Supplementary Information

S1. Fungal endophyte ALE-75, *Saccharicola bicolor* on Potato Dextrose Agar Media.

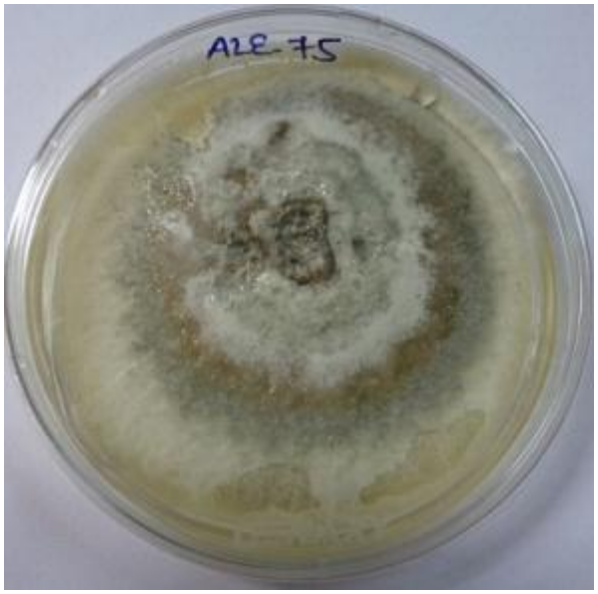


Figure S1. Fungal endophyteALE-75, *Saccharicola bicolor* on Potato Dextrose Agar Media.

S2. Fungal endophyte, ALE-85, *Aspergillus pseudoglaucus* on Potato Dextrose Agar.

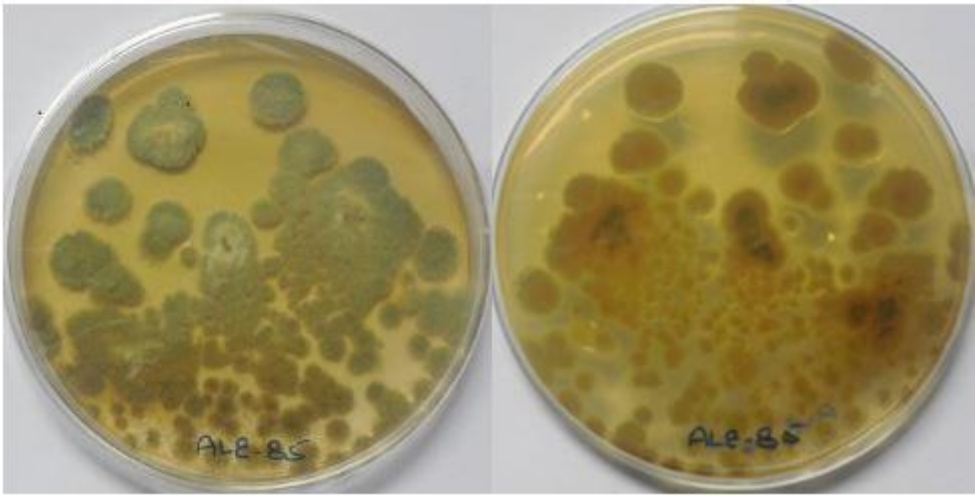


Figure S2. Fungal endophyte, ALE-85, *Aspergillus pseudoglaucus* on Potato Dextrose Agar.

S3. Fungal endophyte, *Aspergillus eurotium* on PDA.

Figure S3. Fungal endophyte, *Aspergillus eurotium* on PDA.

S4. HPLC chromatogram of Crude Ethyl acetate extract (ALE-75).

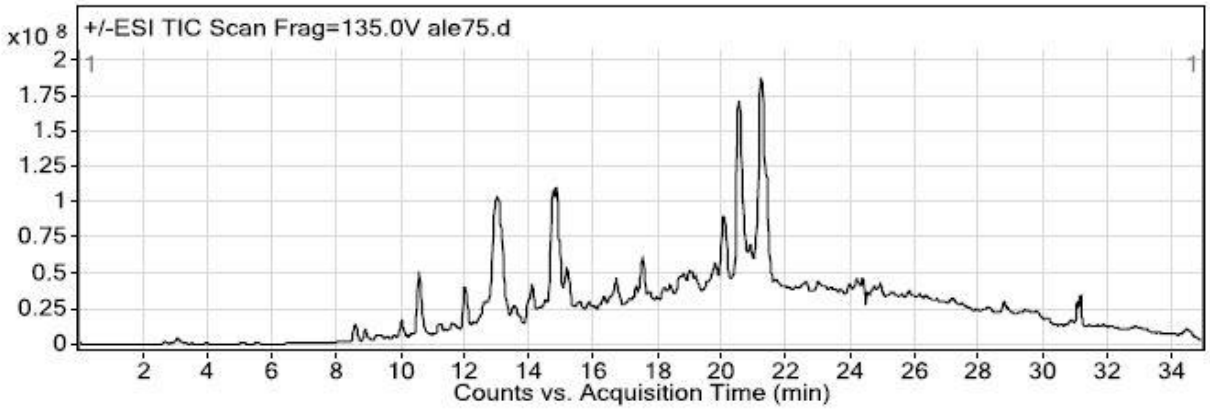


Figure S4. HPLC chromatogram of Crude Ethyl acetate extract (ALE-75)

S5. HPLC chromatogram of Crude Ethyl acetate extract (ALE-85)

