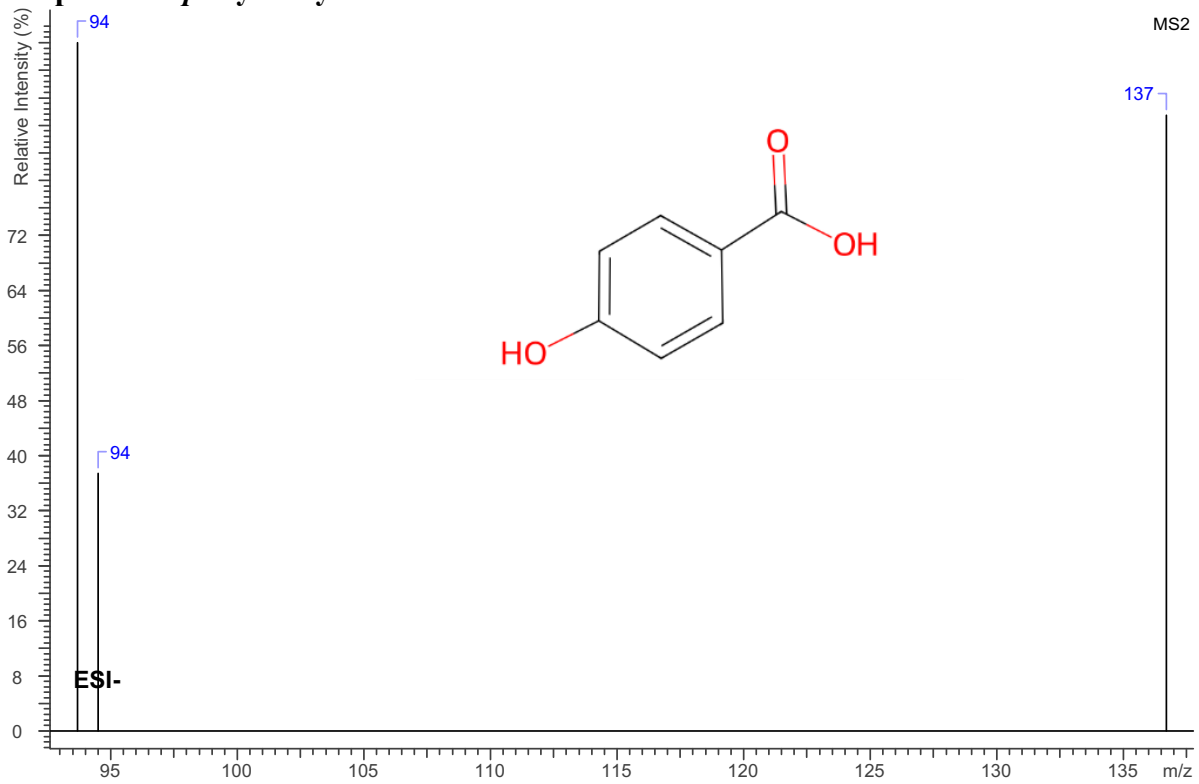
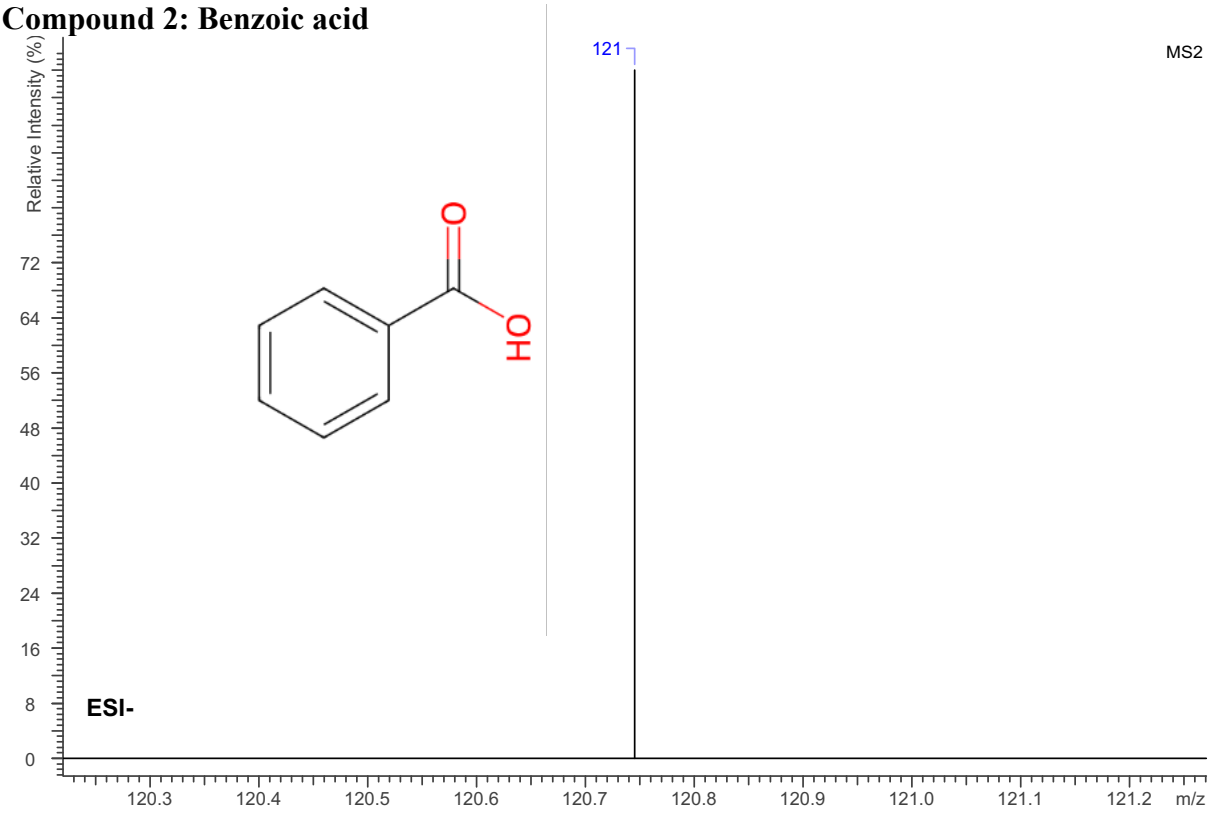
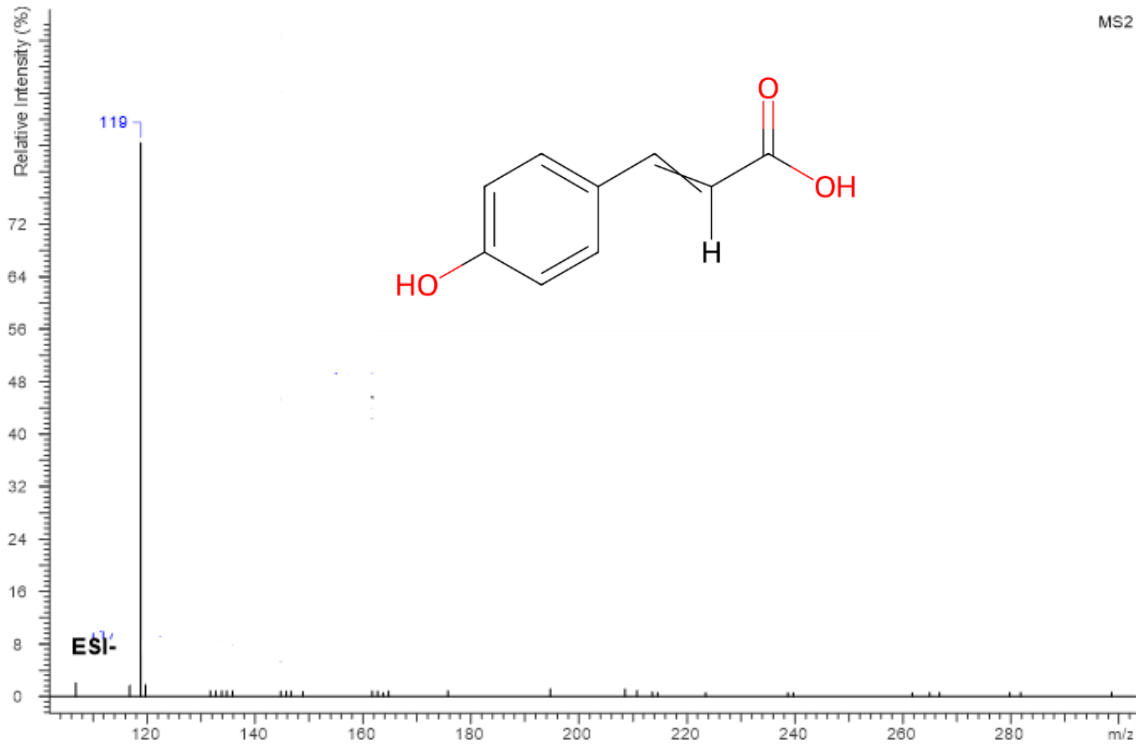
Compound 1*: p*-Hydroxybenzoic acid



