTTAAGCAGTCCGCTGGGAGGAGT  
ACGGTCGCAAGACTCAAAGGAATTGACGGGCCGACAAGCGGTGG  
AGCATGTGGTTAACCGAAGCAACGCGAAGAACCTTACCGGTCTGACATCCC  
GCTGACCGGCCTAGAGATAGGCTTCCCTCGGGACAGCGGTGACAGGTGGT  
GCATGGTTGCGTCAGCTGTCGTGAGATGTTGGTTAAGTCCGCAACGAG  
CGCAACCCCTGATCTTAGTGGCAGCATTGAGTGGGACTCTAAGGTGACTGCC  
GGTGATAAACCGGAGGAAGGTGGGGATGACGTCAAATCATGCCCCCTATGA  
CCTGGGCTACACACGTGCTACAATGGACGGTACAGAGGGTCGCAACCCCGGAG  
GGTGAGCTAACCCATAAAACCGTTCTGAGTGGATTGTAGGCTGCAACTCGCC  
TACATGAAGCCGGAATCGCTAGTAATCGTATCGCATGCCACGTATTAACCA

**Figure S2.** The partial 16S rRNA gene sequence of the AK 1817 strain. The partial 16S rRNA gene was amplified and sequenced by PCR with the bacteria specific 27F (5'-AGAGTTGATCCTGGCTCAG-3') and 1391R (5'-GACGGGCRGTGWGTRCA-3') primer set. The PCR operation conditions were described in Materials and Methods.