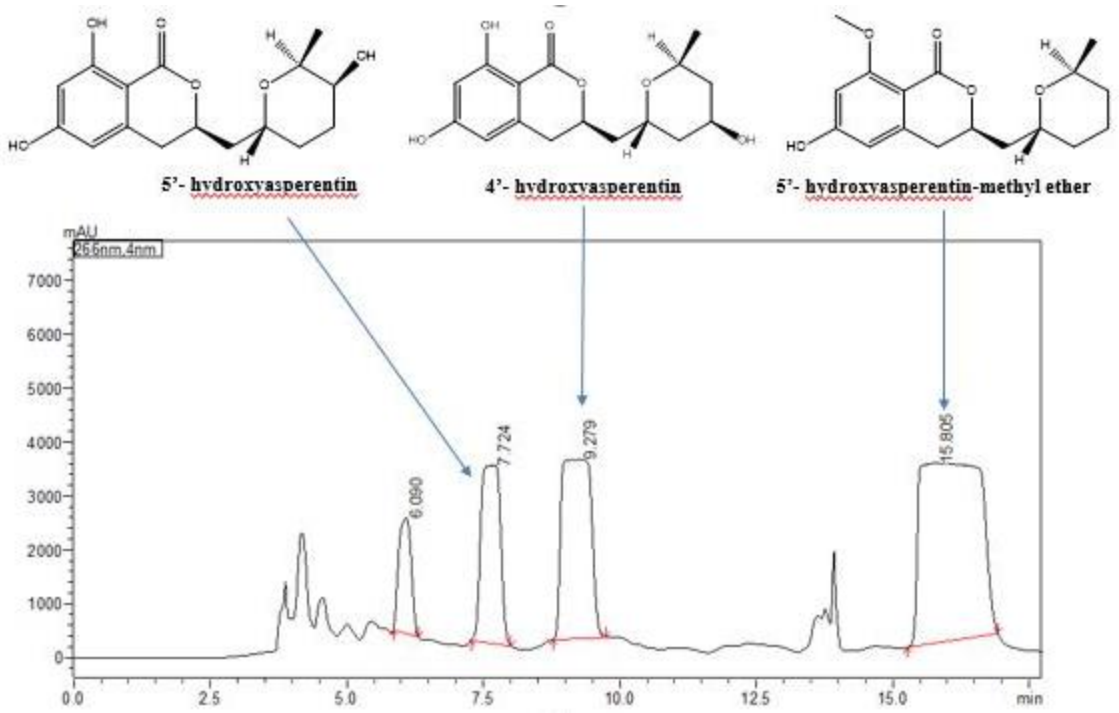


Figure S5. HPLC chromatogram of Crude Ethyl acetate extract (ALE-85)

Note The analysis of metabolites was conducted using a reversed-phase high-performance liquid chromatography (RP-HPLC) system equipped with a 250 × 10 mm column (5 µm particle size). The mobile phase consisted of an isocratic solvent system comprising methanol (45%) and water (55%) with 0.1% formic acid. The flow rate was maintained at 3 mL/min. Peaks were collected at retention times of 7.7 minutes, 9.2 minutes, and 15.8 minutes. The collected fractions were dried using a rotary evaporator and subsequently subjected to NMR and mass spectrometric analysis.

S6. HPLC chromatogram of Crude Ethyl acetate extract (ALE-121)

Qualitative Analysis Report

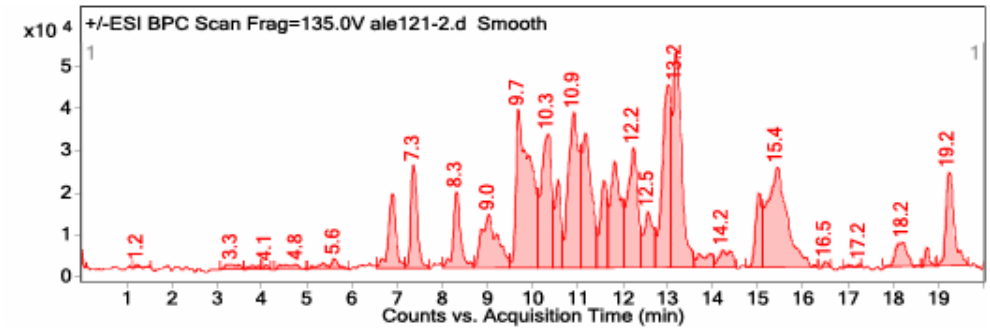
Data Filename	ale121-2.d	**Sample Name**	ale121-2
Sample Type	Sample	**Position**	76
Instrument Name	Instrument 1	**User Name**	LCMS-PC\admin
Acq Method	LCMS2023.m	**Acquired Time**	6/22/2023 12:45:03 PM
IRM Calibration Status	Not Applicable	**DA Method**	Default.m
Comment			

Sample Group **Info.**

Acquisition SW Version 6400 Series Triple Quadrupole B.06.00 (B6025.4

User Chromatograms

Fragmentor Voltage 135 **Collision Energy** 0 **Ionization Mode** ESI



Integration Peak List

Peak	Start	RT	End	Height	Area	Area %
1	7.2	7.3	7.7	24741.17	248988.15	29.33
2	9.5	9.7	10.1	37902.78	848805.66	100
3	10.1	10.3	10.5	32155.35	501082.03	59.03
4	10.7	10.9	11.1	37180.38	637921.86	75.16
5	11.1	11.2	11.4	32311.6	452907.78	53.36
6	11.7	11.8	12	25736.94	408441.05	48.12
7	12	12.2	12.4	28754.65	432733.07	50.98
8	12.7	13	13.1	43794.59	586488.7	69.1
9	13.1	13.2	13.6	51508.13	682613.43	80.42
10	15.1	15.4	16.3	24102.86	710414.1	83.7

Figure S6. HPLC chromatogram of Crude Ethyl acetate extract (ALE-121)

S7.ESIMS Spectrum of 5-(3-Hydroxy-pentyl)-furan-2-carboxylic acid

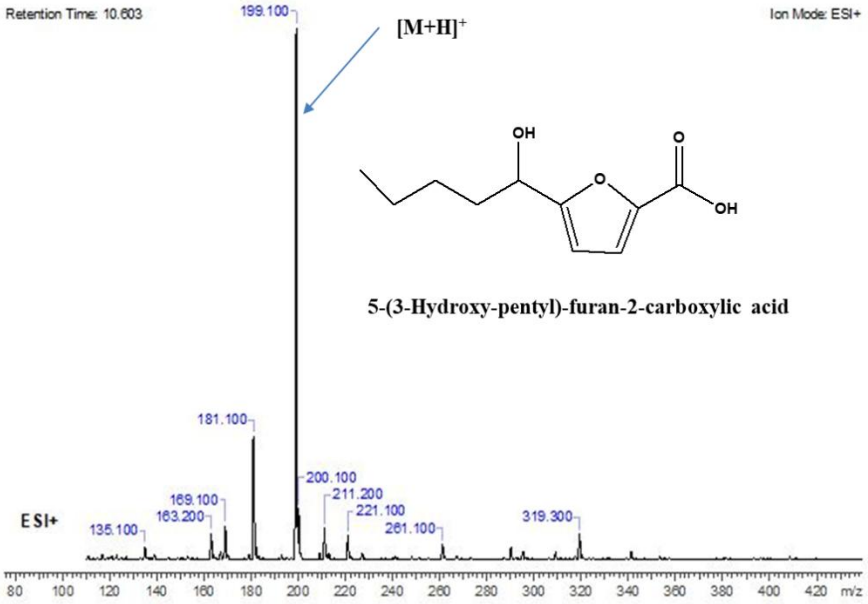


Figure S7.ESIMS Spectrum of 5-(3-Hydroxy-pentyl)-furan-2-carboxylic acid

S8.^{1}H NMR (400 MHz, C_5D_5N) spectrum of 5-(3-Hydroxy-pentyl)-furan-2-carboxylic acid

