

Supplementary Material

Screening of Functional Compounds in Supercritical Carbon Dioxide Extracts from Perennial Herbaceous Crops

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Table S1. The results of ANOVA ($p < 0.05$) for the influence of substrate, extraction conditions and harvest time (A) June, (B) October, (C) February on total polyphenol concentration (TPC).

Effect	Sum of square	Degrees of freedom	Mean square	F-value	p-value
Substrate	18142.55	6	3023.76	3744.89	0.000
Harvest time	16383.54	2	8191.77	10145.41	0.000
Extraction conditions	36308.34	1	36308.34	44967.46	0.000
Substrate*Harvest time	19779.70	12	1648.31	2041.41	0.000
Substrate*Extraction conditions	17481.63	6	2913.61	3608.47	0.000
Harvest time*Extraction conditions	6663.53	2	3331.76	4126.35	0.000
Substrate* Harvest time*Extraction conditions	15900.62	12	1325.05	1641.06	0.000
Error	67.82	84	0.81		

Table S2. The results of ANOVA ($p < 0.05$) for the influence of substrate, extraction conditions and harvest time (A) June, (B) October, (C) February on total flavonoid concentration (TFC)

Effect	Sum of square	Degrees of freedom	Mean square	F-value	p-value
Substrate	58.02	6	9.67	1903.73	0.000
Harvest time	25.37	2	12.69	2497.61	0.000
Extraction conditions	19.22	1	19.22	3783.79	0.000
Substrate*Harvest time	173.59	12	14.47	2848.02	0.000
Substrate*Extraction conditions	44.97	6	7.49	1475.45	0.000
Harvest time*Extraction conditions	155.17	2	77.59	15274.88	0.000
Substrate* Harvest time*Extraction conditions	137.58	12	11.47	2257.19	0.000
Error	0.43	84	0.01		

Table S3. The results of ANOVA ($p < 0.05$) for the influence of substrate, extraction conditions and harvest time (A) June, (B) October, (C) February on antioxidant activity (DPPH assay)

Effect	Sum of square	Degrees of freedom	Mean square	F-value	p-value
Substrate	1393393.48	6	232232.25	6331.03	0.000
Harvest time	4166187.31	2	2083093.65	56788.49	0.000
Extraction conditions	6122738.64	1	6122738.64	166915.73	0.000
Substrate*Harvest time	746698.35	12	62224.86	1696.35	0.000
Substrate*Extraction conditions	930044.08	6	155007.35	4225.75	0.000
Harvest time*Extraction conditions	3069623.93	2	1534811.97	41841.45	0.000
Substrate* Harvest time*Extraction conditions	615489.43	12	51290.79	1398.27	0.000
Error	3081.26	84	36.68		

Table S4. Wavenumbers of QATR-FTIR peaks of supercritical plant extracts (scCO₂ and scCO₂/H₂O) harvested in June

Group	Wavenumbers (cm ⁻¹)													
	<i>H. salicifolius</i>	<i>S. perfoliatum</i>	<i>H. tuberosus</i>	<i>M. × giganteus</i>	<i>M. sinensis</i>	<i>M. sacchariflorus</i>	<i>S. pectinata</i>							
	scCO ₂	scCO ₂ /H ₂ O	scCO ₂	scCO ₂ /H ₂ O	scCO ₂	scCO ₂ /H ₂ O	scCO ₂	scCO ₂ /H ₂ O	scCO ₂	scCO ₂ /H ₂ O	scCO ₂	scCO ₂ /H ₂ O	scCO ₂	scCO ₂ /H ₂ O
1	3385	3358	-	3338	3421	3404	3335	-	3360	3373	-	-	-	3336
2	3070	2967	2955	2926	2919	2969	2916	2916	2916	2918	3010	3010	2916	2933
	2918	2925	2915	2872	2850	2929	2849	1849	2849	2849	2916	2918	2849	
	2850	2876	2849								2849	2849		
3	1689	1709	1708	1706	1745	1748	1709	1706	1709	1708	1709	1708	1709	1688
					1706	1708								
					1648	1659								
4	-	1515	-	1602	-	1515	-	-	-	-	-	-	-	1596
				1515										1514
5	1464	1452	1464	1455	1455	1374	1464	1464	1464	1464	1464	1464	1464	1458
	1371	1374	1445	1427	1382		1375	1372	1375	1375	1375	1374	1377	1427
	1328		1377	1372	1313									1374
			1310											
6			1291											
	1255	1268	1271	1271	1243	1255	1168	1170	1170	1170	1173	1170	1247	1271
	1187	1186	1251	1213	1196	1197							1170	1210
	1154		1231	1119	1153	1151								1119
7	1094	1050	1103	1037	1079	1080	1104	1103	1104	1054	1104	1054	1104	1031
	1069				1044	1041	1044	1054	1050	1013	1050	1014	1034	
	1023							1013						
8	919	924	886	-	960	962	987	723	956	722	956	723	892	944
	873	886	719		930	886	723		722		722		836	856
	792	835	679		883	842							723	820
	765	642	636		840	819								768
	725				822	760								628
	698				793	722								572
	631				760	626								
	581				722	585								
	525				678	548								
					626	512								
					586									
					546									
					514									
9	468	-	-	-	468	465	-	-	-	-	-	-	-	501
	427				442	441								465

