

Supplementary Information

Figure S1. ^1H NMR spectrum (600 MHz) of Arcticoside (**1**) in $\text{DMSO-}d_6$.

Figure S2. ^{13}C NMR spectrum (150 MHz) of Arcticoside (**1**) in $\text{DMSO-}d_6$.

Figure S3. COSY spectrum (600 MHz) of Arcticoside (**1**) in $\text{DMSO-}d_6$.

Figure S4. HSQC spectrum (600 MHz) of Arcticoside (**1**) in $\text{DMSO-}d_6$.

Figure S5. HMBC spectrum (600 MHz) of Arcticoside (**1**) in $\text{DMSO-}d_6$.

Figure S6. TOCSY spectrum (600 MHz) of Arcticoside (**1**) in $\text{DMSO-}d_6$.

Figure S7. ROESY spectrum (600 MHz) of Arcticoside (**1**) in $\text{DMSO-}d_6$.

Figure S8. ^1H NMR spectrum (600 MHz) of C-1027 Chr-V (**2**) in $\text{DMSO-}d_6$.

Figure S9. ^{13}C NMR spectrum (150 MHz) of C-1027 Chr-V (**2**) in $\text{DMSO-}d_6$.

Figure S10. COSY spectrum (600 MHz) of C-1027 Chr-V (**2**) in $\text{DMSO-}d_6$.

Figure S11. HSQC spectrum (600 MHz) of C-1027 Chr-V (**2**) in $\text{DMSO-}d_6$.

Figure S12. HMBC spectrum (600 MHz) of C-1027 Chr-V (**2**) in $\text{DMSO-}d_6$.

Figure S13. ROESY spectrum (600 MHz) of C-1027 Chr-V (**2**) in $\text{DMSO-}d_6$.

Figure S14. 16S rDNA sequence data of *Streptomyces* sp. ART 5.

Figure S15. (a) The GC chromatograms of the silylated arcticoside sugar. (b) Co-injection of the silylated D-glucose standard and the silylated arcticoside sugar. D-Glucose and the arcticoside sugar eluted at the same retention time. (c) Co-injection of the silylated L-glucose standard and the silylated arcticoside sugar. L-Glucose and the arcticoside sugar were separated.