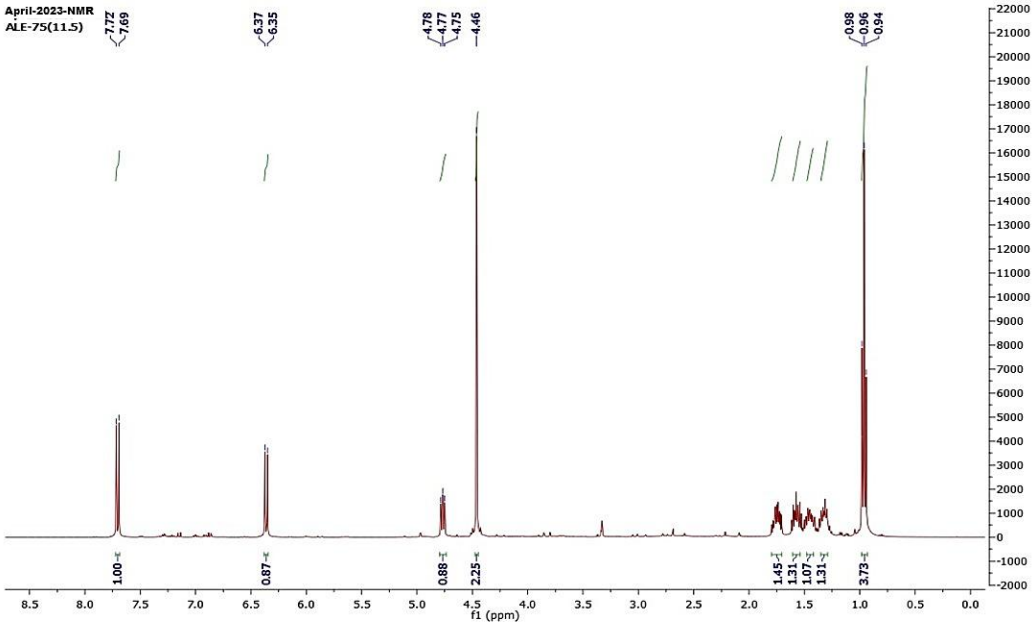


Figure S8.^{1}H NMR (400 MHz, C_5D_5N) spectrum of 5-(3-Hydroxy-pentyl)-furan-2-carboxylic acid

S9.^{13}C NMR (100 MHz, C_5D_5N) spectrum of 5-(3-Hydroxy-pentyl)-furan-2-carboxylic acid

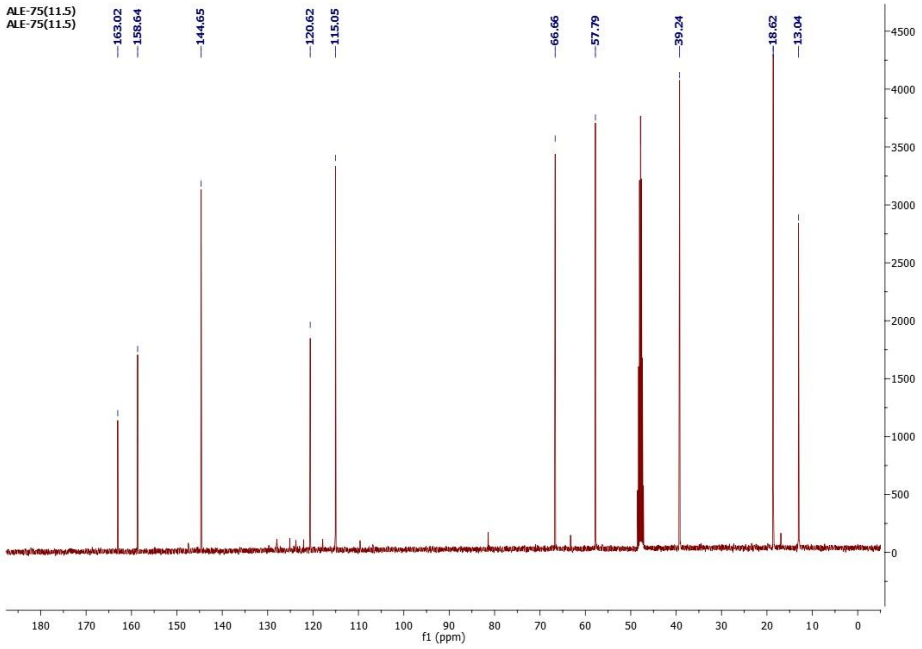


Figure S9.^{13}C NMR (100 MHz, C_5D_5N) spectrum of 5-(3-Hydroxy-pentyl)-furan-2-carboxylic acid