- - no signal

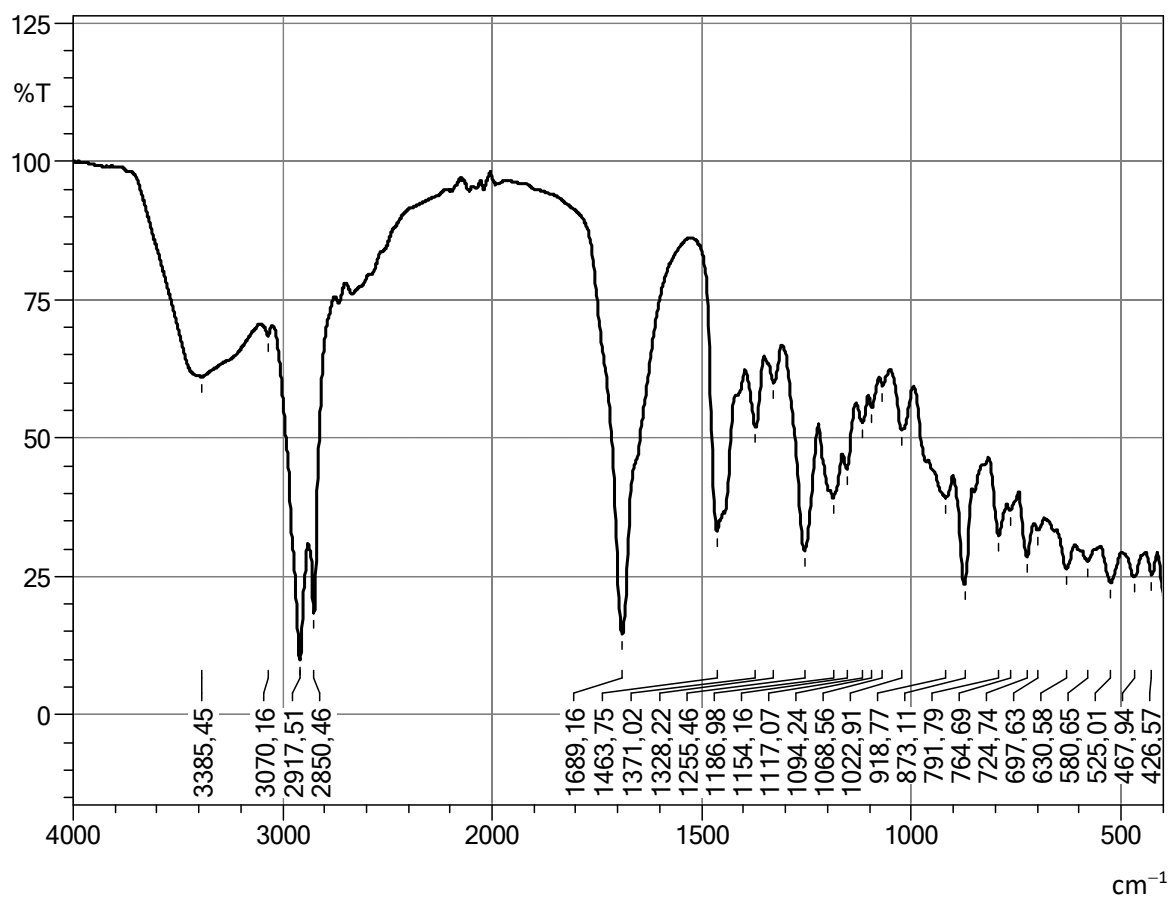


Figure S1. QATR-FTIR spectrum of the scCO₂ extract from *H. salicifolius* harvested in June.

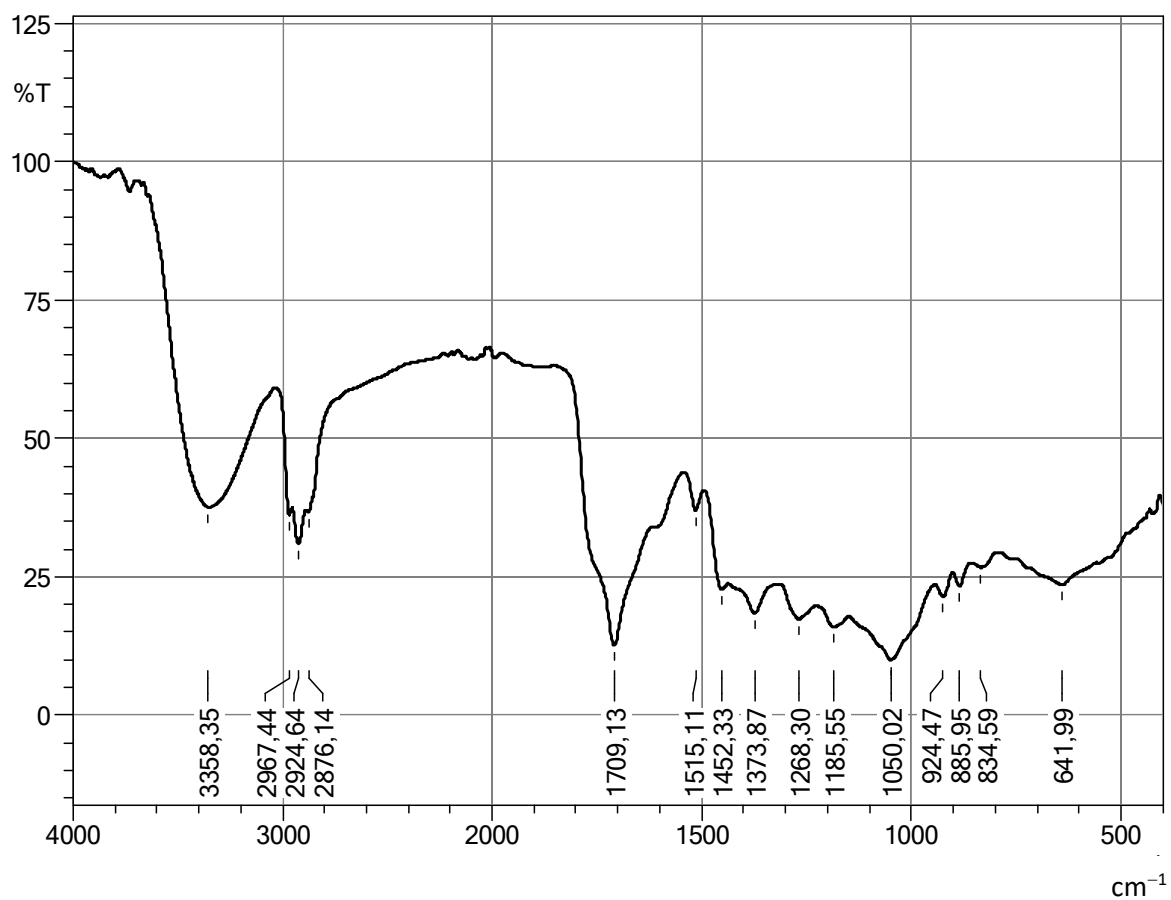


Figure S2. QATR-FTIR spectrum of the scCO₂/H₂O extract from *H. salicifolius* harvested in June.