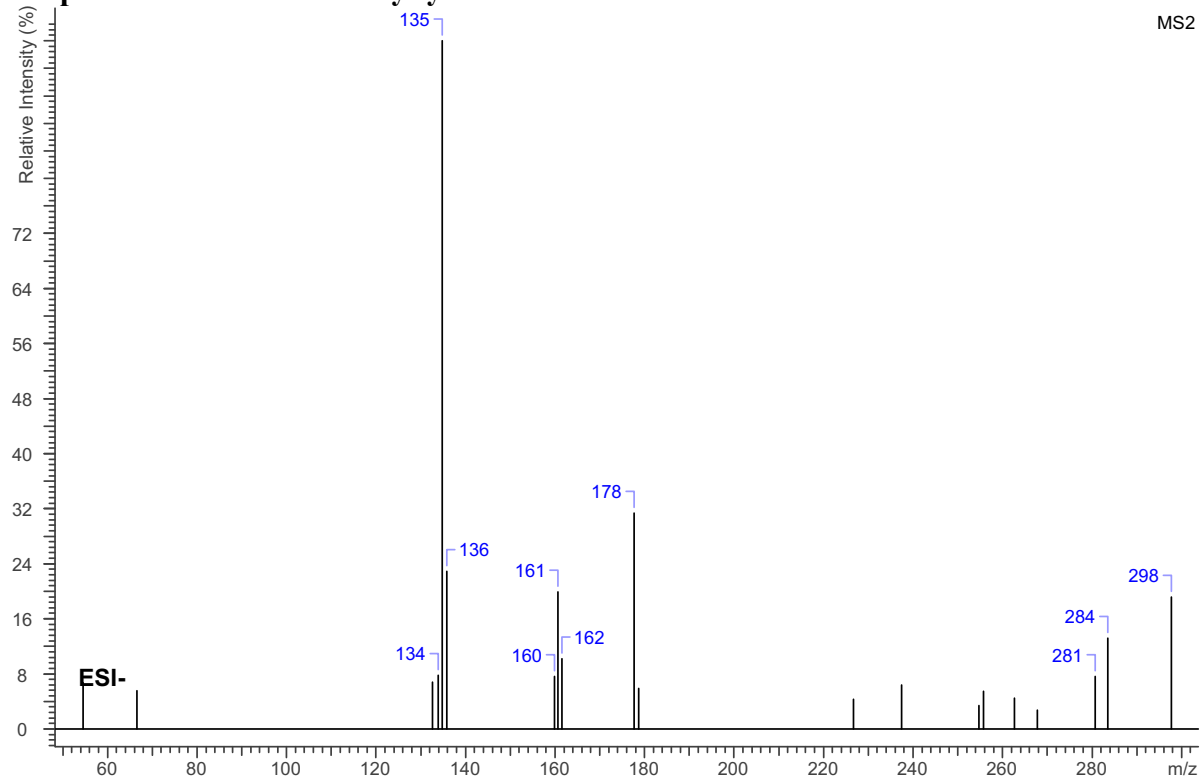
Compound 2: Benzoic acid



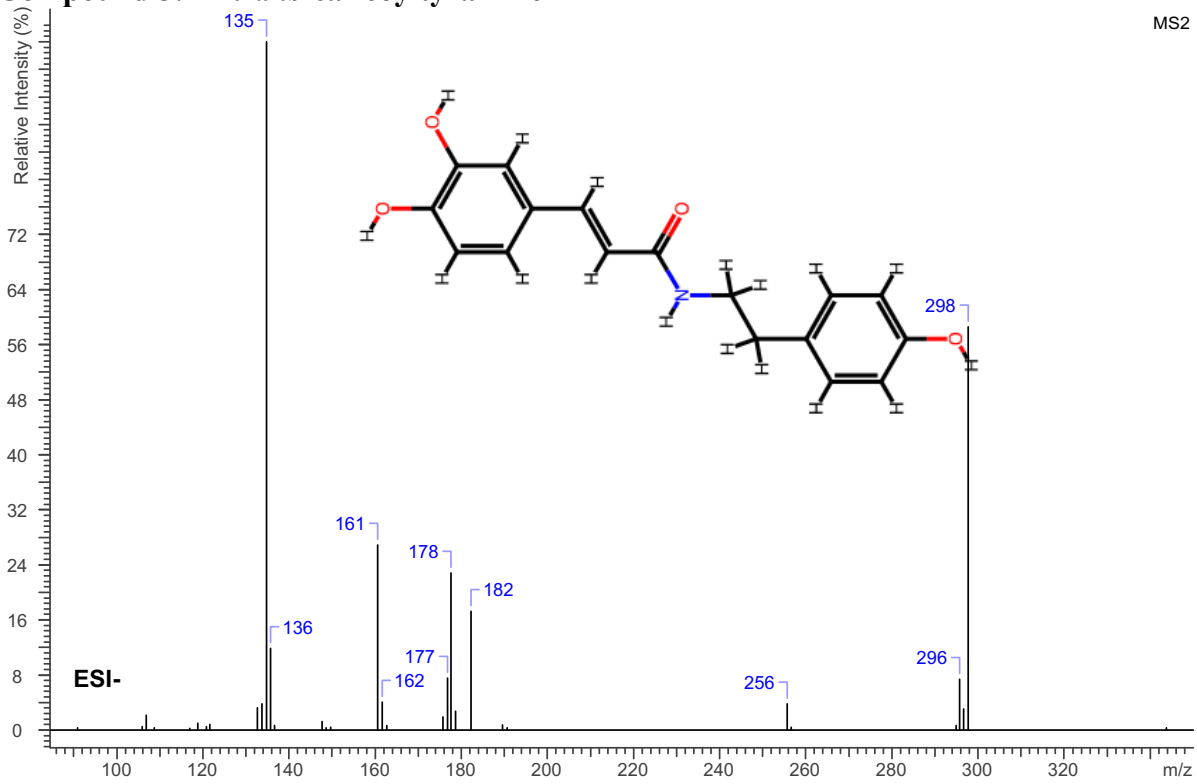
Compound 3: *p*-Coumaric acid



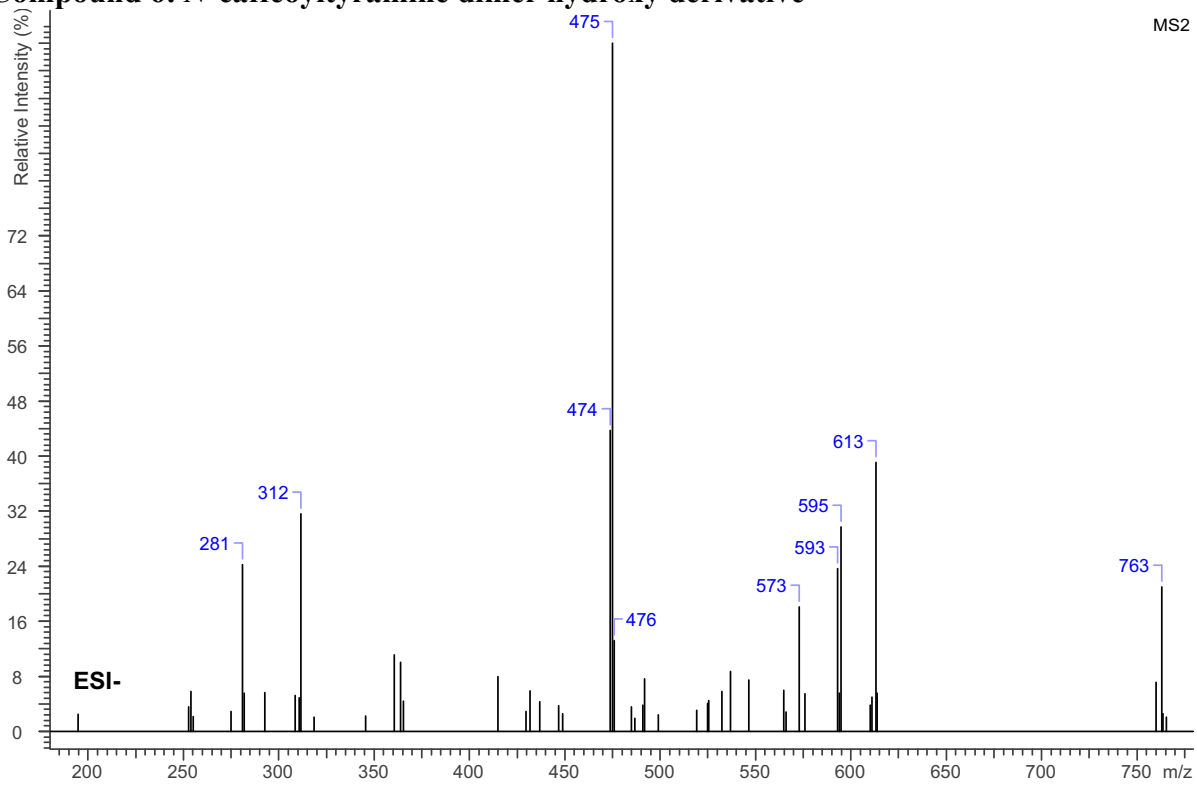
Compound 4 *: N-trans*-caffeoyltyramine isomer