S10. ESIMS Spectrum of Cillifuranone

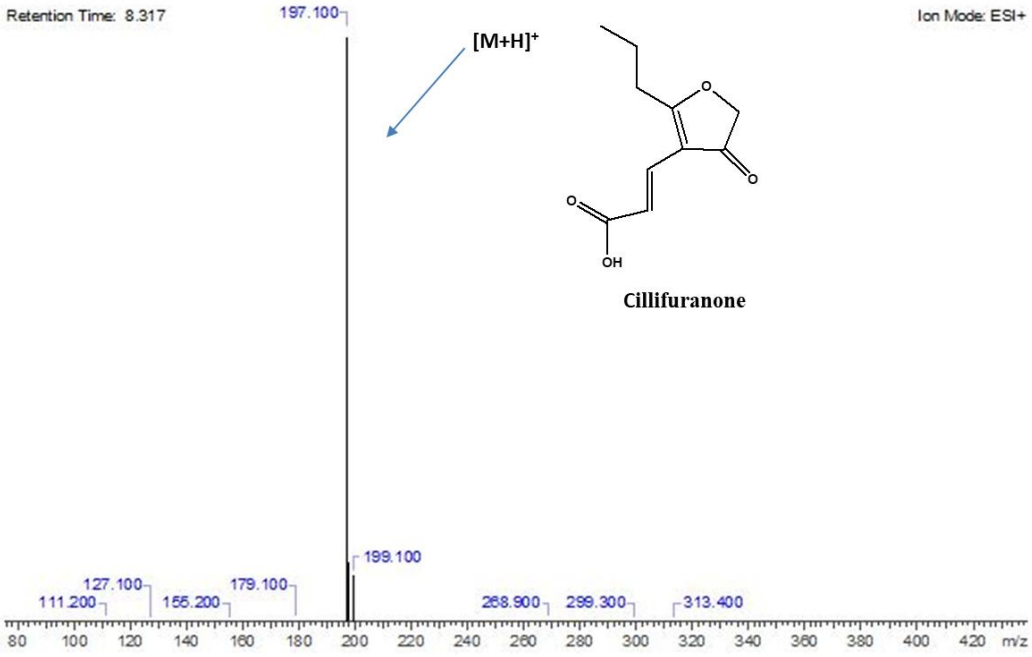


Figure S10. ESIMS Spectrum of Cillifuranone

S11. 1H NMR (400 MHz, C_5D_5N) spectrum of Cillifuranone

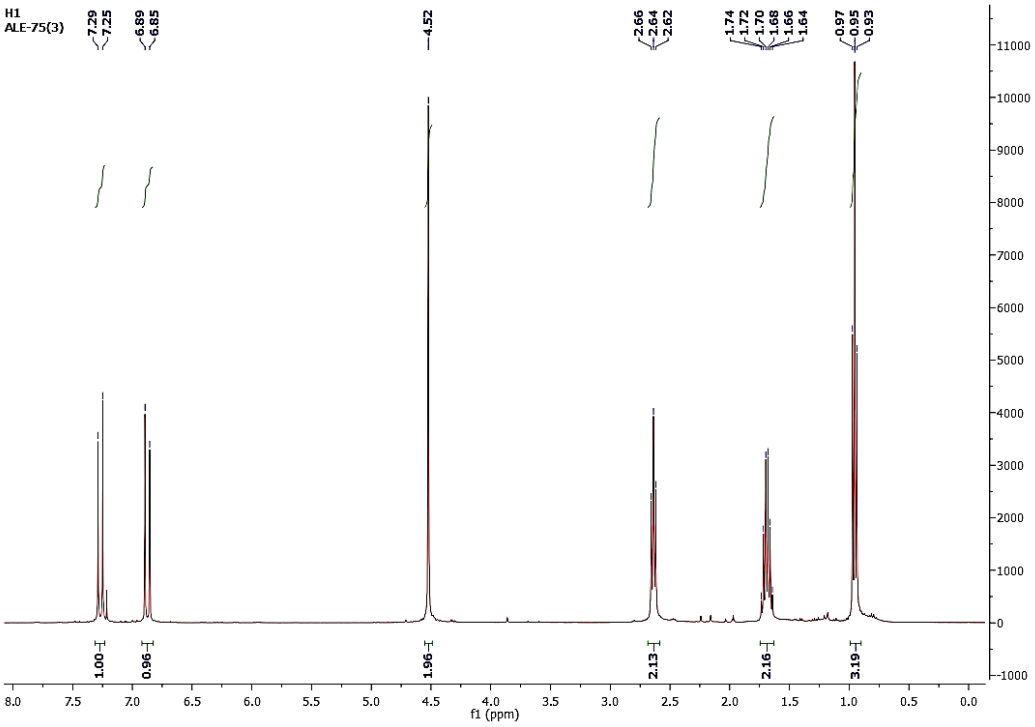


Figure S11. 1H NMR (400 MHz, C_5D_5N) spectrum of Cillifuranone

S12. ^{13}C NMR (100 MHz, C_5D_5N) spectrum of Cillifuranone

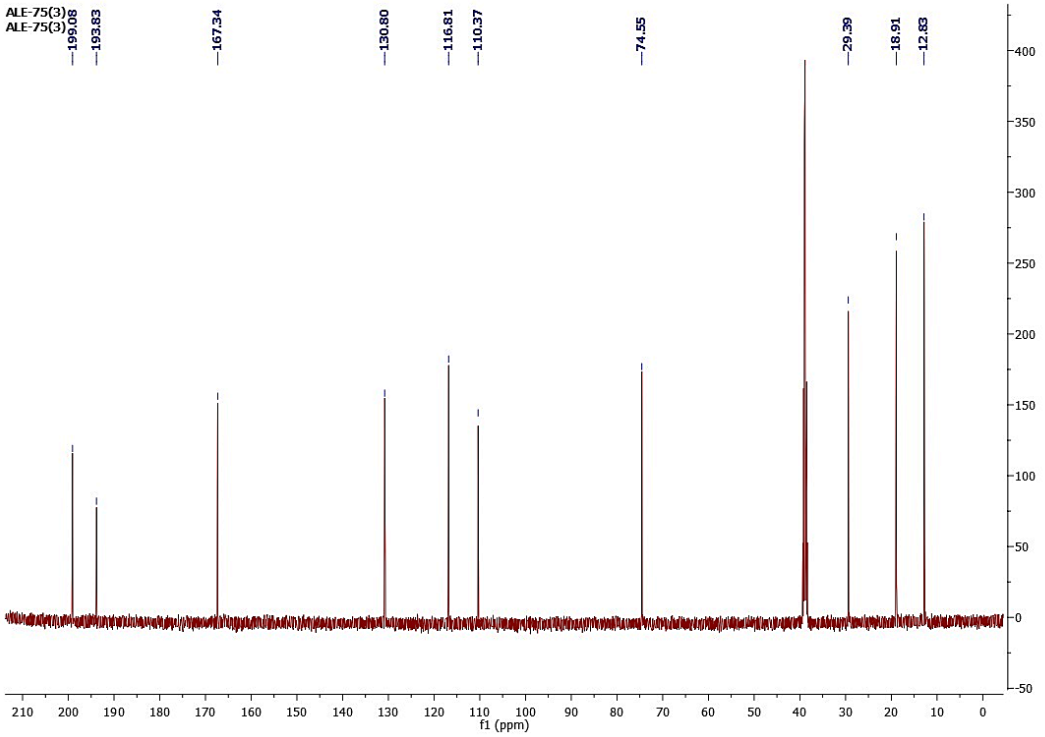


Figure S12. ^{13}C NMR (100 MHz, C_5D_5N) spectrum of Cillifuranone

S13.ESIMS Spectrum of 5’-hydroxyasperentin

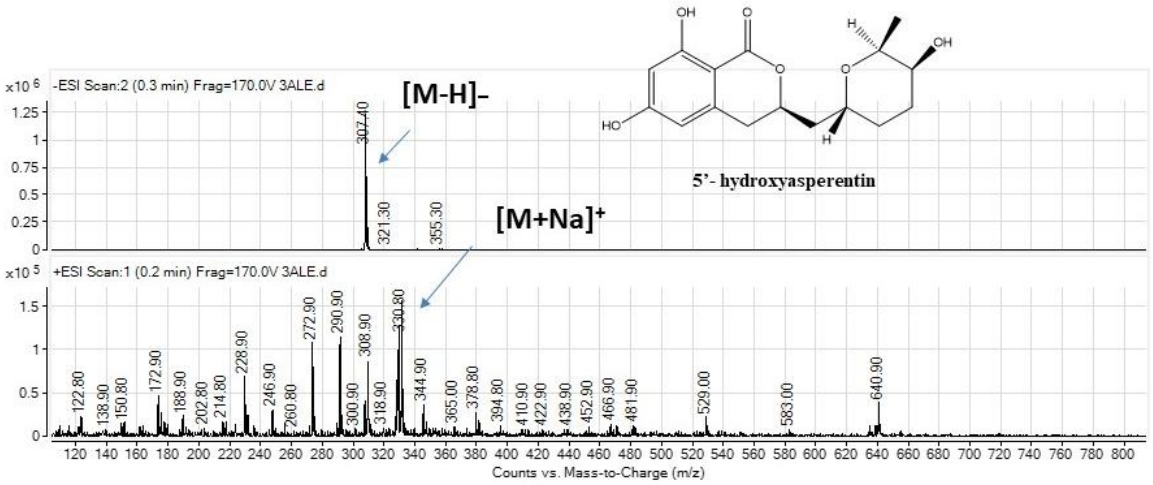