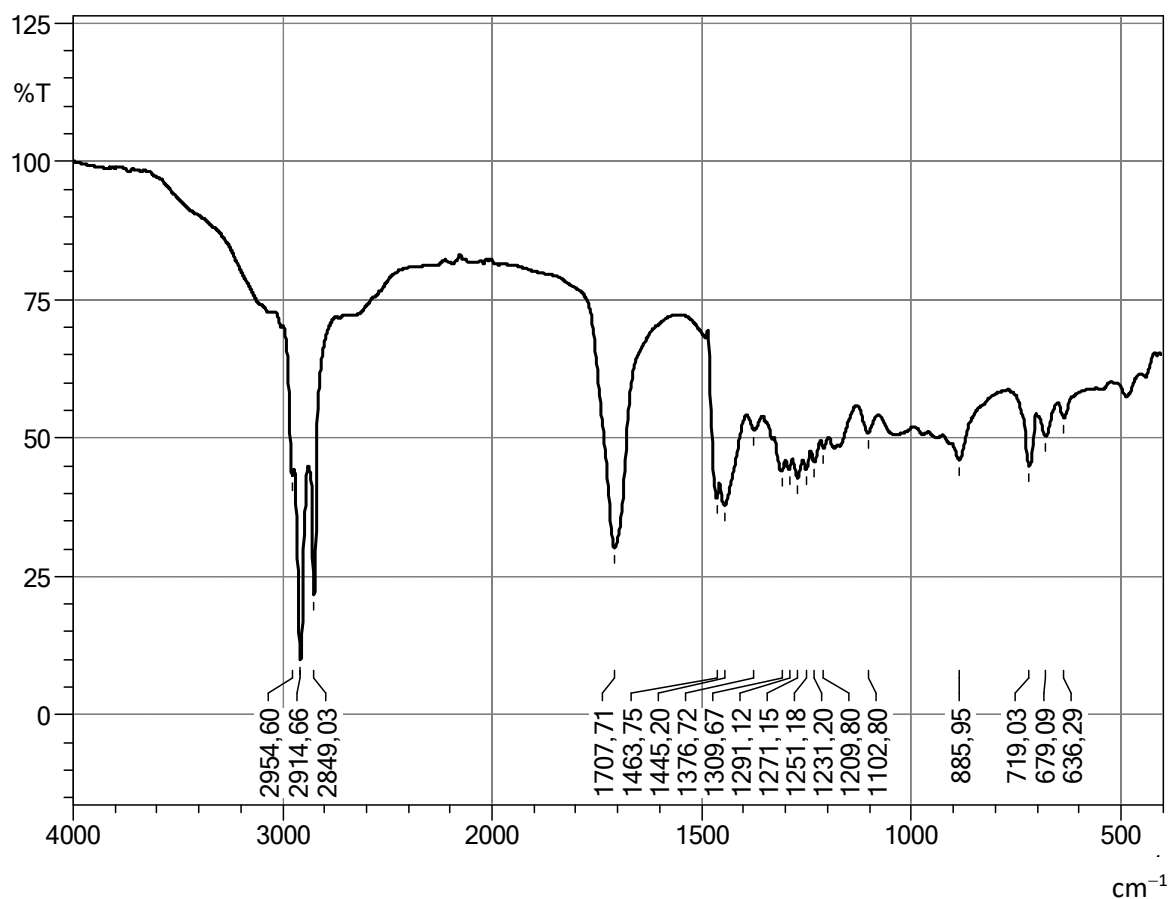


Figure S3. QATR-FTIR spectrum of the scCO₂ extract from *S. perfoliatum* harvested in June.

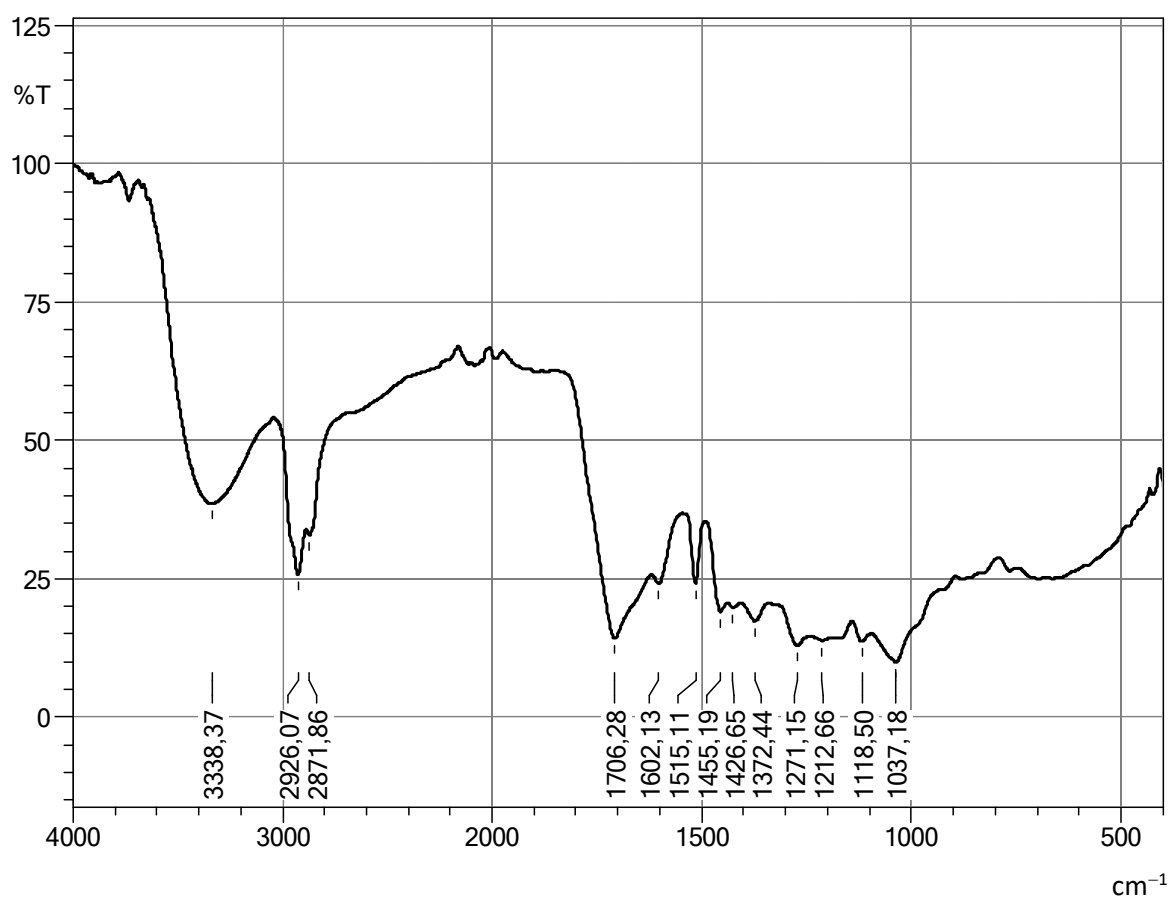


Figure S4. QATR-FTIR spectrum of the scCO₂/H₂O extract from *S. perfoliatum* harvested in June.