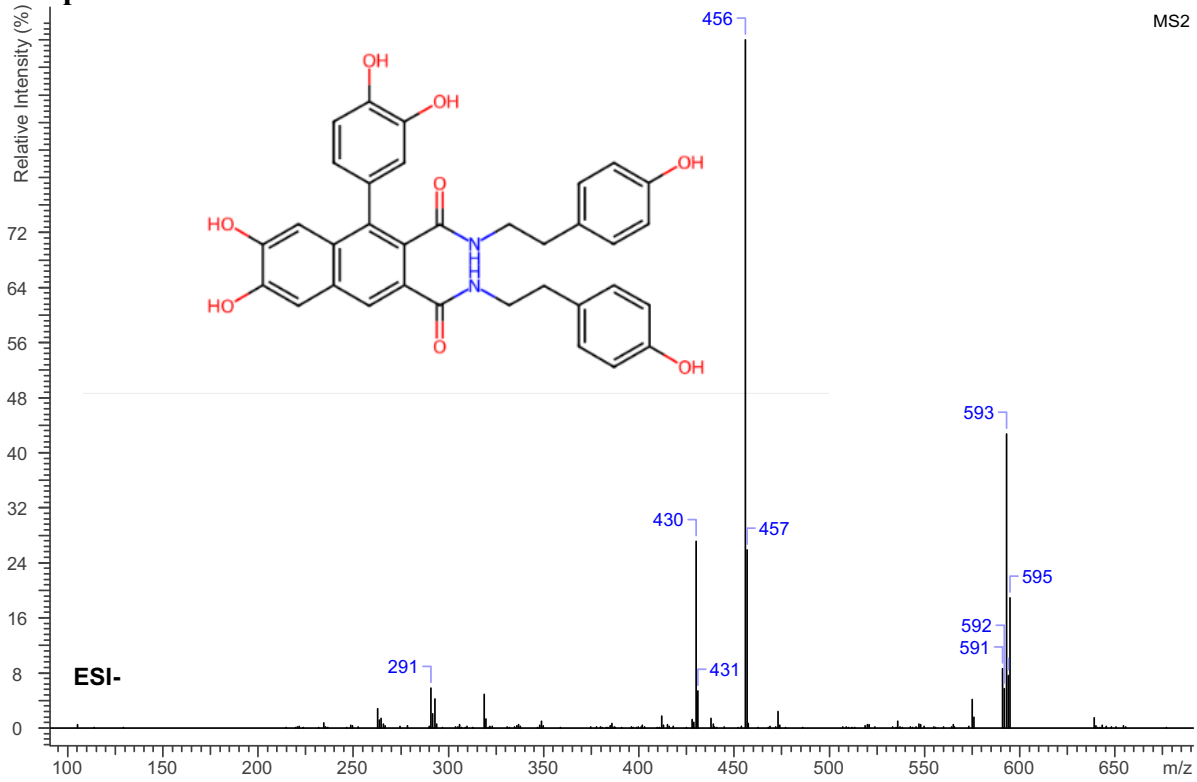
Compound 5: *N-trans*-caffeoyltyramine



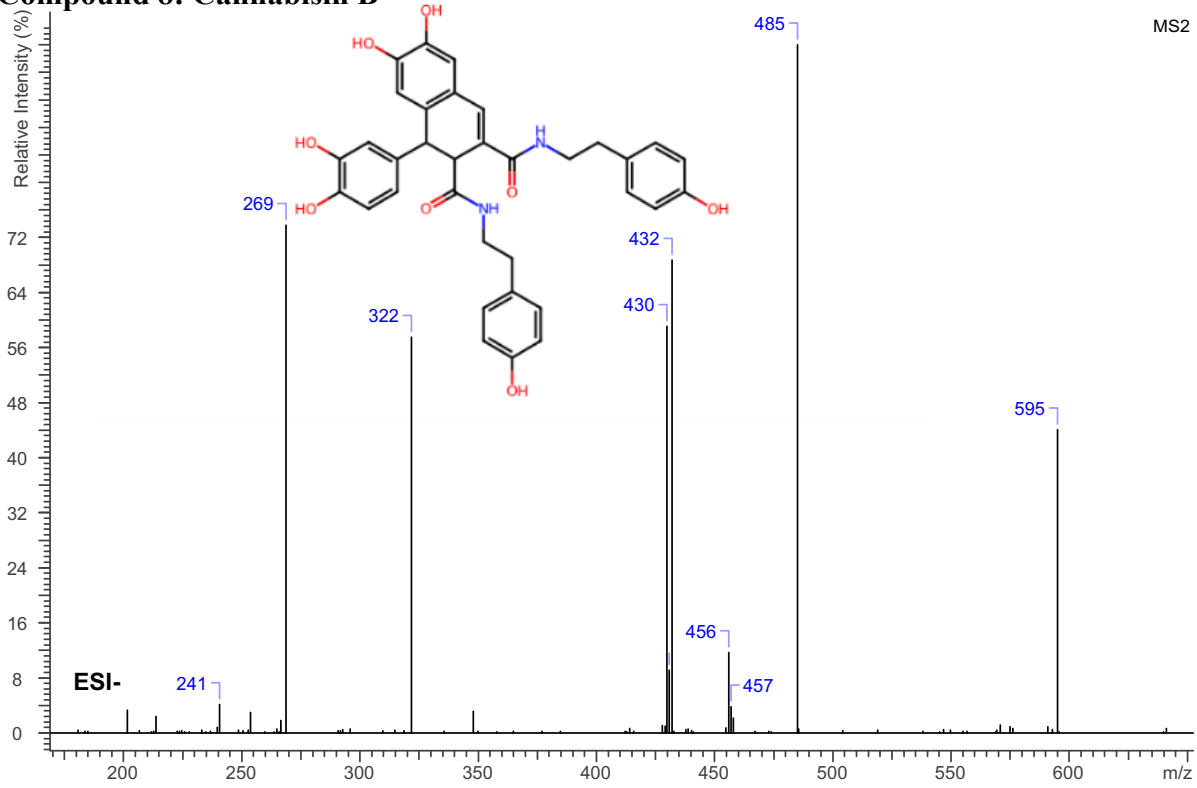
Compound 6: *N*-caffeoyltyramine dimer hydroxy derivative