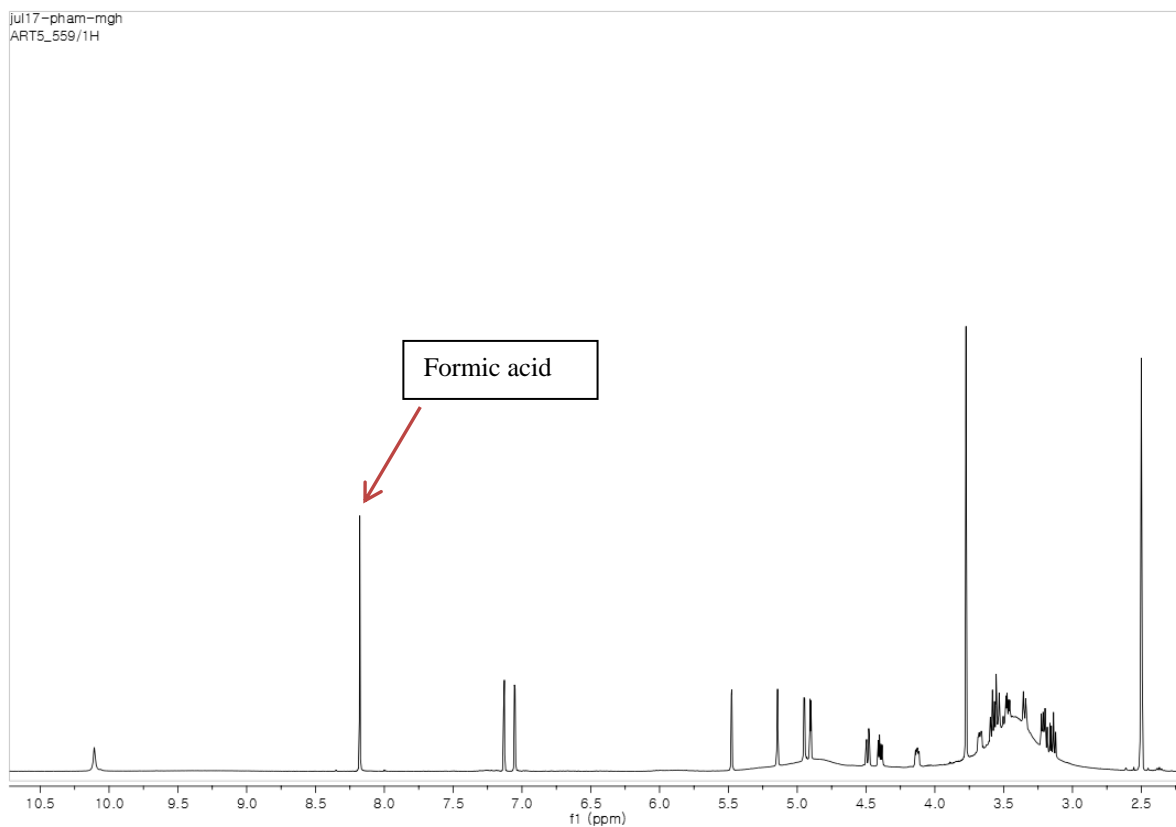
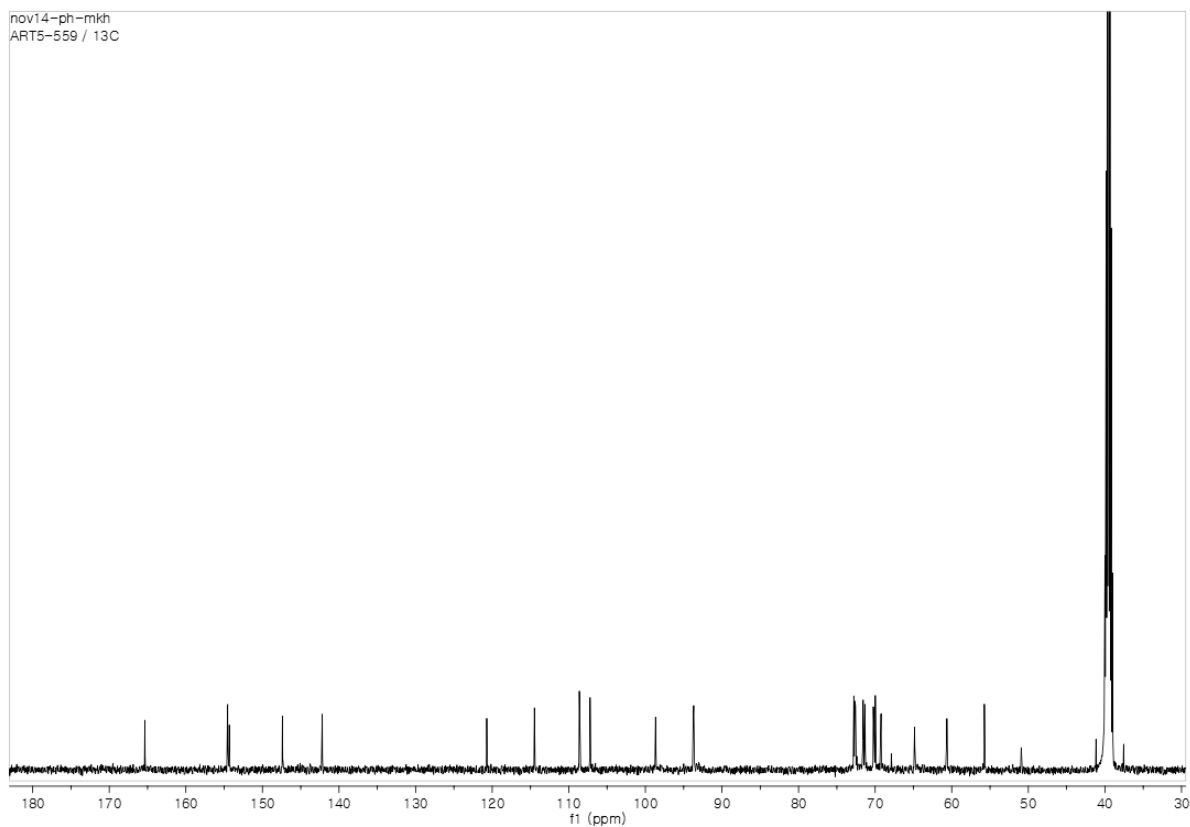
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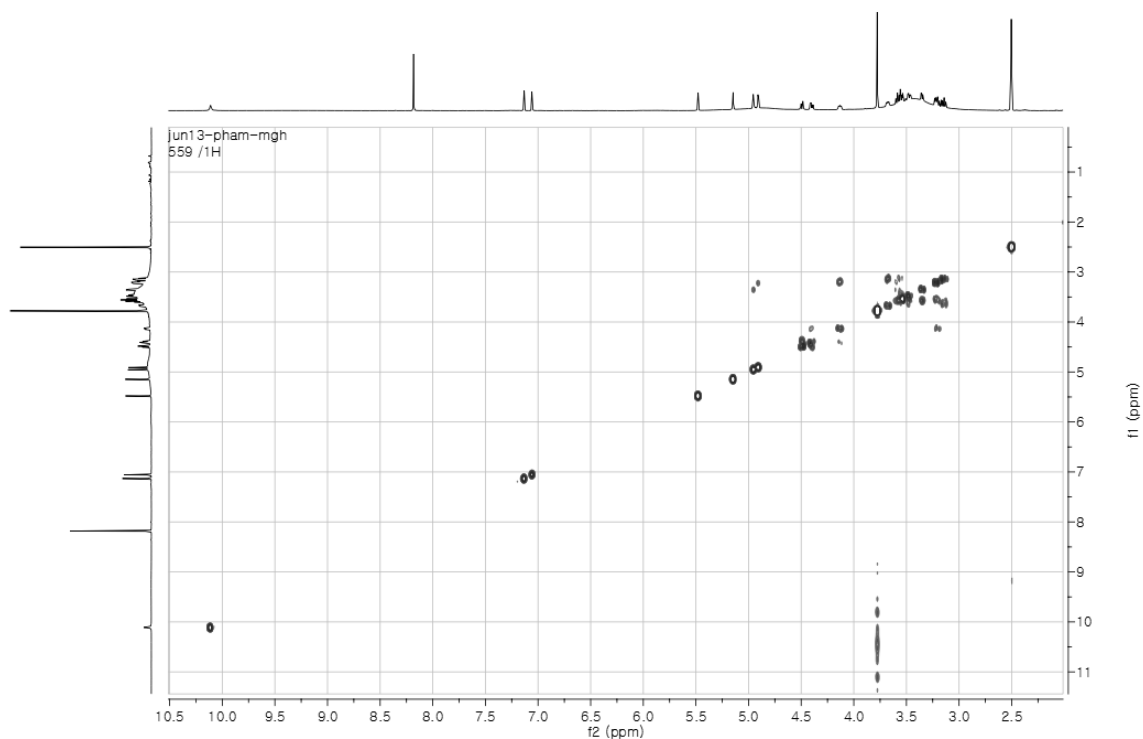