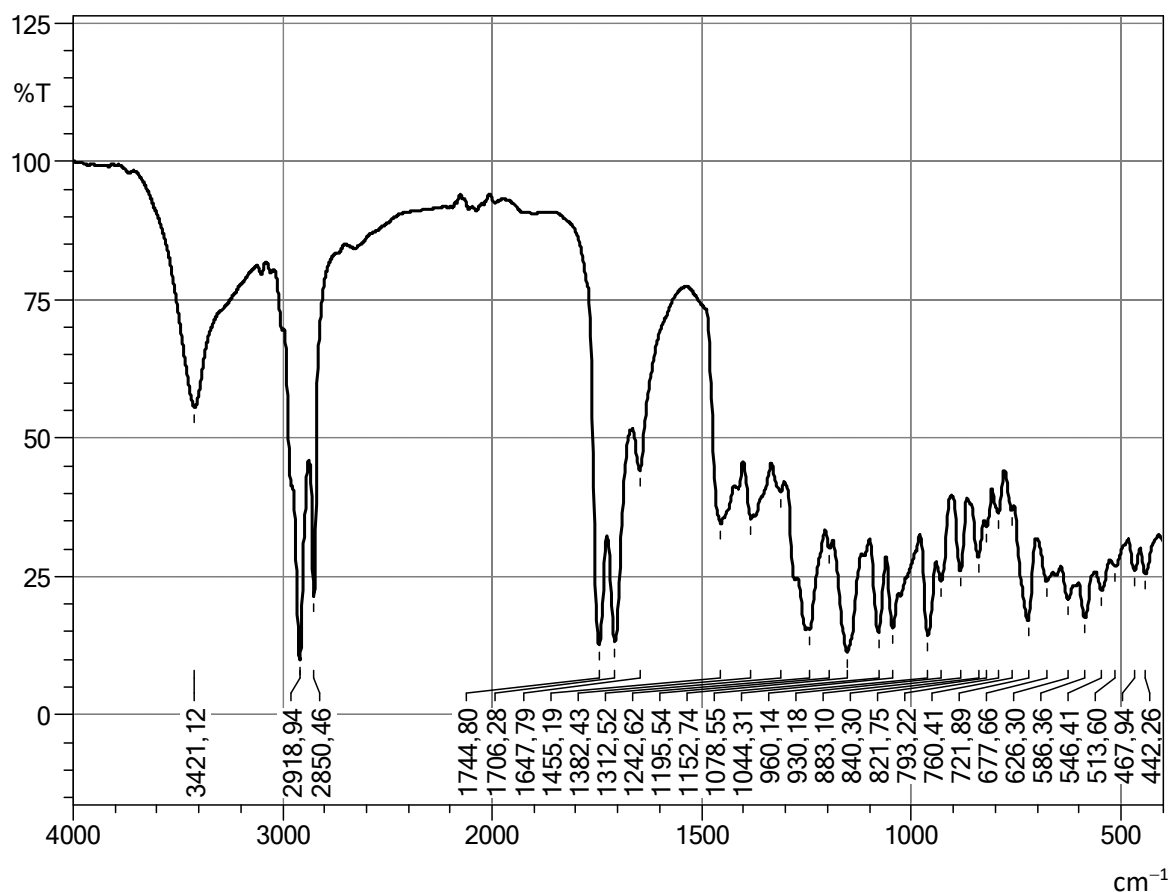


Figure S5. QATR-FTIR spectrum of the scCO₂ extract from *H. tuberosus* harvested in June.

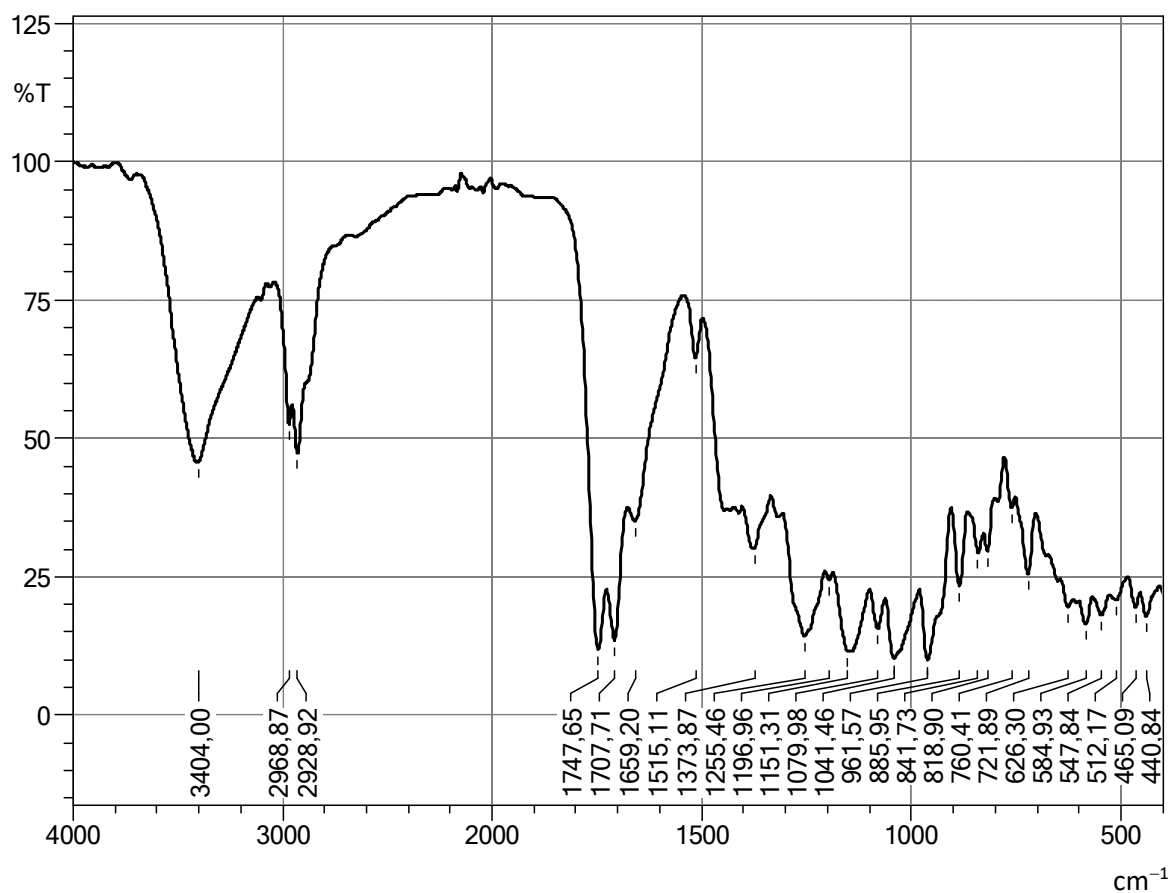


Figure S6. QATR-FTIR spectrum of the scCO₂/H₂O extract from *H. tuberosus* harvested in June.