Figure S13.ESIMS Spectrum of 5’-hydroxyasperentin

S14. 1H NMR of 5’-hydroxyasperentin

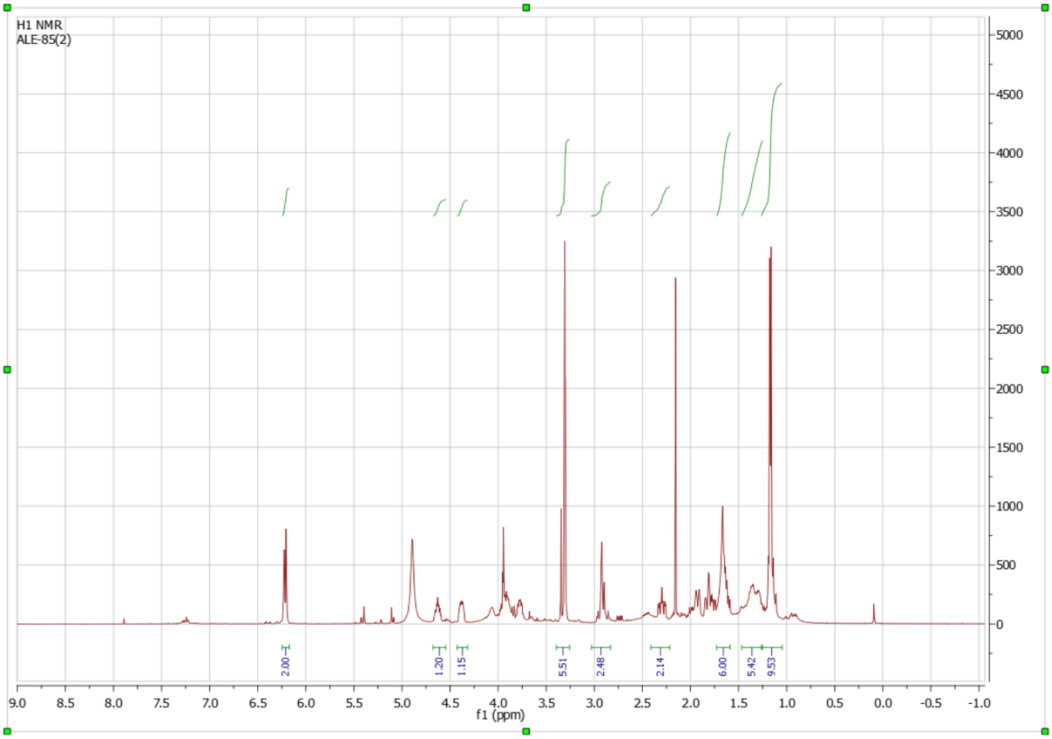


Figure S14. 1H NMR of 5’-hydroxyasperentin

S15. ^{13}C NMR (100 MHz, C_5D_5N) spectrum of 5'-hydroxyasperentin

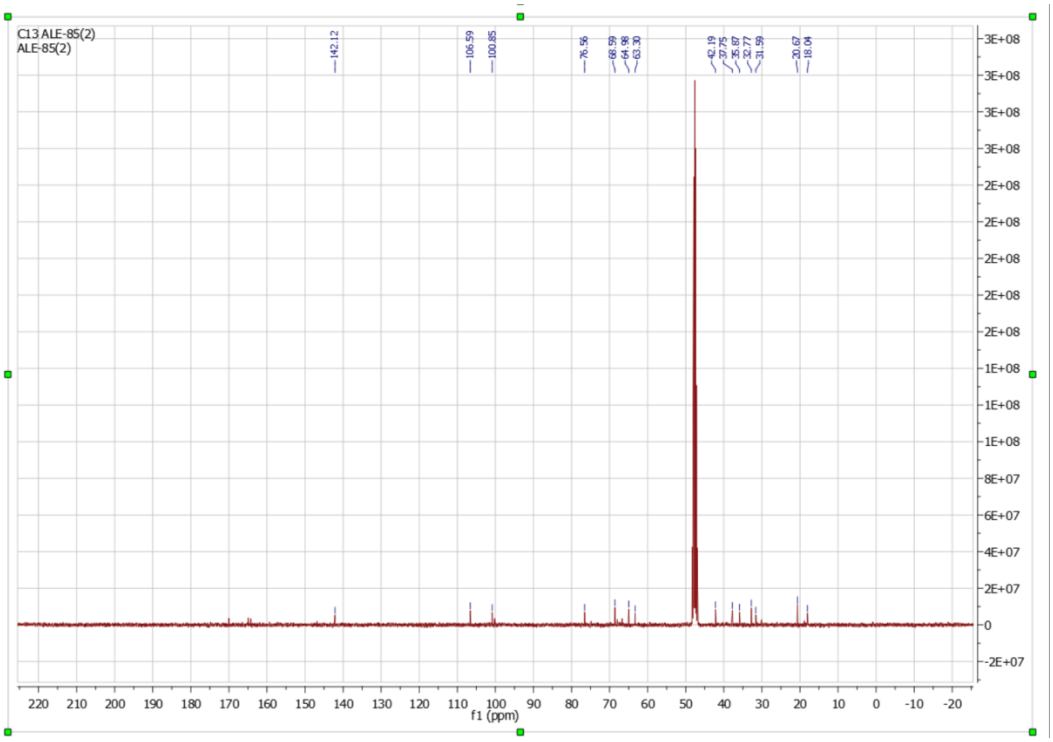


Figure S15. ^{13}C NMR (100 MHz, C_5D_5N) spectrum of 5'-hydroxyasperentin

S16. ESIMS Spectrum of 4'-hydroxyasperentin

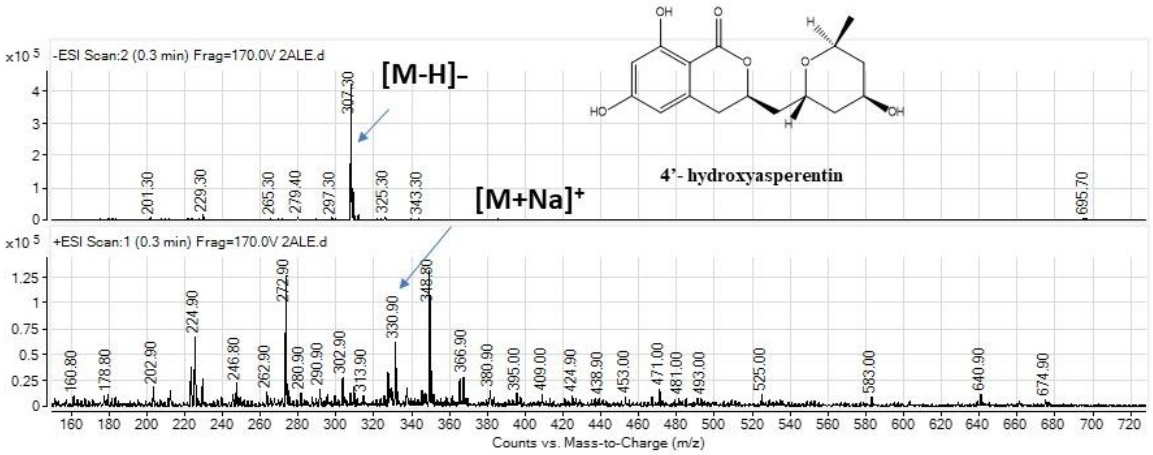


Figure S16. ESIMS Spectrum of 4'-hydroxyasperentin