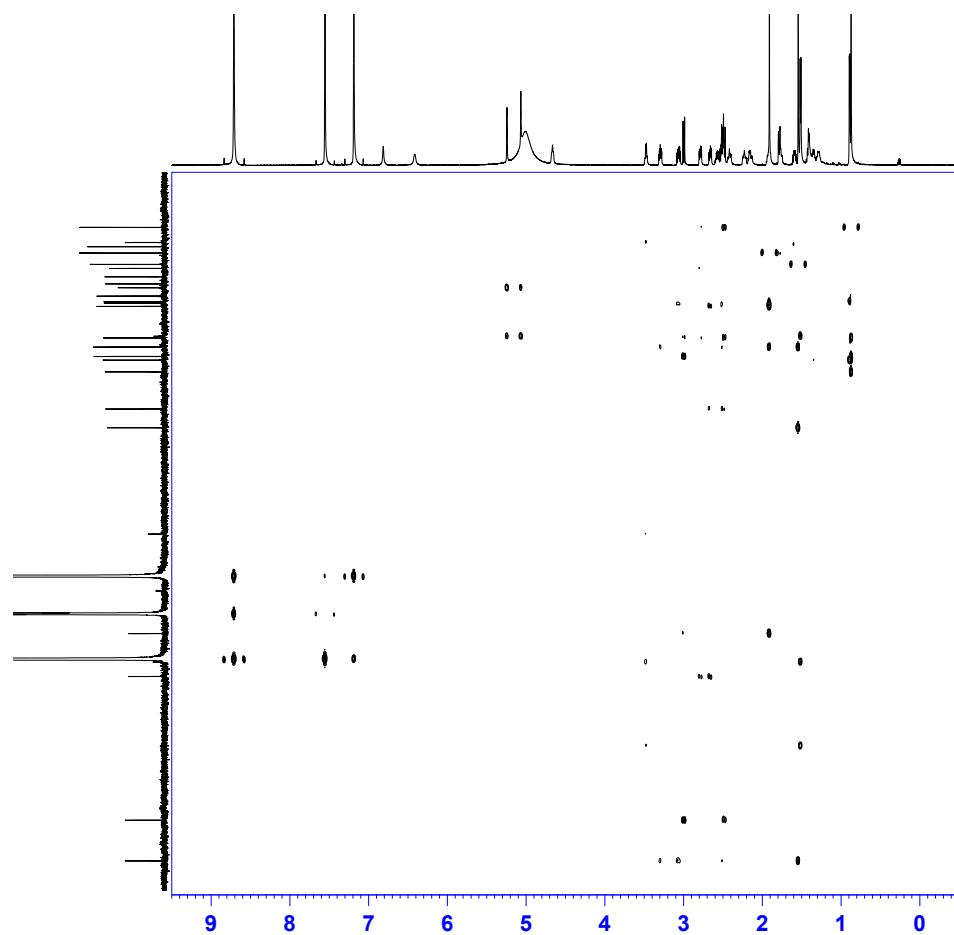


**Figure S3.** The  $^1\text{H}$ -NMR (700 MHz, Pyridine-d5) spectrum of compound (2).



**Figure S4.** The  $^{13}\text{C}$ -NMR (700 MHz, Pyridine-d5) spectrum of compound (2).

(untitled) pyr-d5 2017/ 7 /26 AVIII 700HD HMBC NMR spectrum



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PROCNO 1

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PULPROG hmbcgplpdqf

TD 2048

SOLVENT Pyd5

NS 48

DS 16

SWH 9090.909 Hz

EDDRES 4.432400 Hz

AQ 0.1126400 sec

RG 2050

DW 55.000 usec

DE 6.50 usec

TE 296.0 K

CNST2 145.000000

CNST13 10.000000

D0 0.00000300 sec

D1 1.5000000 sec

D2 0.0344828 sec

D6 0.0500000 sec

D16 0.0002000 sec

INO 0.00001170 sec

===== CHANNEL f1 =====

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NUC1 1H

P1 13.00 usec

P2 27.00 usec

PLW1 15.8999996 W

===== CHANNEL f2 =====

SFO2 176.0756184 MHz

NUC2 13C

P3 13.50 usec

PLW2 55.0000000 W

===== GRADIENT CHANNEL =====

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GPNAME[2] SMSG10.100

GPNAME[3] SMSG10.100

GPZ1 2.00 %

GPZ2 30.00 %

GPZ3 40.10 %

P16 1000.00 usec

F1 - Acquisition parameters

TD 128

SFO1 176.0756 MHz

FIDRES 333.867523 Hz

SW 242.708 ppm

PRMODE QF

F2 - Processing parameters

SI 2048

TF 700.1599981 MHz

WDW SINE

SSB 0

LB 0 Hz

GB 0

PC 1.40

F1 - Processing parameters

SI 1024

MC 2

SF 176.0553302 MHz

WDW SINE

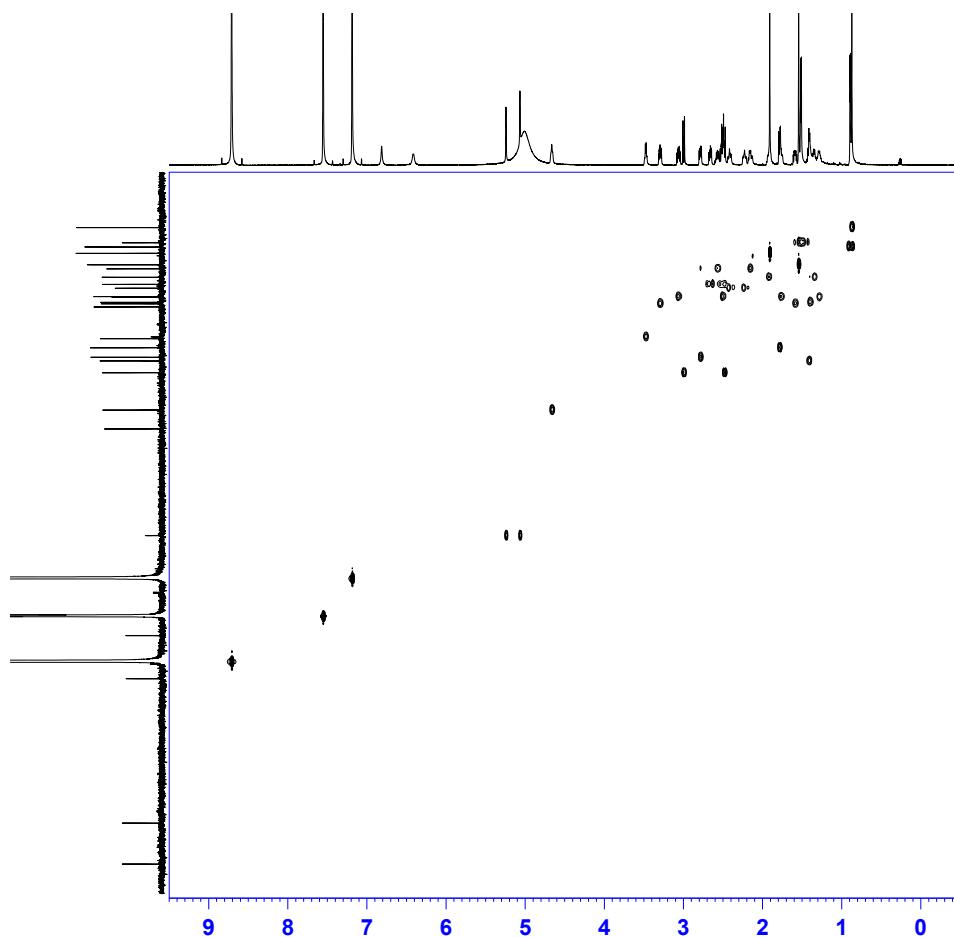
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LB 0 Hz