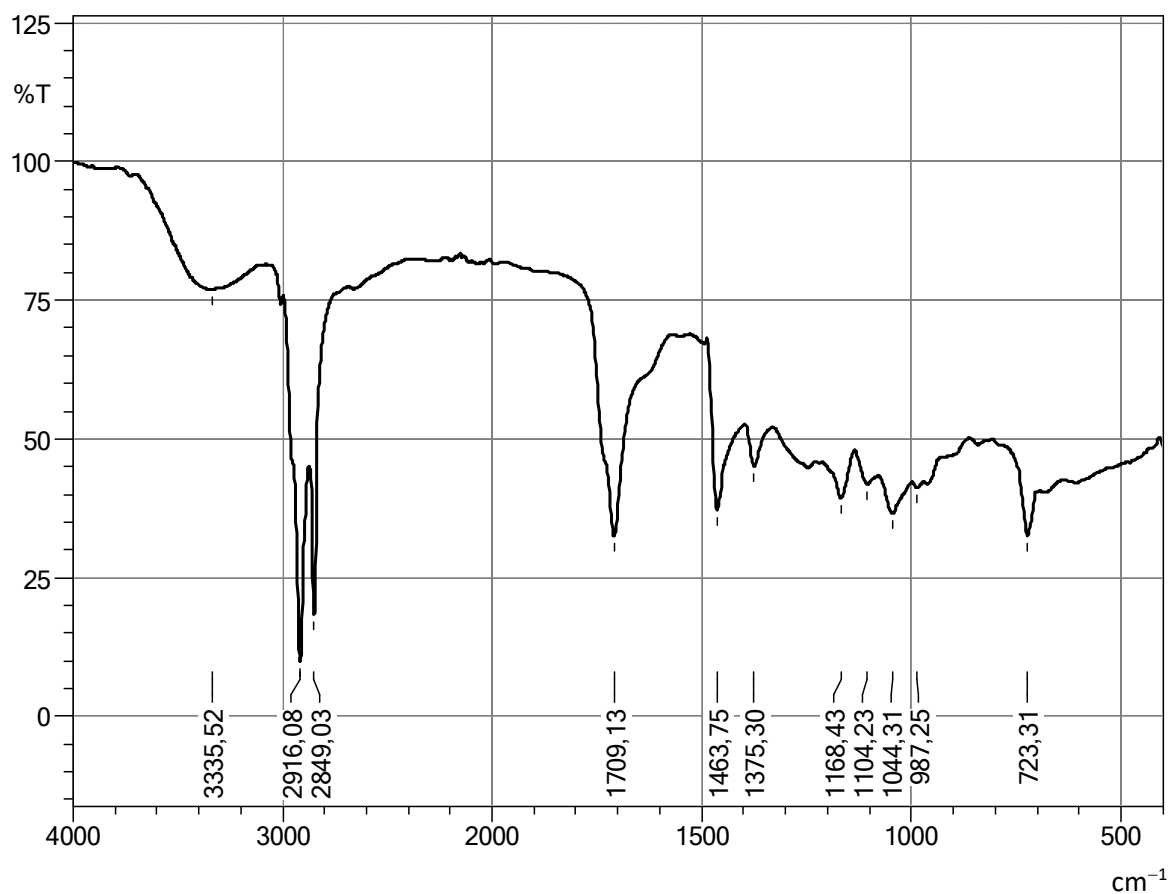


Figure S7. QATR- FTIR spectrum of the scCO₂ extract from *M. x giganteus* harvested in June.

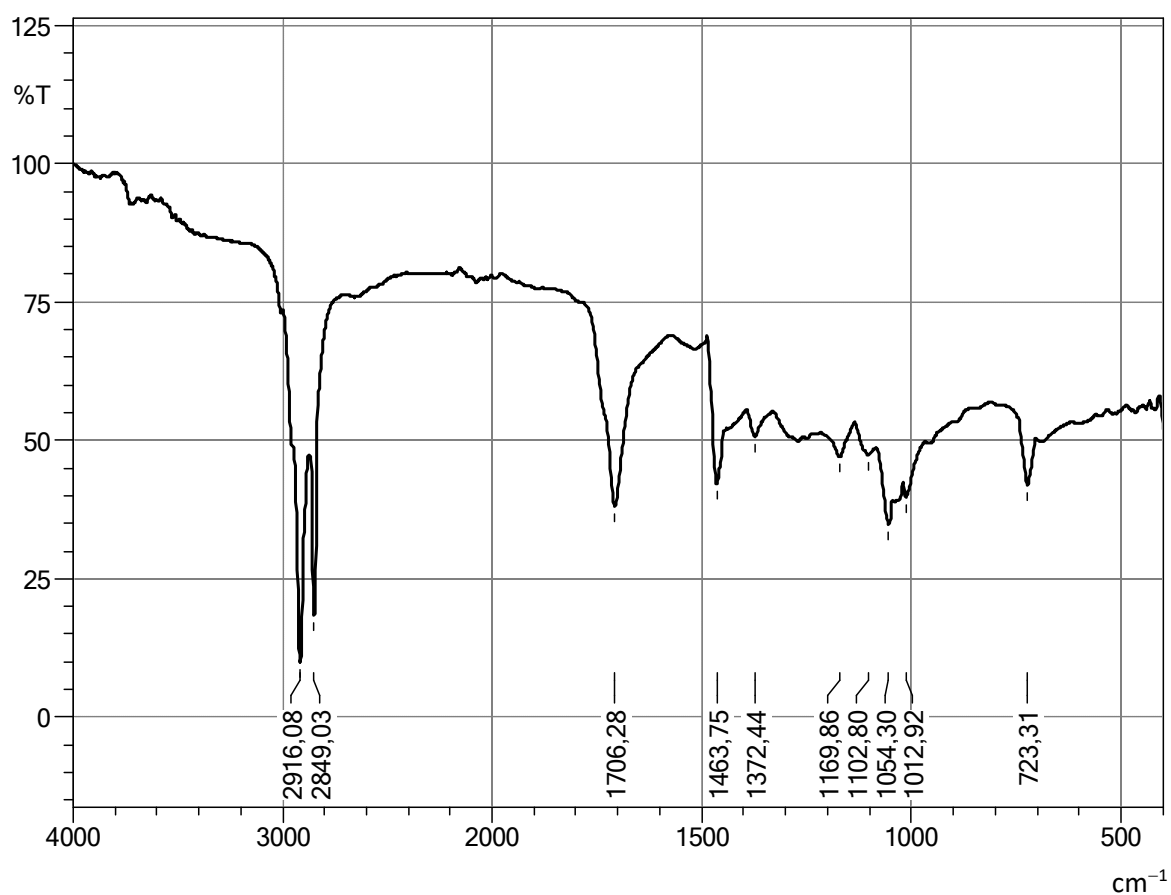


Figure S8. QATR-FTIR spectrum of the scCO₂/H₂O extract from *M. x giganteus* harvested in June.