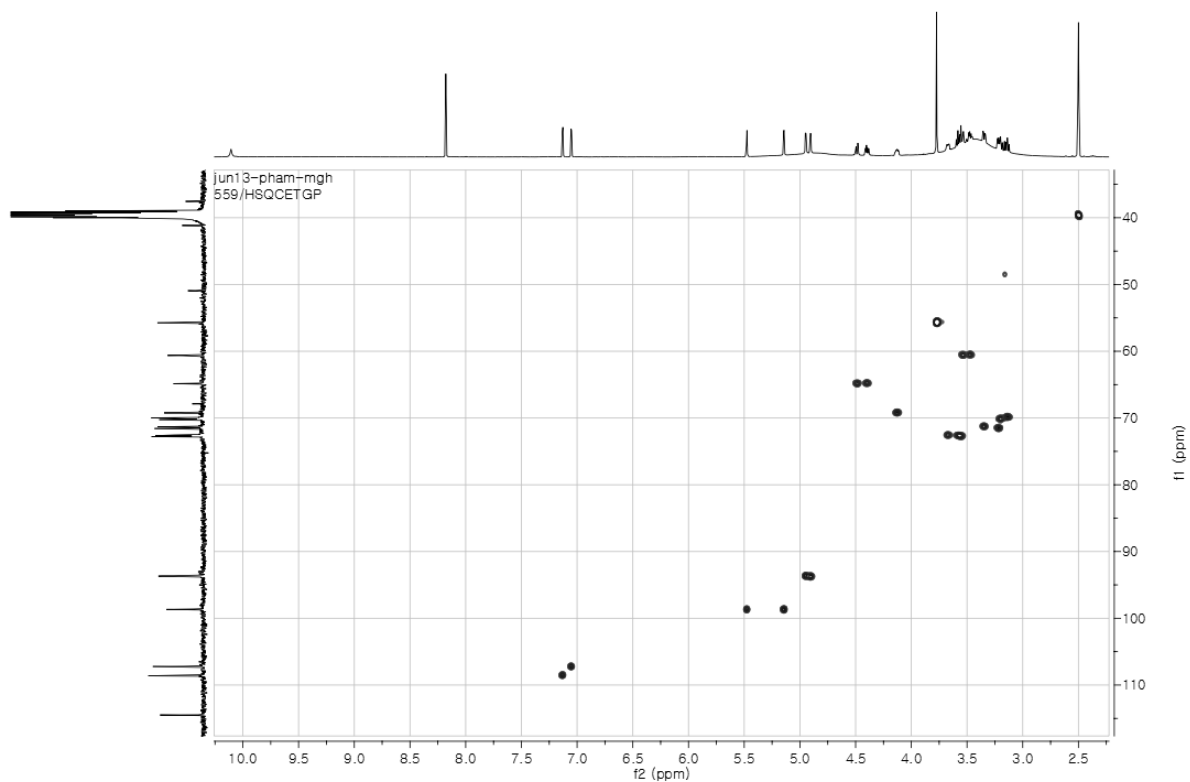
Figure S3. COSY spectrum (600 MHz) of Arcticoside (1) in DMSO- d_6 .**Figure S4.** HSQC spectrum (600 MHz) of Arcticoside (1) in DMSO- d_6 .