GB 0

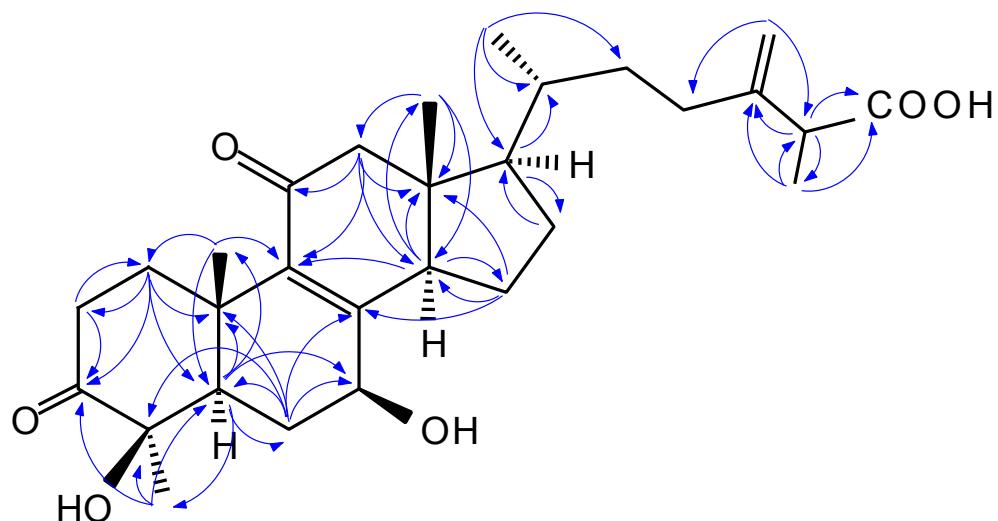
Figure S5. The HMBC (700 MHz, Pyridine-d5) spectrum of compound (2).

(untitled) pyr-d5 2017/ 7 /26 AVIII 700HD HSQC NMR spectrum

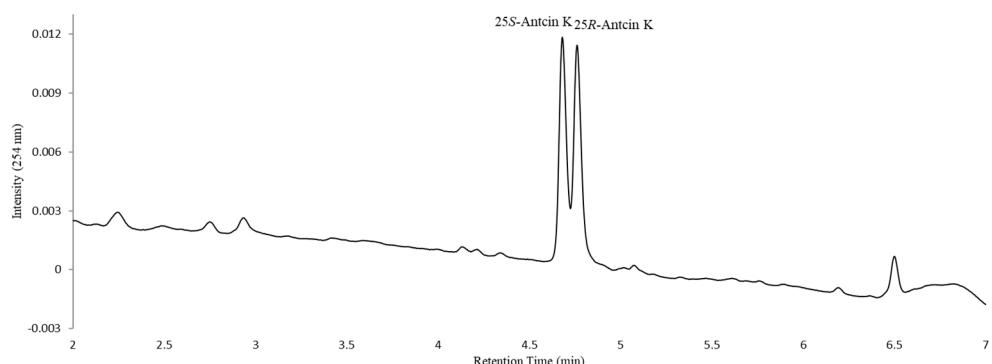


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FIDRES 4.438920 Hz  
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RG 673.34  
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TP 65.000 sec  
TE 295.0 K  
CHSB2 145.000000 sec  
CR3217 -0.5000000  
D0 0.00000300 sec  
D1 1.5000000 sec  
D4 0.00172414 sec  
D11 0.03000000 sec  
D6 0.00000000 sec  
D24 0.00086207 sec  
INO 0.00001170 sec  
===== CHANNEL f1 =====  
SFO1 700.1631500 MHz  
NUC1 1H  
P1 13.50 usec  
P2 27.00 usec  
P2B 0 usec  
PLW1 15.89999962 w  
===== CHANNEL f2 =====  
SFO2 176.0756100 MHz  
NUC2 13C  
CPDPGR2 garp  
P1 11.00 usec  
P14 500.00 usec  
P4 2000.00 usec  
P4B 55.0000 usec  
PLW2 0 w  
PLW2 55.00000000 w  
PLW2 3.31320000 w  
SPNM[3] Crp60,0.5,20.1  
SPNM[4] 0.500  
SPCPFS3 0 Hz  
SPW3 15.31499958 w  
SPCAL7 Crp60,0.5,20.1  
SPCPFS7 0 Hz  
SPW7 15.31499958 w  
===== GRADIENT CHANNEL =====  
GPNNM[1] SMD210.100  
GPNNM[2] SMD210.100  
GPNNM[3] SMD210.100  
GPNNM[4] SMD210.100  
GPZ1 80.00 %  
GPZ2 20.10 %  
GPZ3 11.00 %  
GPZ4 5.00 %  
P1 1000.00 usec  
P19 600.00 usec  
F1 - Acquisition parameters  
TD 256  
SFO1 176.0756100 MHz  
FIDRES 166.933762 Hz  
SW 242.708 ppm  
PmcdE Echo-Antiecho  
F2 - Processing parameters  
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SF 700.1599981 MHz  
WM 0.300  
SSB 2  
LB 0 Hz  
RB 0  
PC 1.40  
F1 - Processing parameters  
SI 1024  
SF 176.0756100 MHz  
WM 0.300  
SSB 2  
LB 0 Hz  
RB 0

Figure S6. The HSQC (700 MHz, Pyridine-d5) spectrum of compound (2).



**Figure S7.** The key HMBC correlations of compound (1)/(2).



**Figure S8.** Biotransformation of antcin K by *B. megaterium* ATCC 14581 strain. The strain was cultivated in LB media containing both 25S- and 25R-antcin K. The fermentation broth with cultivation of 72-h was analyzed by UPLC. The UPLC operation conditions were described in Materials and Methods.

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