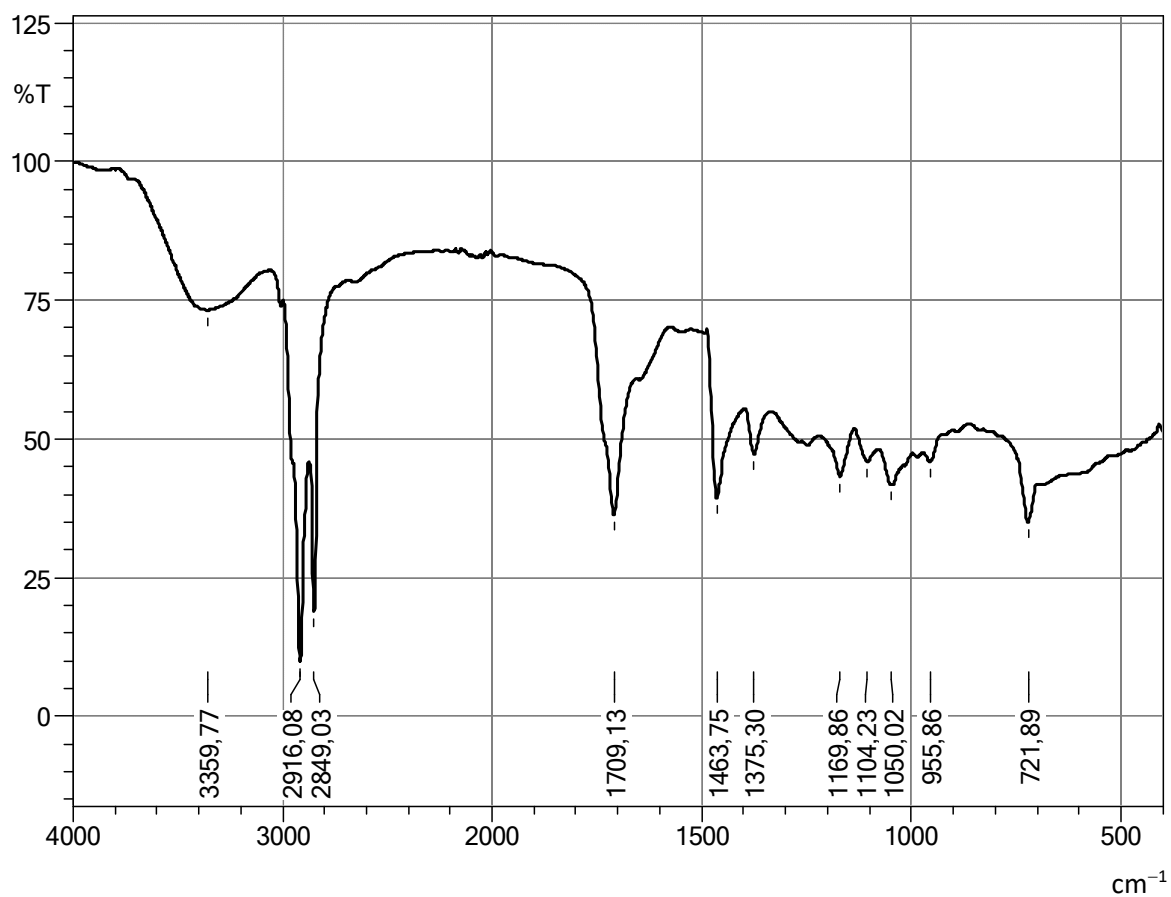


Figure S9. QATR- FTIR spectrum of the scCO₂ extract from *M. sinensis* harvested in June.

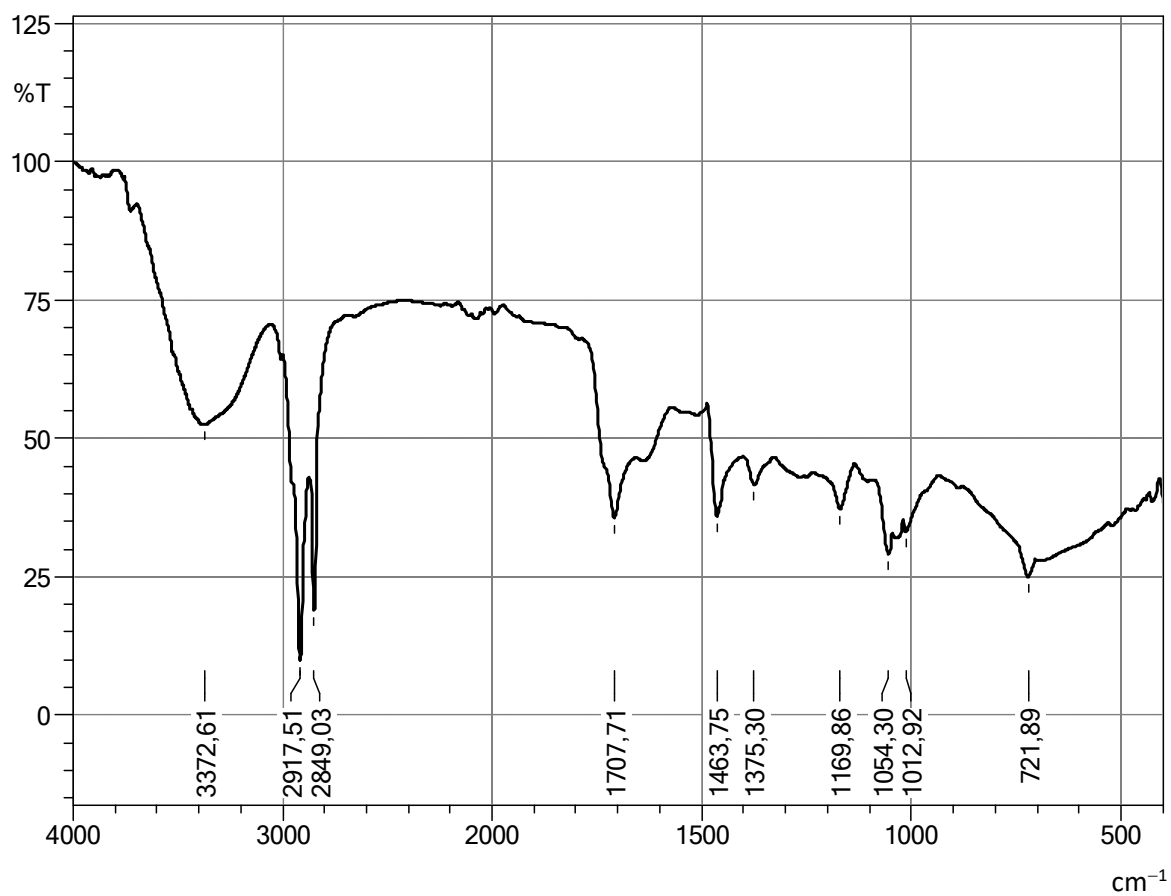


Figure S10. QATR-FTIR spectrum of the scCO₂/H₂O extract from *M. sinensis* harvested in June.