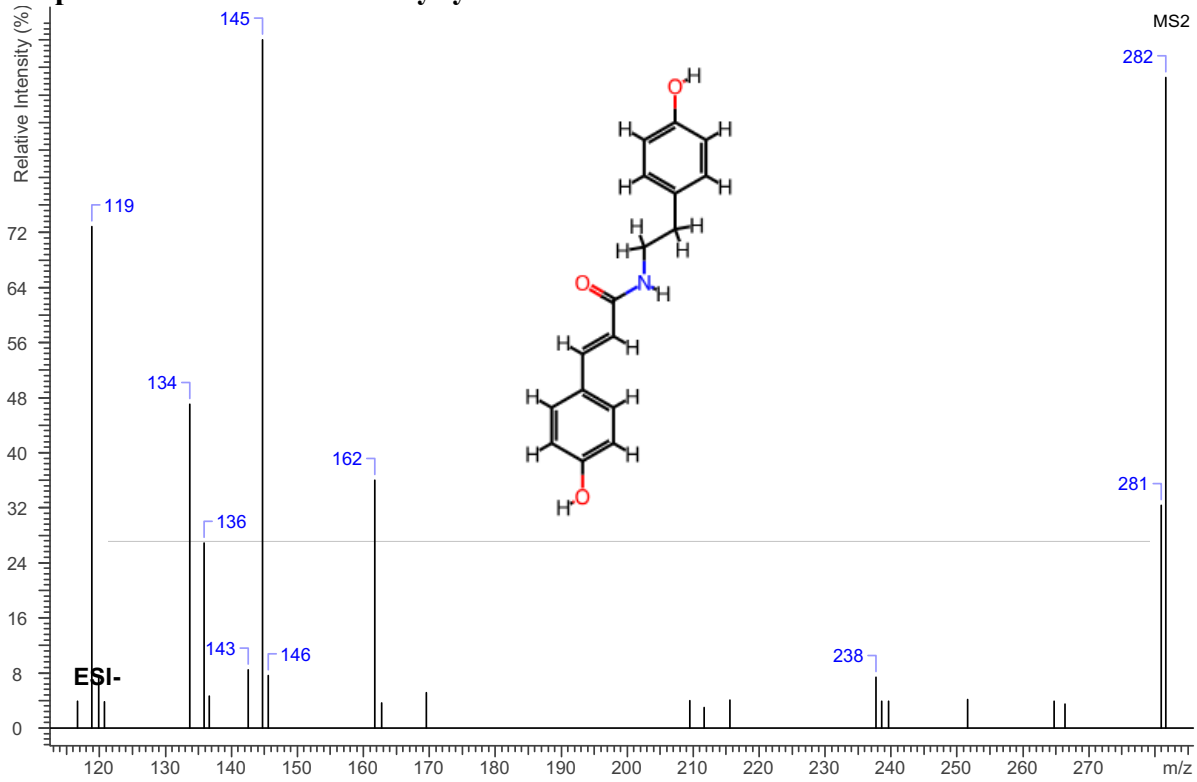
Compound 7 : Cannabisin A



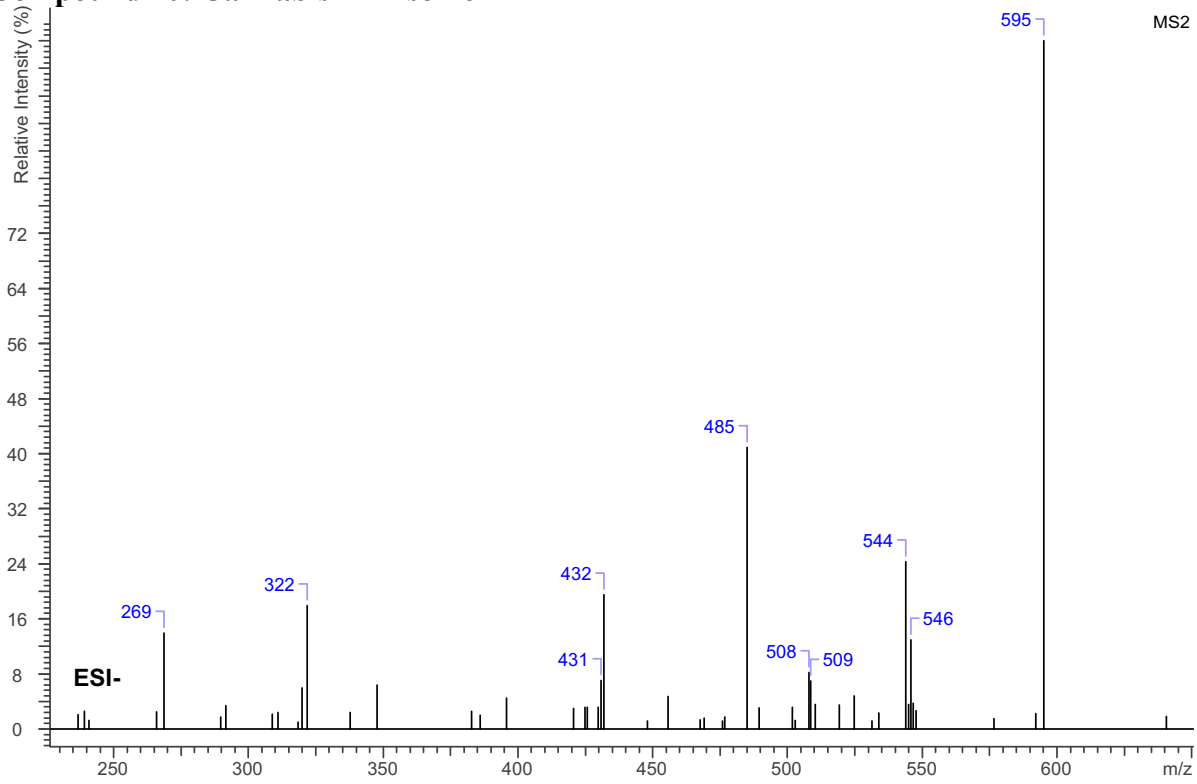
Compound 8: Cannabisin B



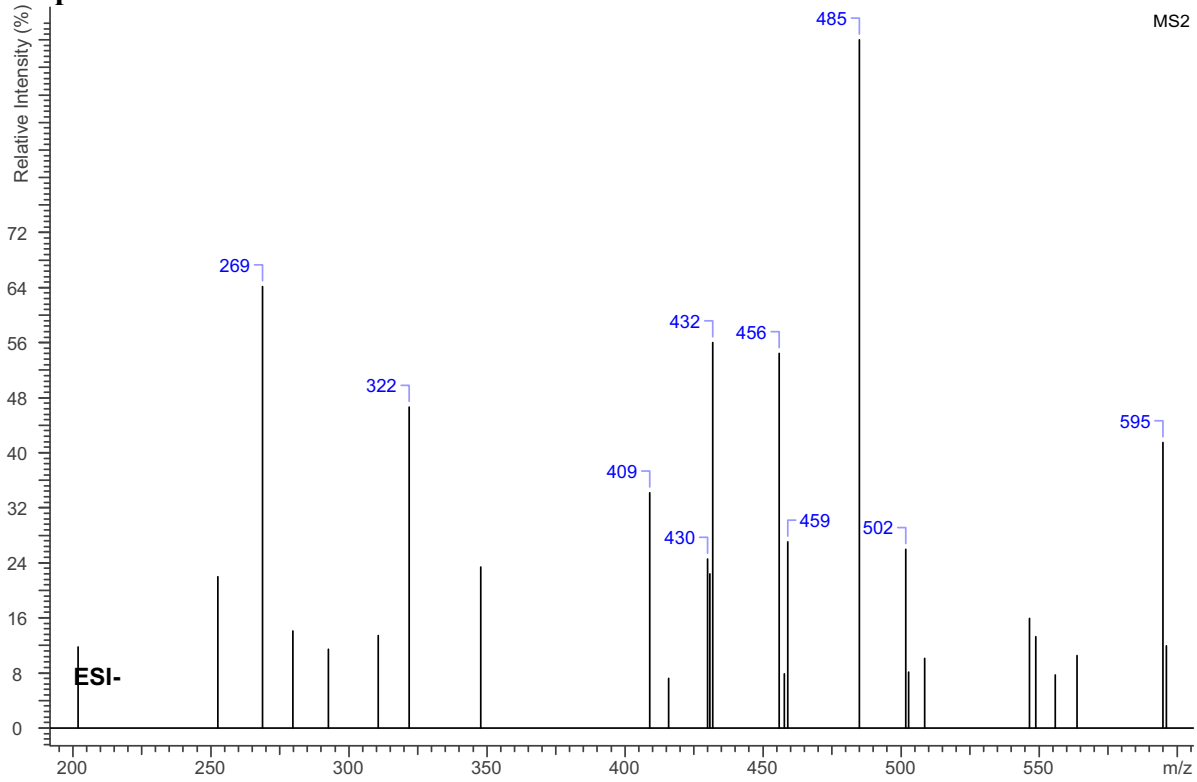