S17. ^{1}H NMR (400 MHz, C_5D_5N) spectrum of 4'-hydroxyasperentin

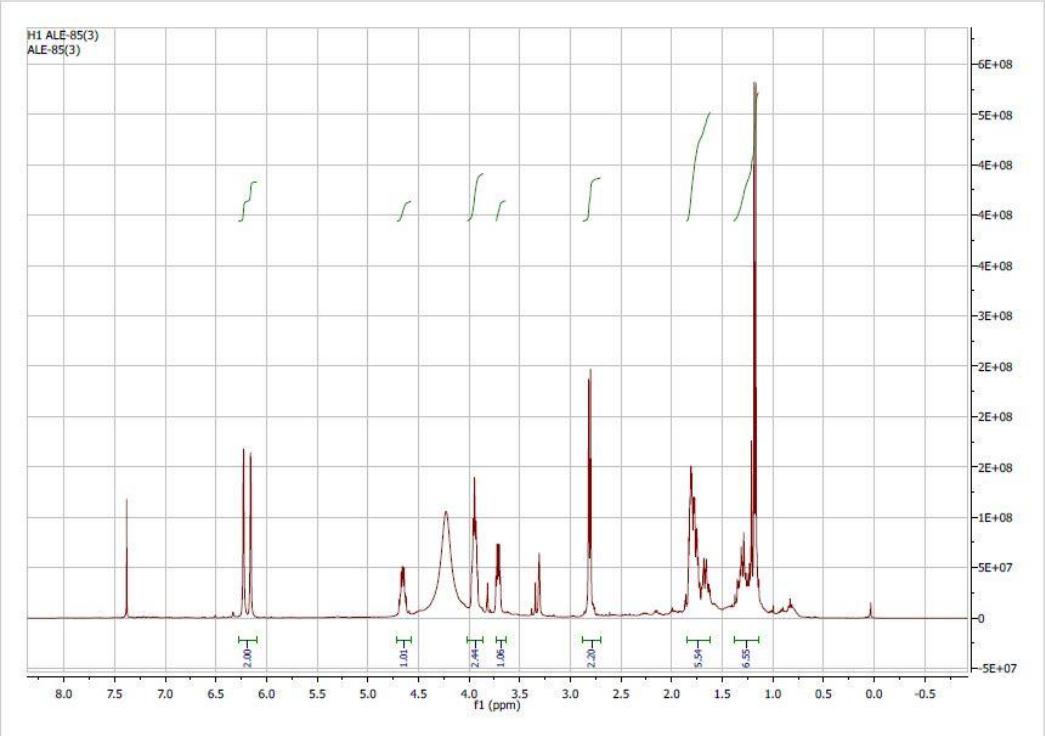


Figure S17. ^{1}H NMR (400 MHz, C_5D_5N) spectrum of 4'-hydroxyasperentin

S18. ^{13}C NMR (100 MHz, C_5D_5N) spectrum of 4'-hydroxyasperentin

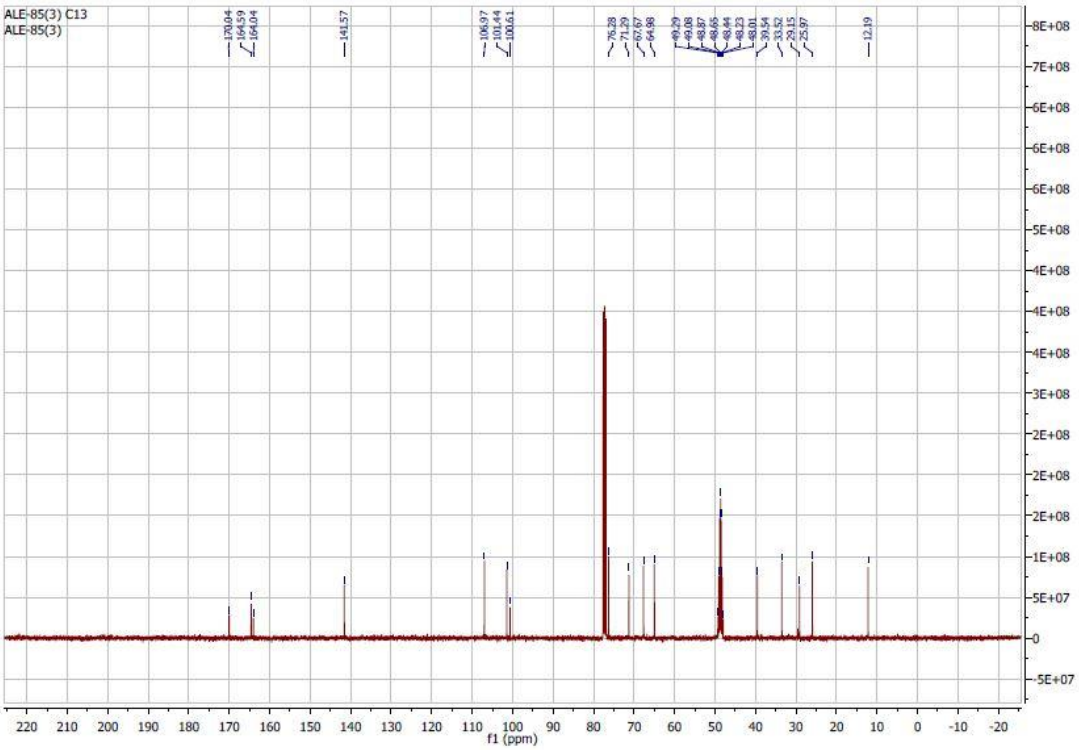


Figure S18. ^{13}C NMR (100 MHz, C_5D_5N) spectrum of 4'-hydroxyasperentin

S19. ESIMS Spectrum of 5'-hydroxyasperentin-methyl ether

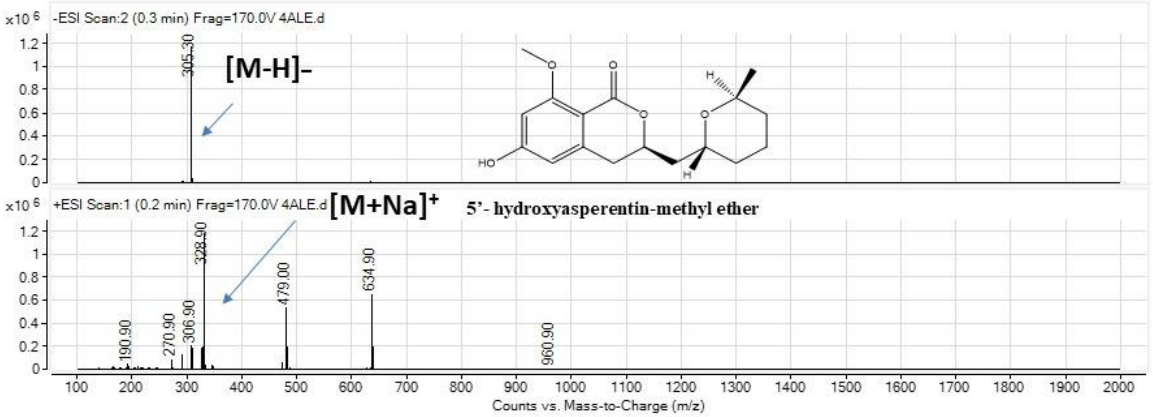


Figure S19. ESIMS Spectrum of 5'-hydroxyasperentin-methyl ether)