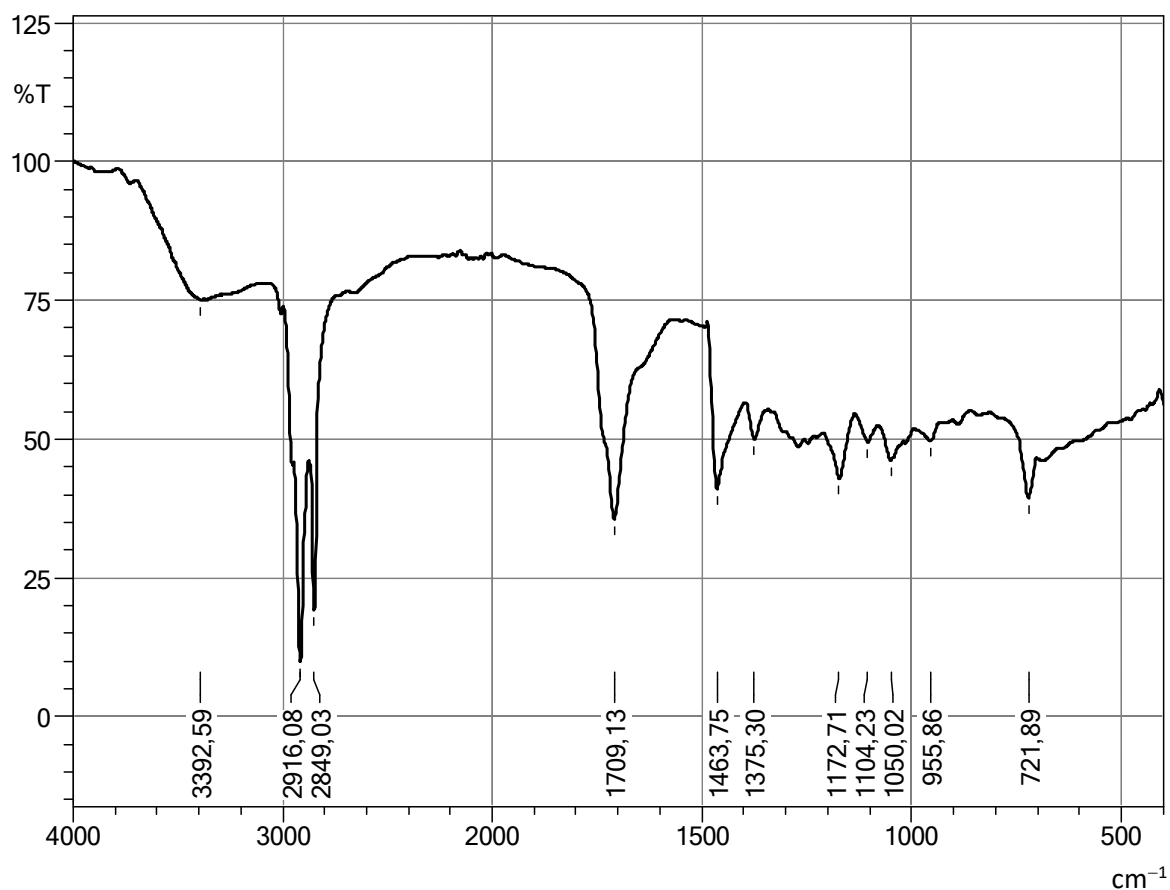


Figure S11. QATR- FTIR spectrum of the scCO₂ extract from *M. sacchariflorus* harvested in June.

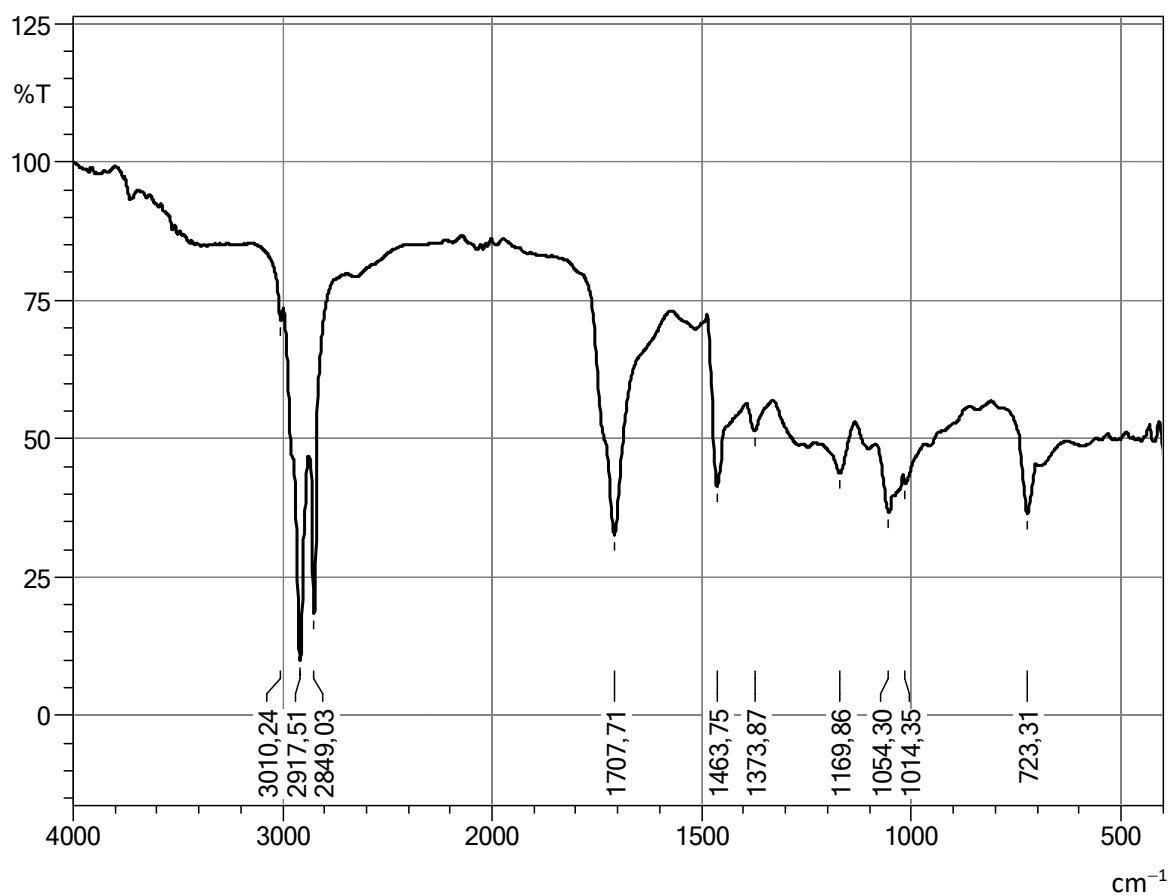


Figure S12. QATR-FTIR spectrum of the scCO₂/H₂O extract from *M. sacchariflorus* harvested in June.