Compound 9: *N-trans*-coumaroyltyramine



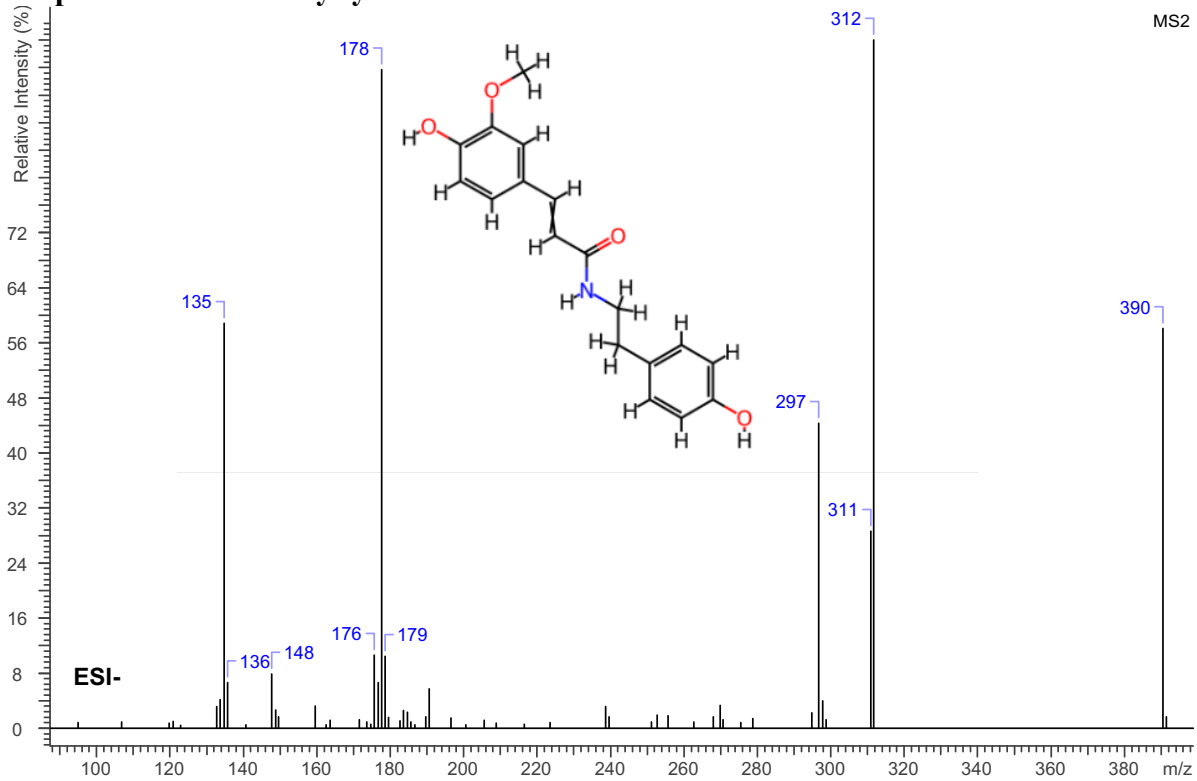
Compound 10: Cannabisin B Isomer 1



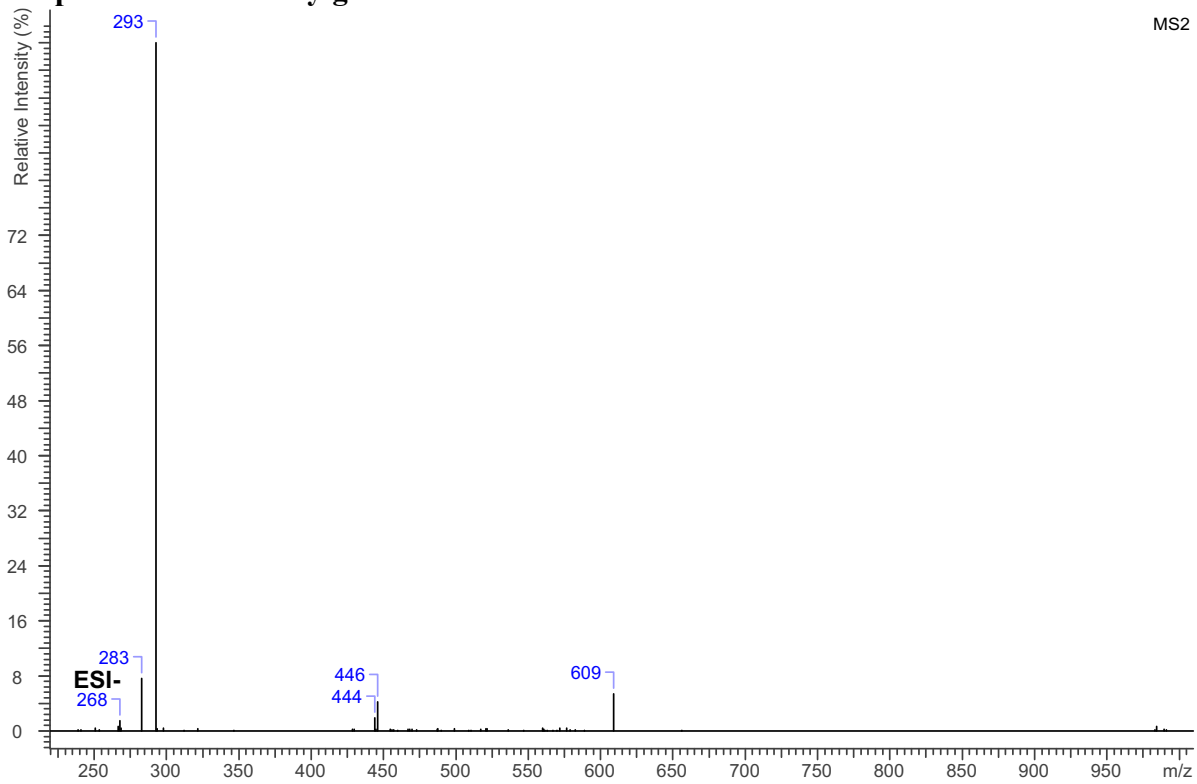
Compound 11: Cannabisin B Isomer 2