S20. ^{1}H NMR (400 MHz, C_5D_5N) spectrum of 5'-hydroxyasperentin-methyl ether

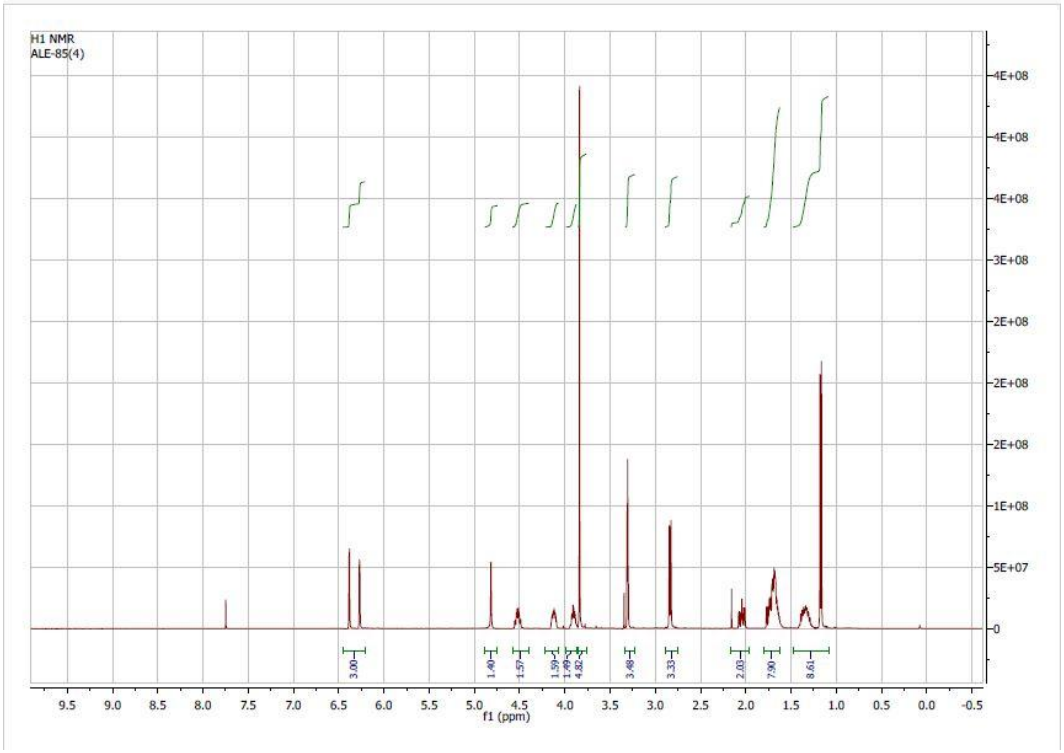


Figure S20. ^{1}H NMR (400 MHz, C_5D_5N) spectrum of 5'-hydroxyasperentin-methyl ether

S21. ^{13}C NMR (100 MHz, C_5D_5N) spectrum of 5-hydroxyasperentin-methyl ether

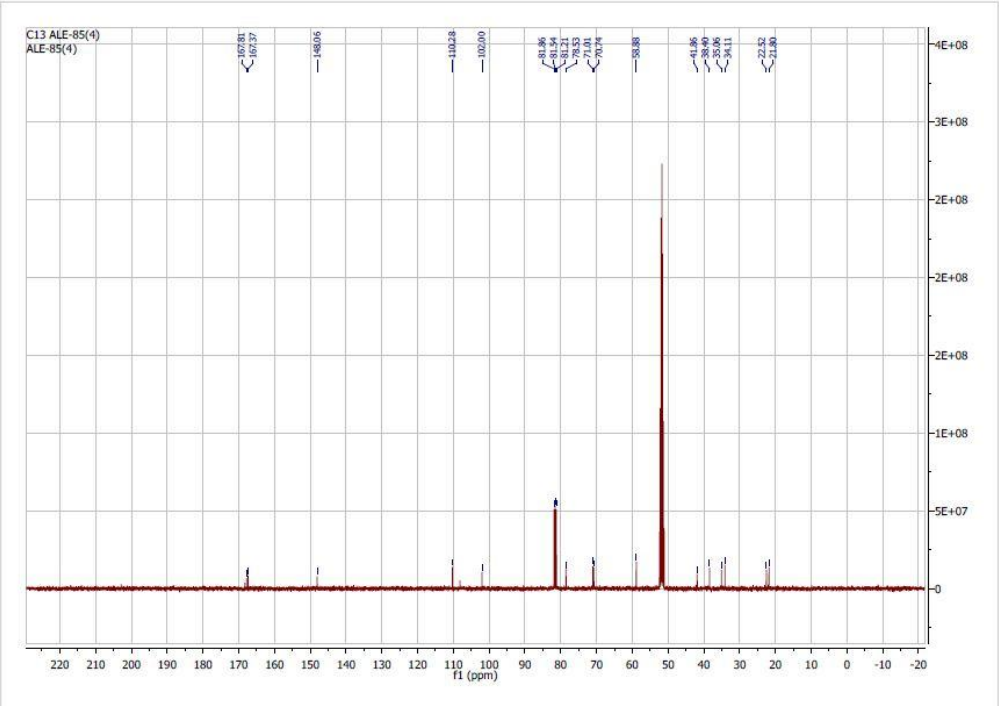


Figure S21. ^{13}C NMR (100 MHz, C_5D_5N) spectrum of 5-hydroxyasperentin-methyl ether

S22. ESIMS Spectrum of 1,4-dihydroxy-2-methoxy-7-methyl-9,10-anthraquinone (austrocortinin).