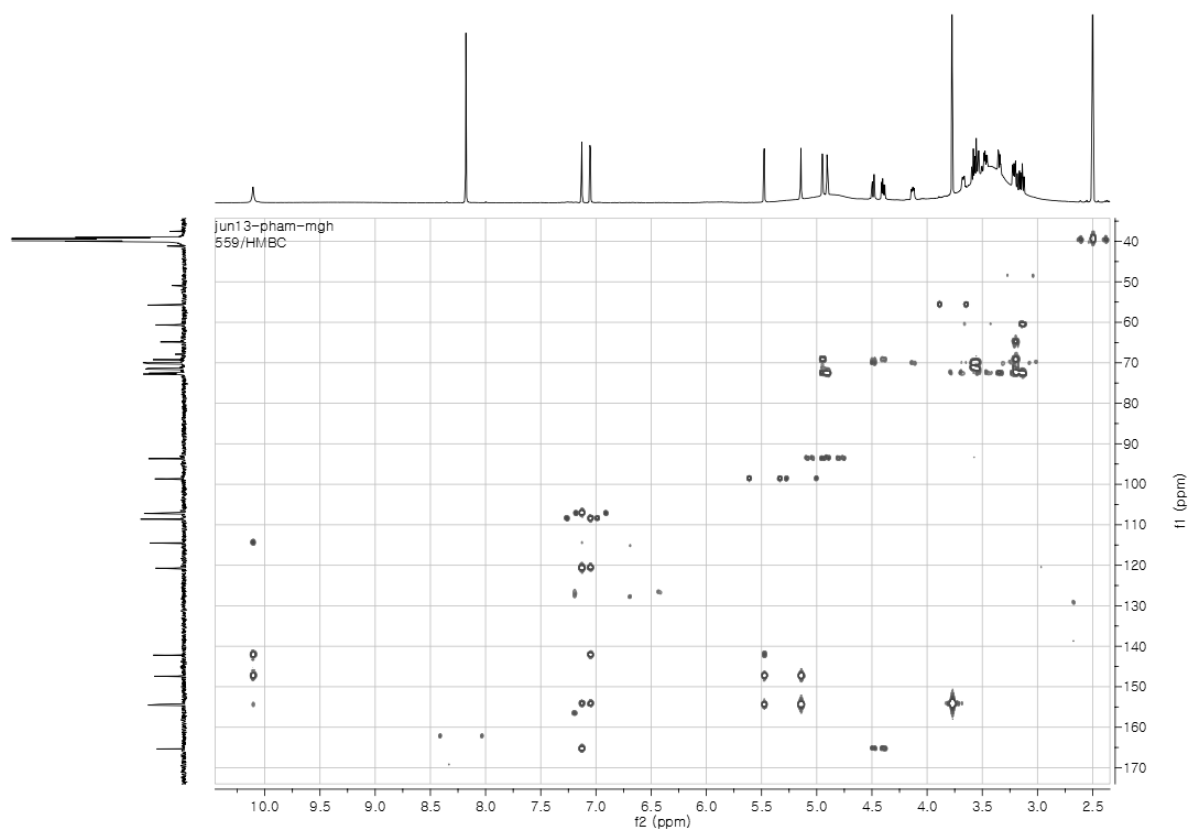
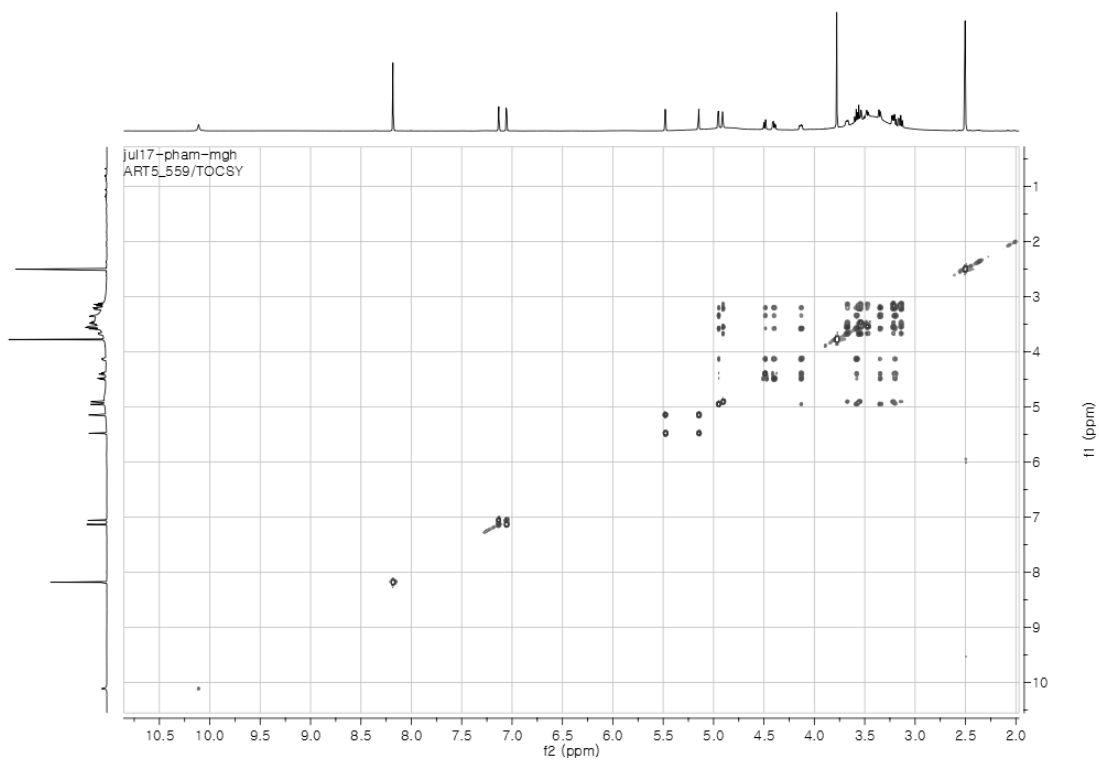
Figure S5. HMBC spectrum (600 MHz) of Arcticoside (1) in DMSO- d_6 .**Figure S6.** TOCSY spectrum (600 MHz) of Arcticoside (1) in DMSO- d_6 .