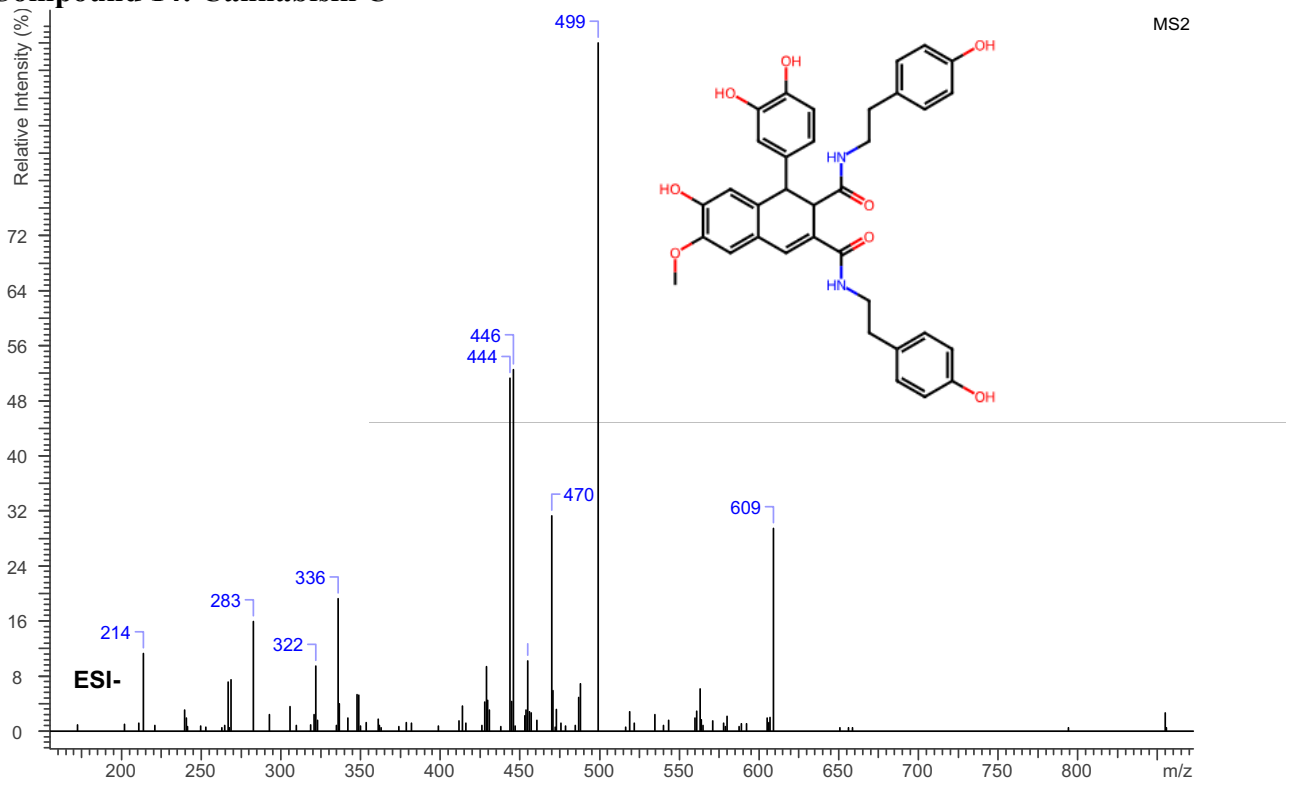
Compound 12: *N*-feruloyltyramine



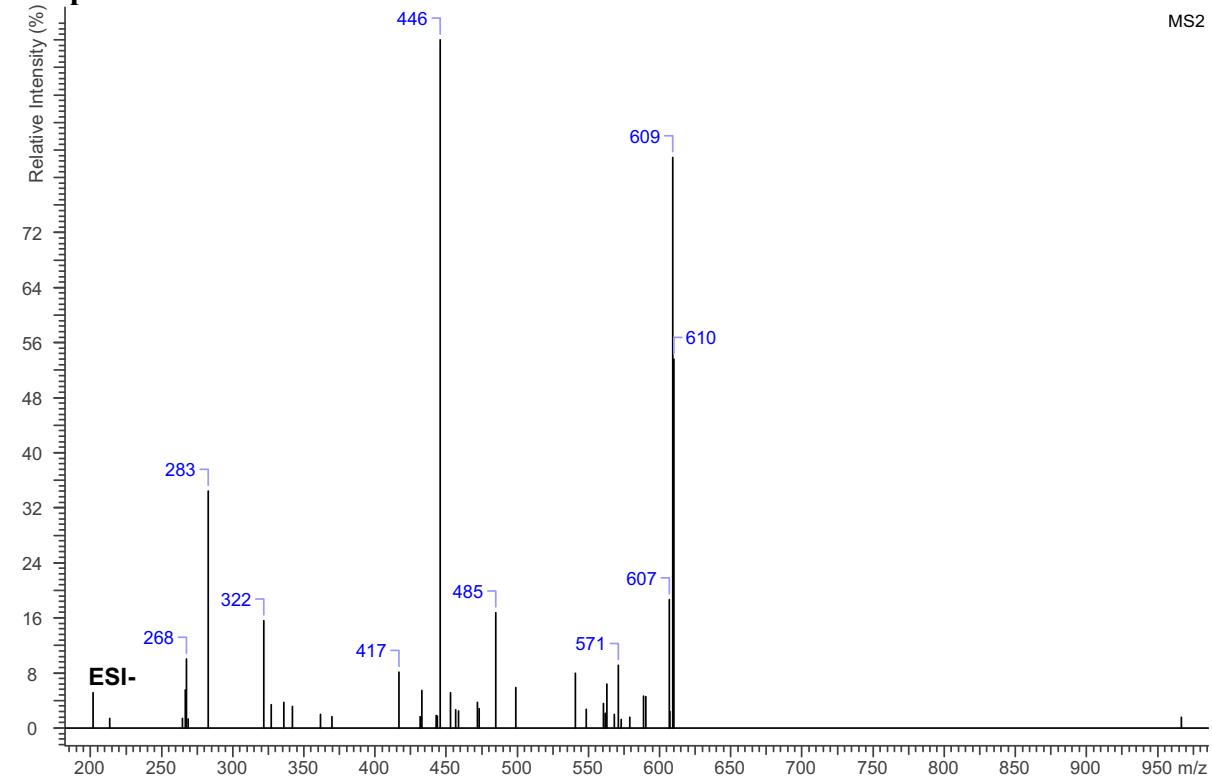
Compound 13: Demethylgrossamide