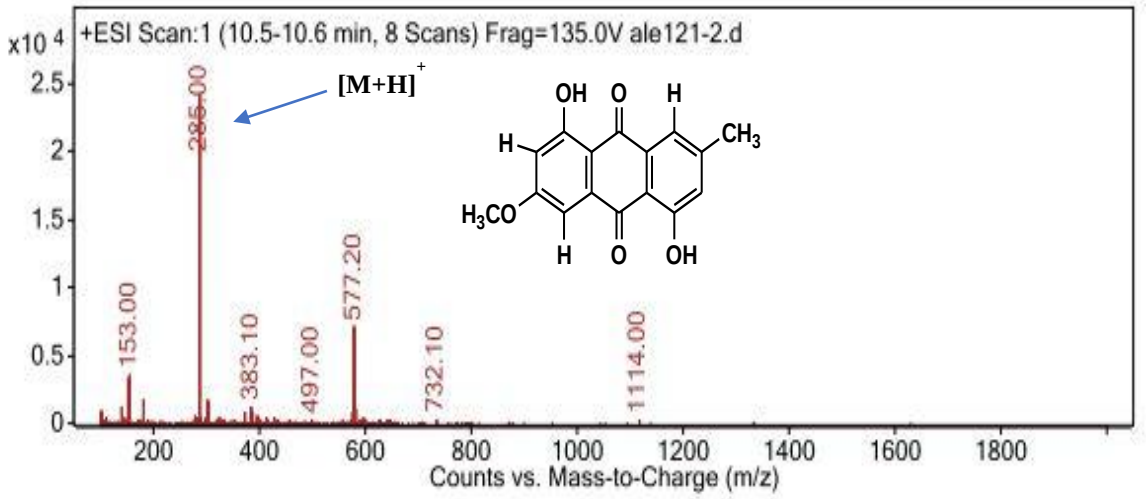


Figure S22. ESIMS Spectrum of 1,4-dihydroxy-2-methoxy-7-methyl-9,10-anthraquinone (austrocortinin).

S23. ^{1}H NMR (400 MHz, C_5D_5N) spectrum of austrocortinin

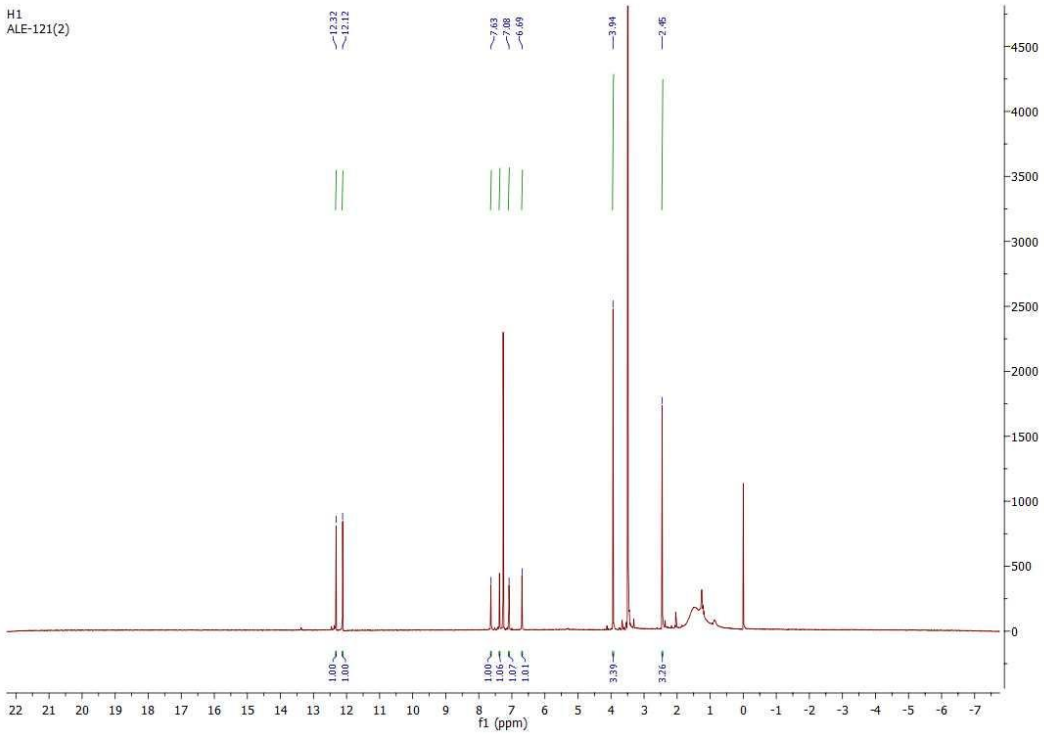


Figure S23. ^{1}H NMR (400 MHz, C_5D_5N) spectrum of austrocortinin

S24. ^{13}C NMR (100 MHz, C_5D_5N) spectrum of austrocortinin.

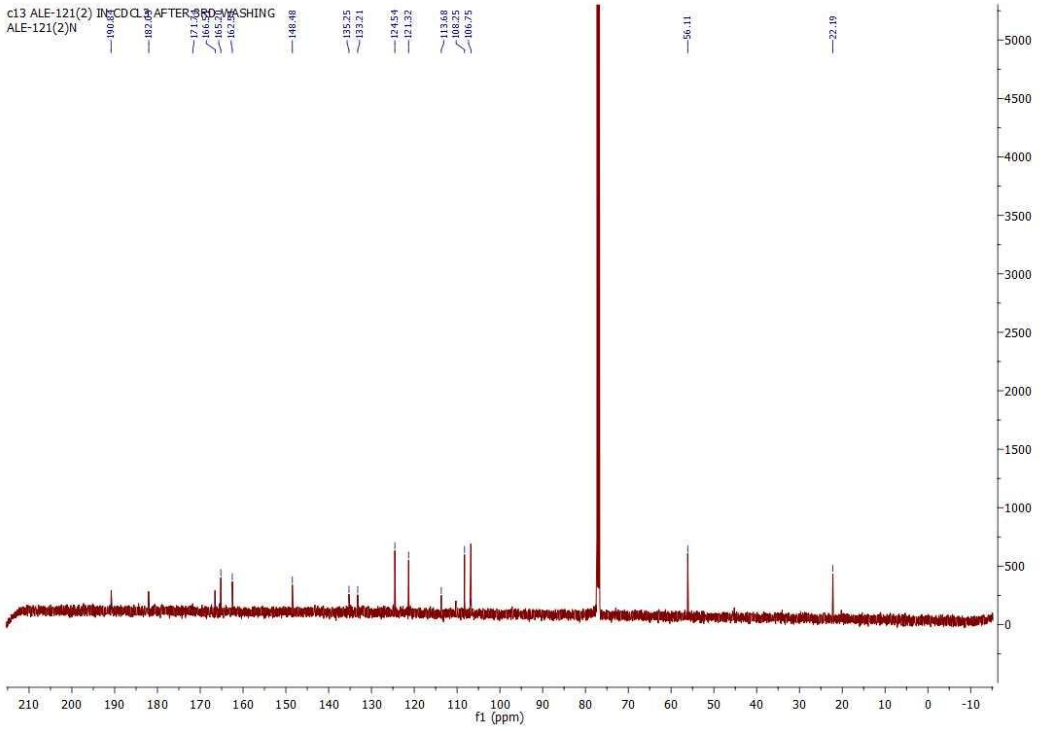


Figure S24. ^{13}C NMR (100 MHz, C_5D_5N) spectrum of austrocortinin.