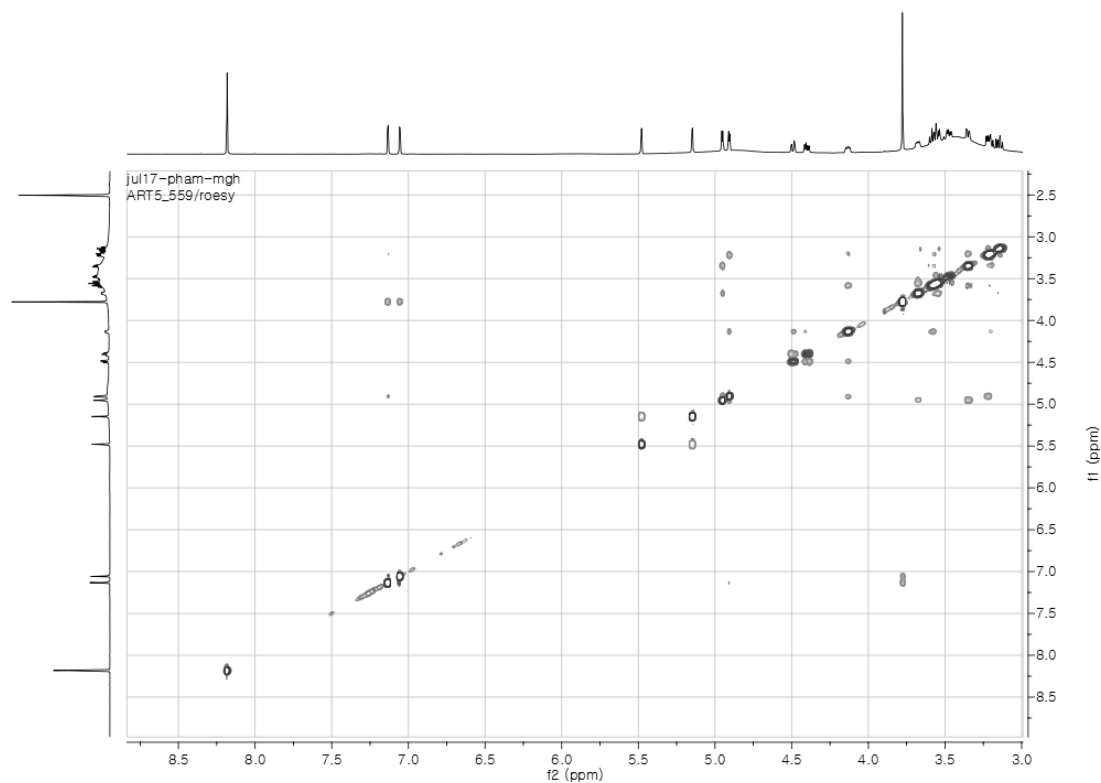
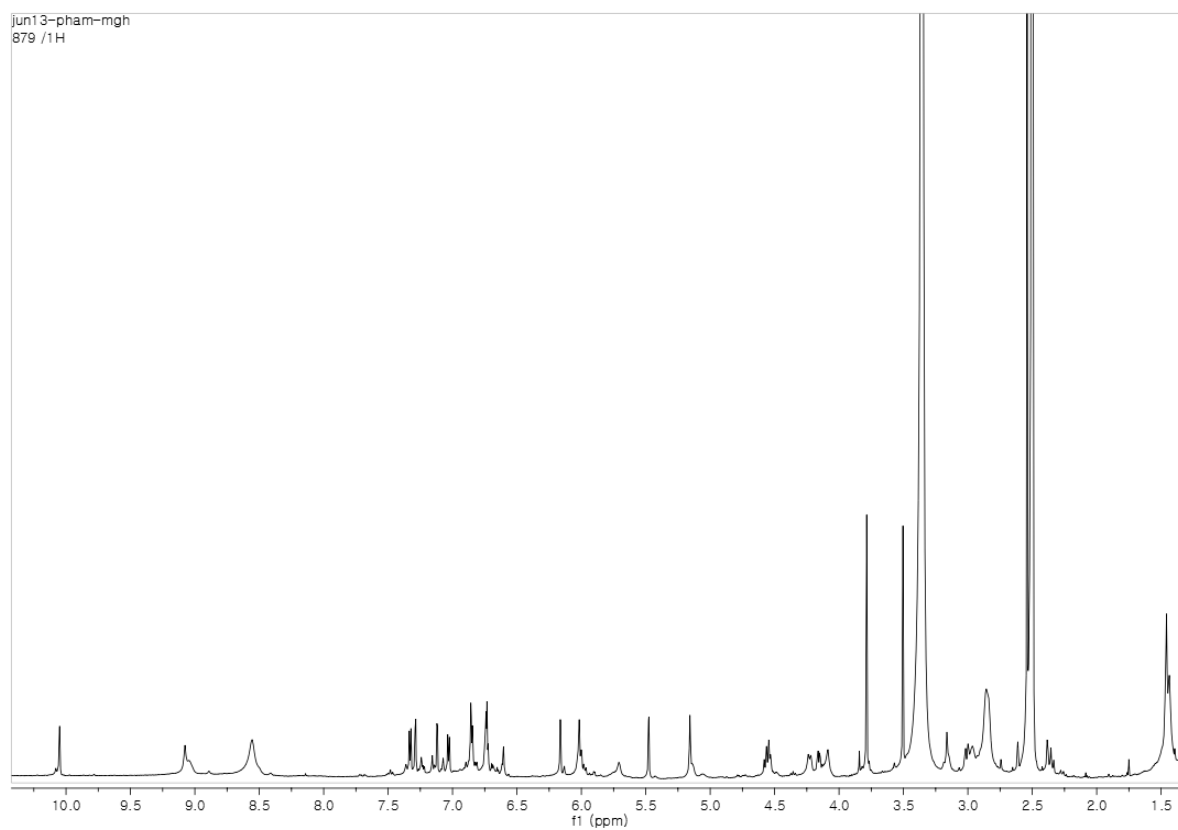
Figure S7. ROESY spectrum (600 MHz) of Arcticoside (1) in DMSO- d_6 .**Figure S8.** ^1H NMR spectrum (600 MHz) of C-1027 Chr-V (2) in DMSO- d_6 .