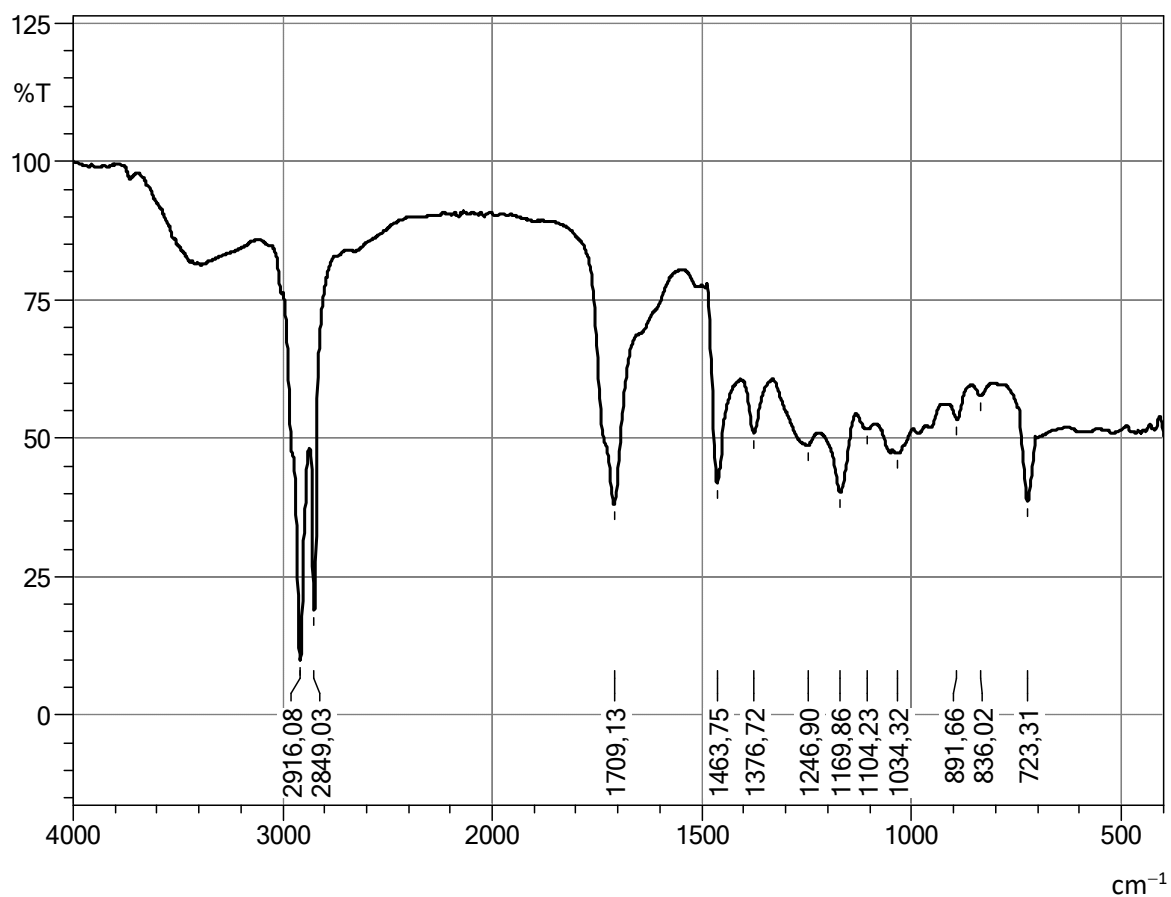


Figure S13. QATR-FTIR spectrum of the scCO₂ extract from *S. pectinata* harvested in June.

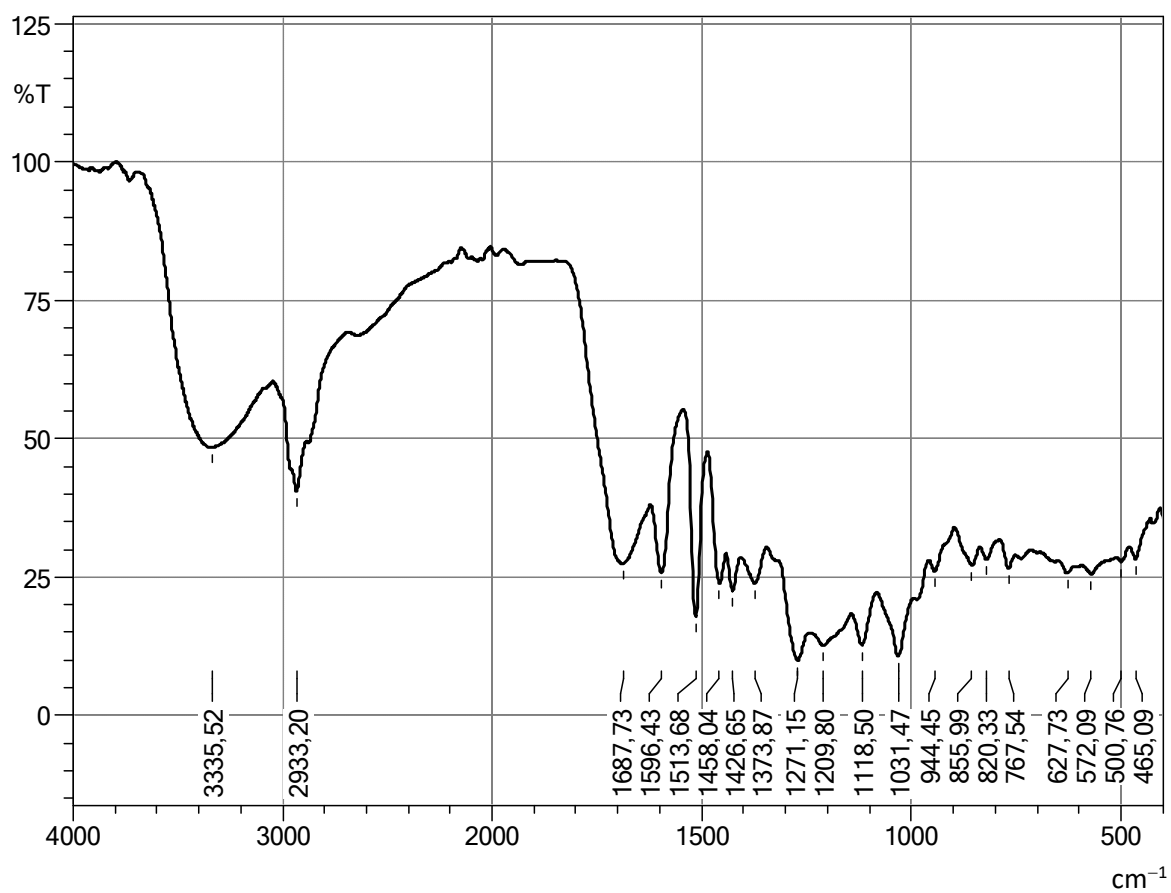


Figure S14. QATR-FTIR spectrum of the scCO₂/H₂O extract from *S. pectinata* harvested in June.