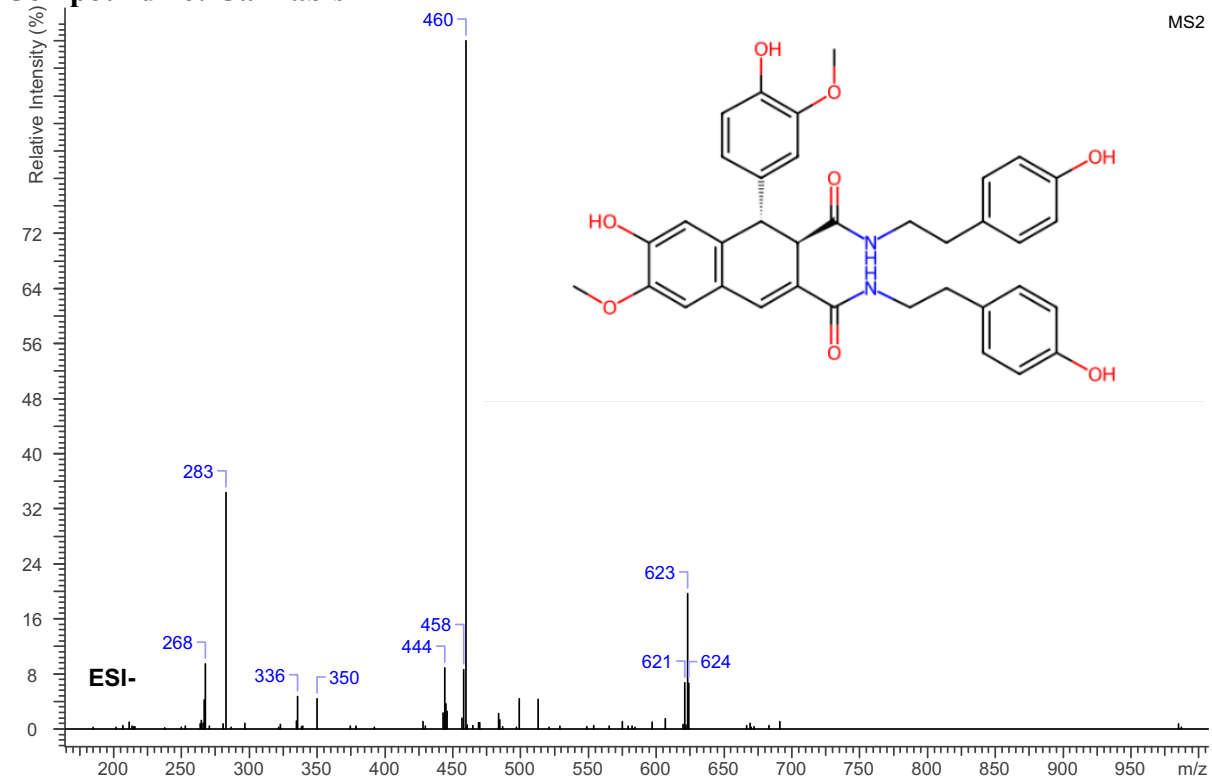
Compound 14: Cannabisin C



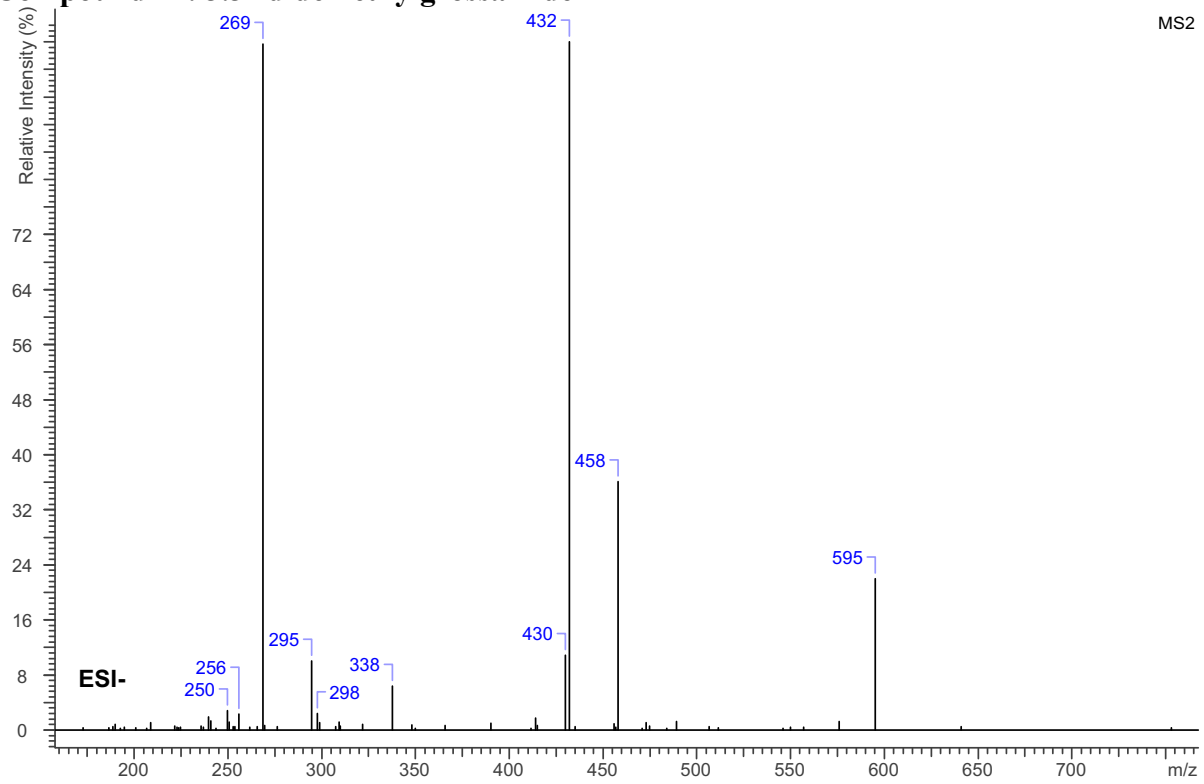
Compound 15: Cannabisin C isomer



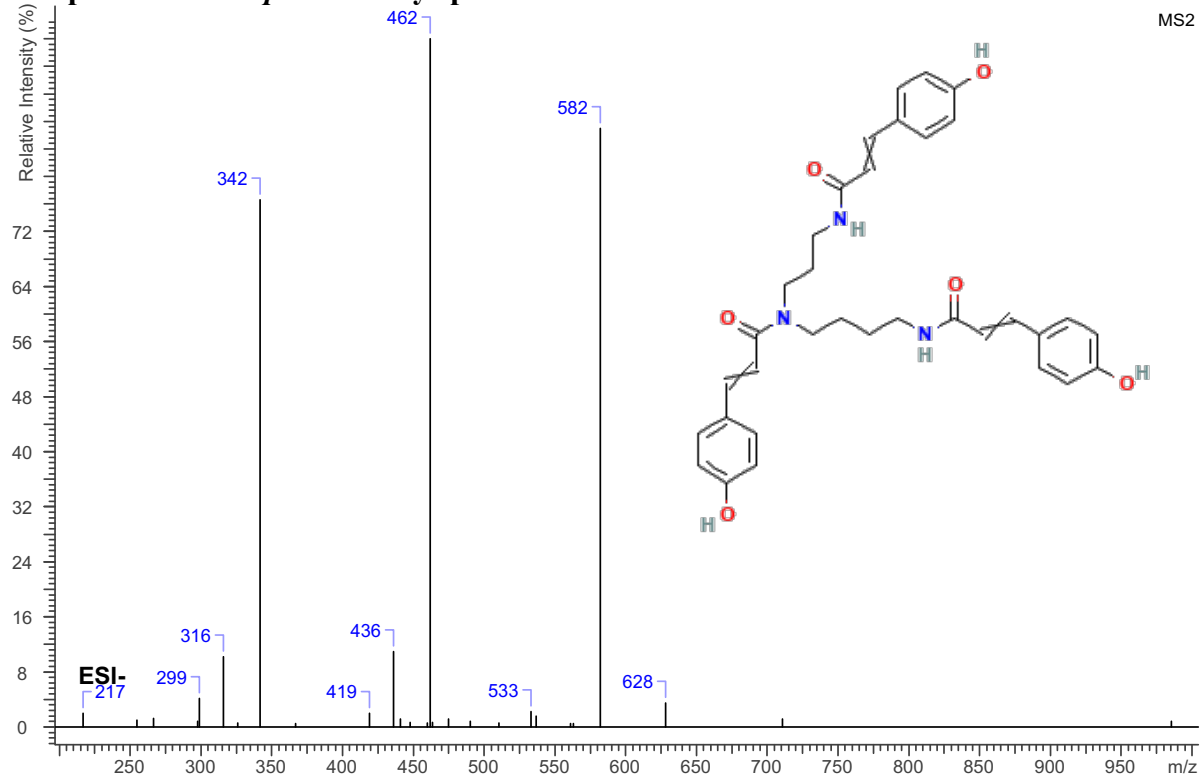