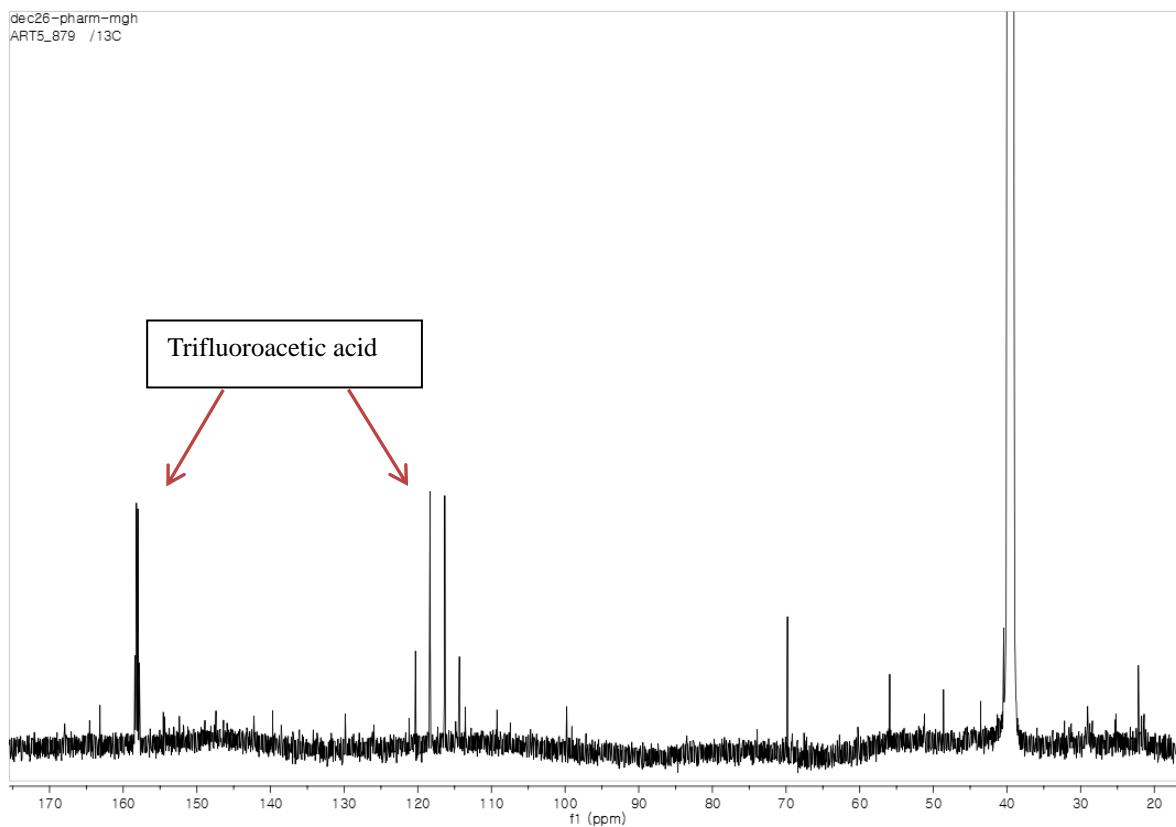
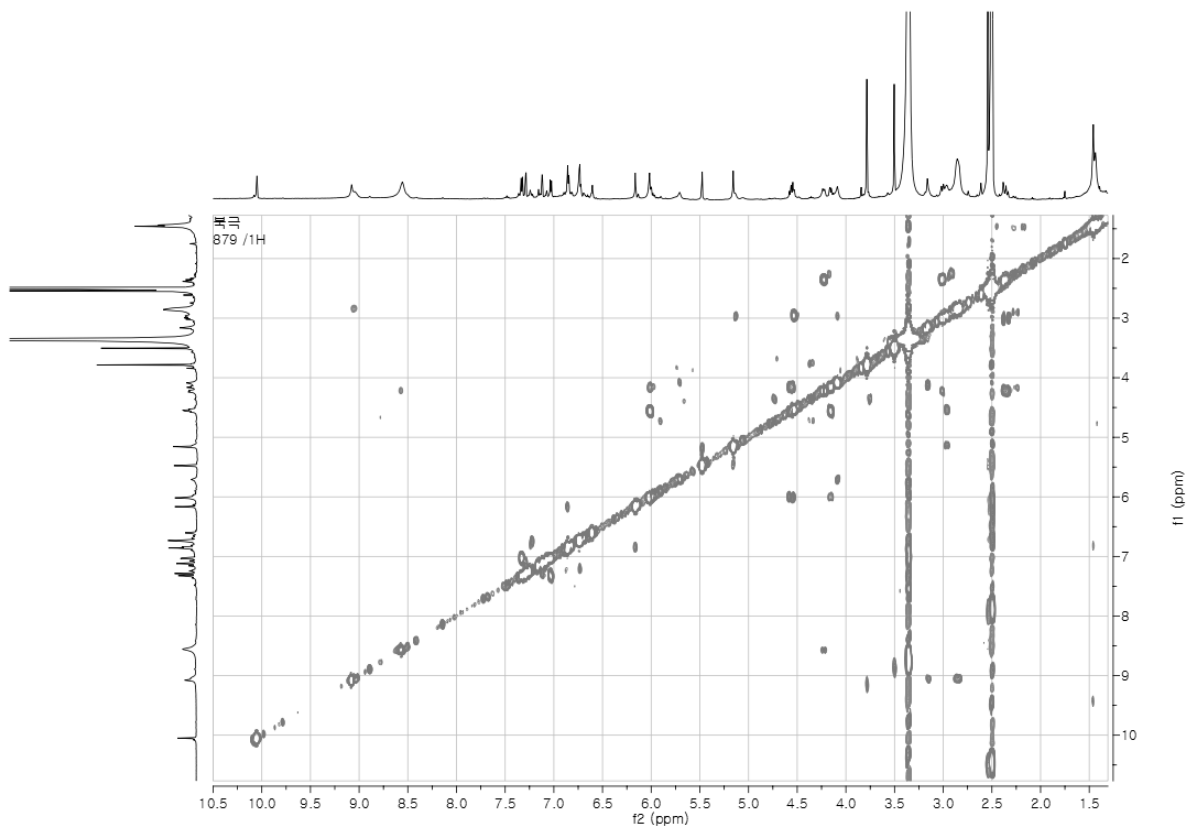
Figure S9. ^{13}C NMR spectrum (150 MHz) of C-1027 Chr-V (2) in $\text{DMSO-}d_6$.**Figure S10.** COSY spectrum (600 MHz) of C-1027 Chr-V (2) in $\text{DMSO-}d_6$.

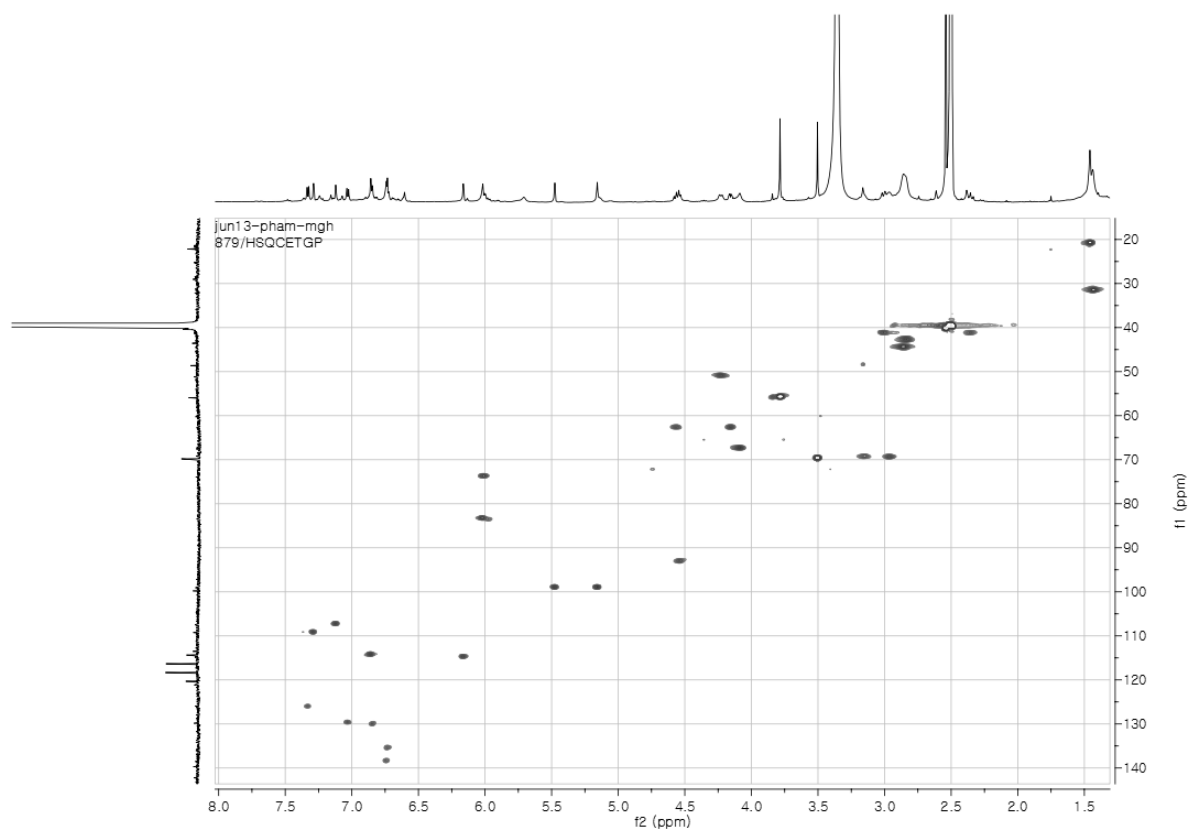
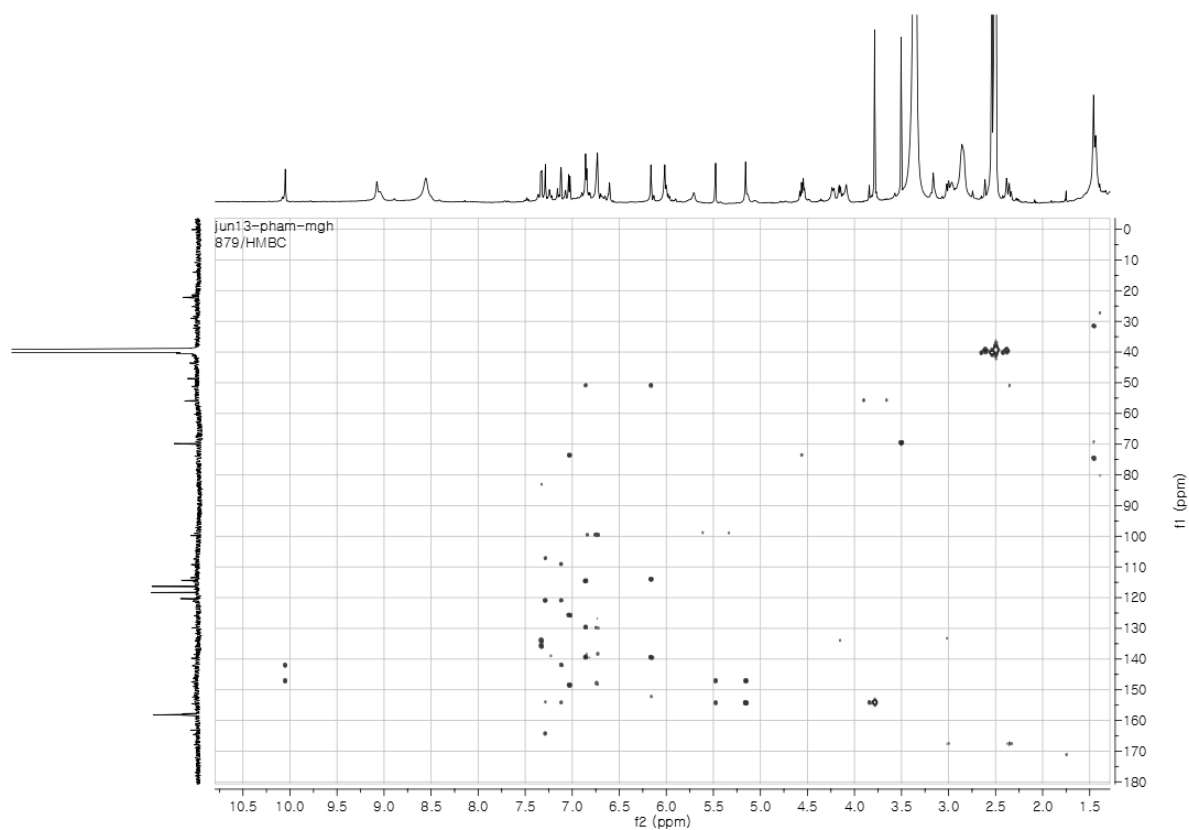
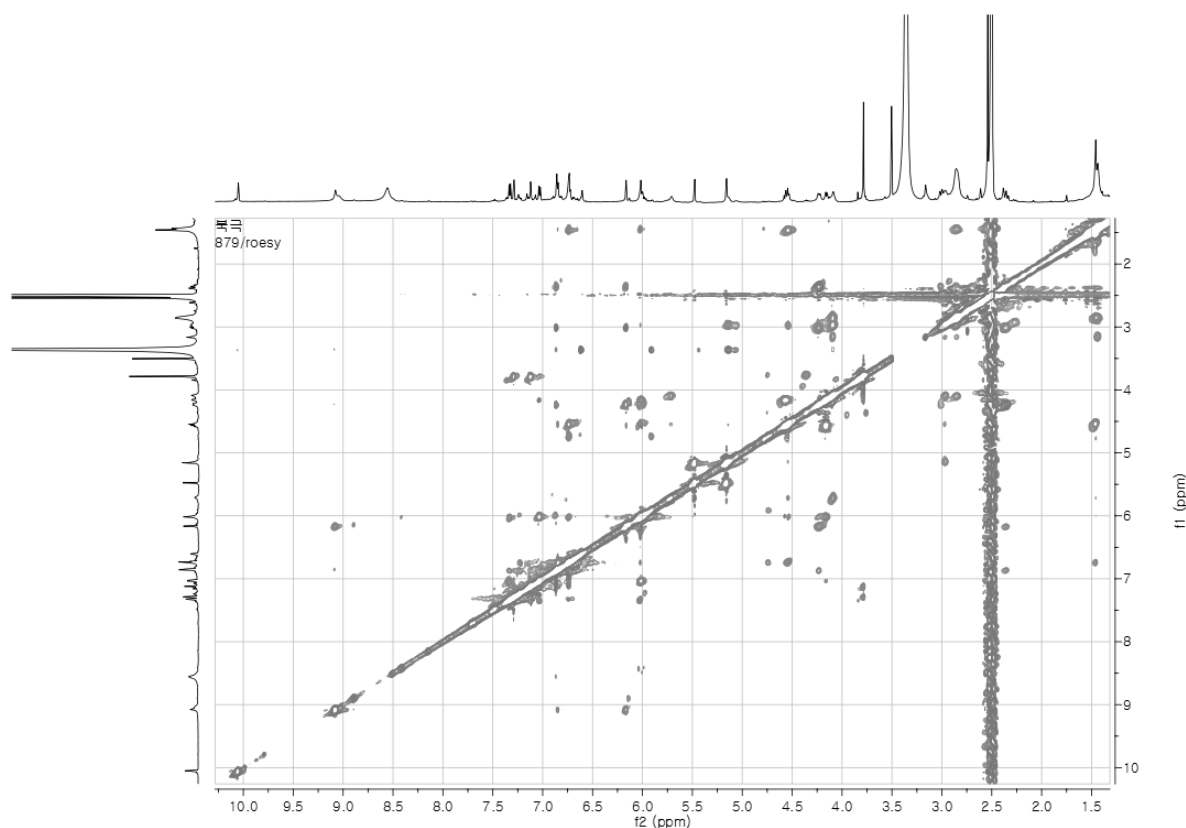
Figure S11. HSQC spectrum (600 MHz) of C-1027 Chr-V (2) in DMSO- d_6 .**Figure S12.** HMBC spectrum (600 MHz) of C-1027 Chr-V (2) in DMSO- d_6 .

Figure S13. ROESY spectrum (600 MHz) of C-1027 Chr-V (2) in DMSO- d_6 .**Figure S14.** 16S rDNA sequence data of *Streptomyces* sp. ART 5.

CGCCTGGGCGGCGTGCTTTACCATGCAGTCGAACGATGAAATCACTTCGGTGG
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 TGTCGTCAGCTCGTGTCGTGAGATGTTGGGTAAAGTCCCGCA

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