Compound 16: Cannabisin D



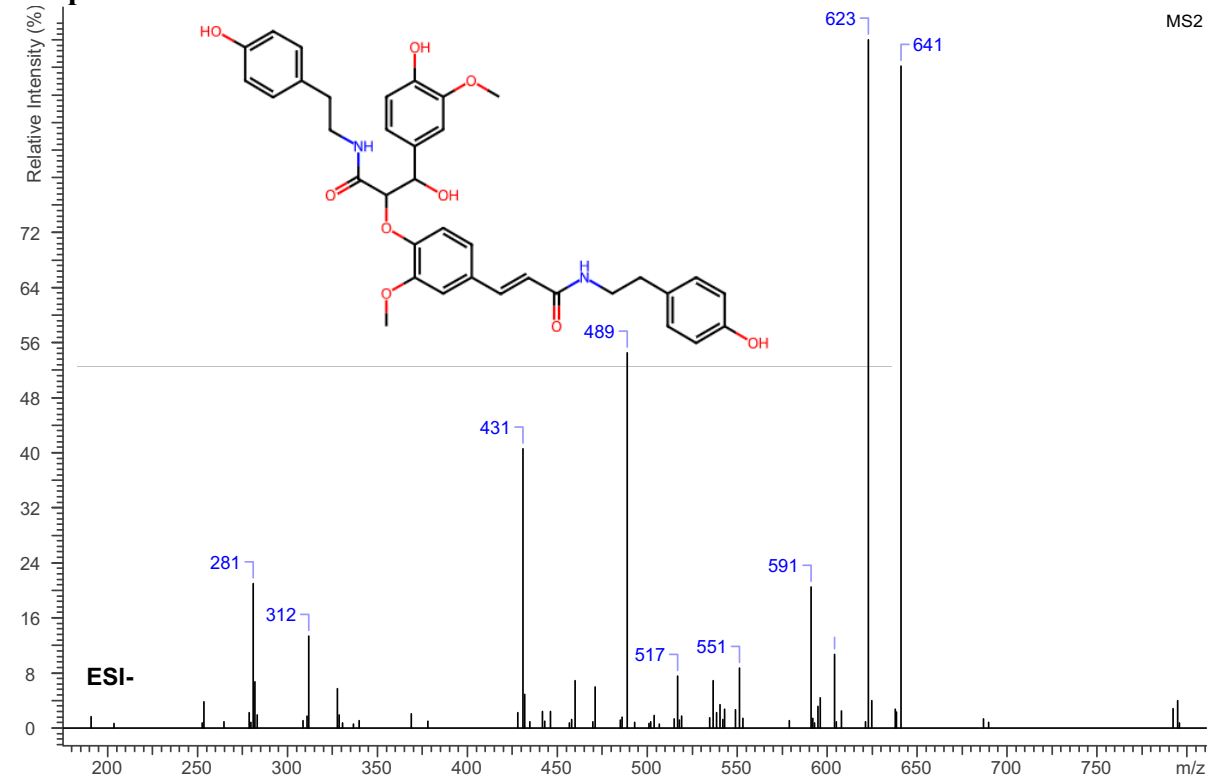
Compound 17: 3.3’-didemethylgrossamide



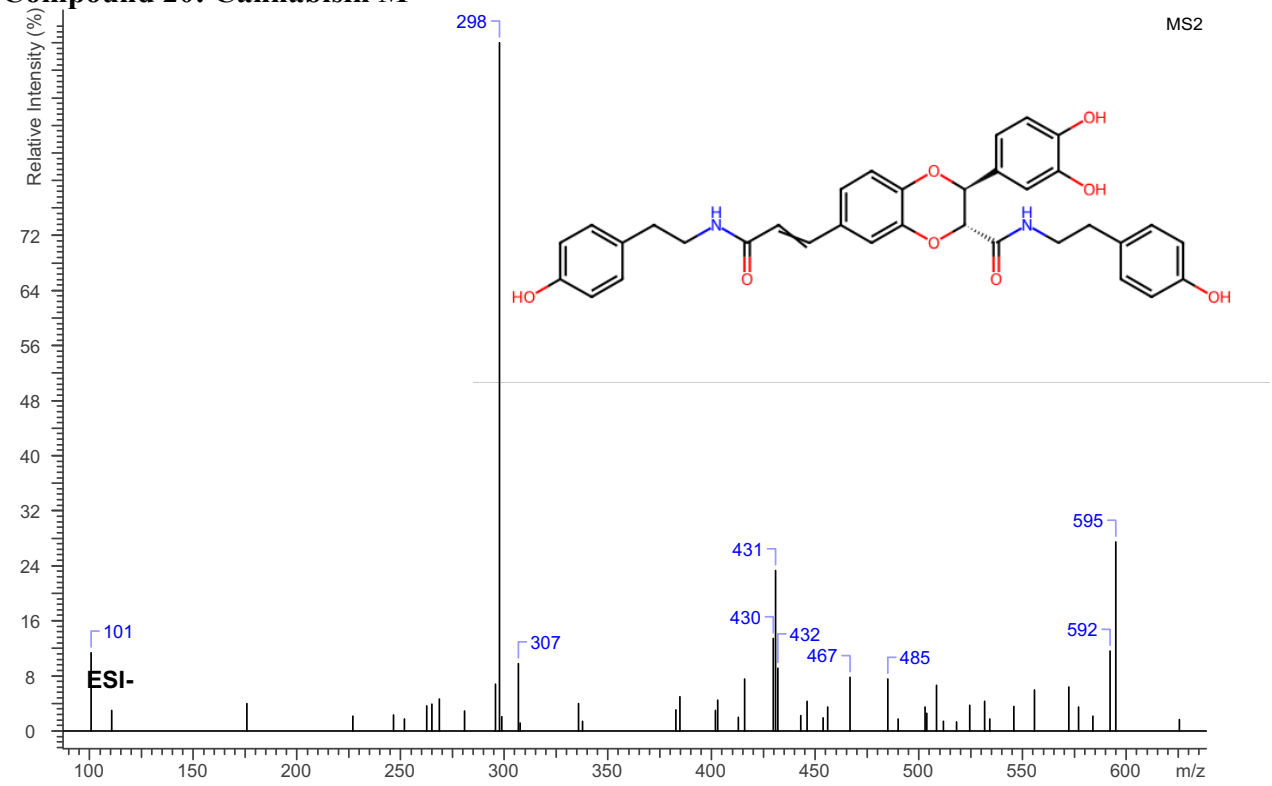
Compound 18: Tri-*p*-coumaroylspermidine



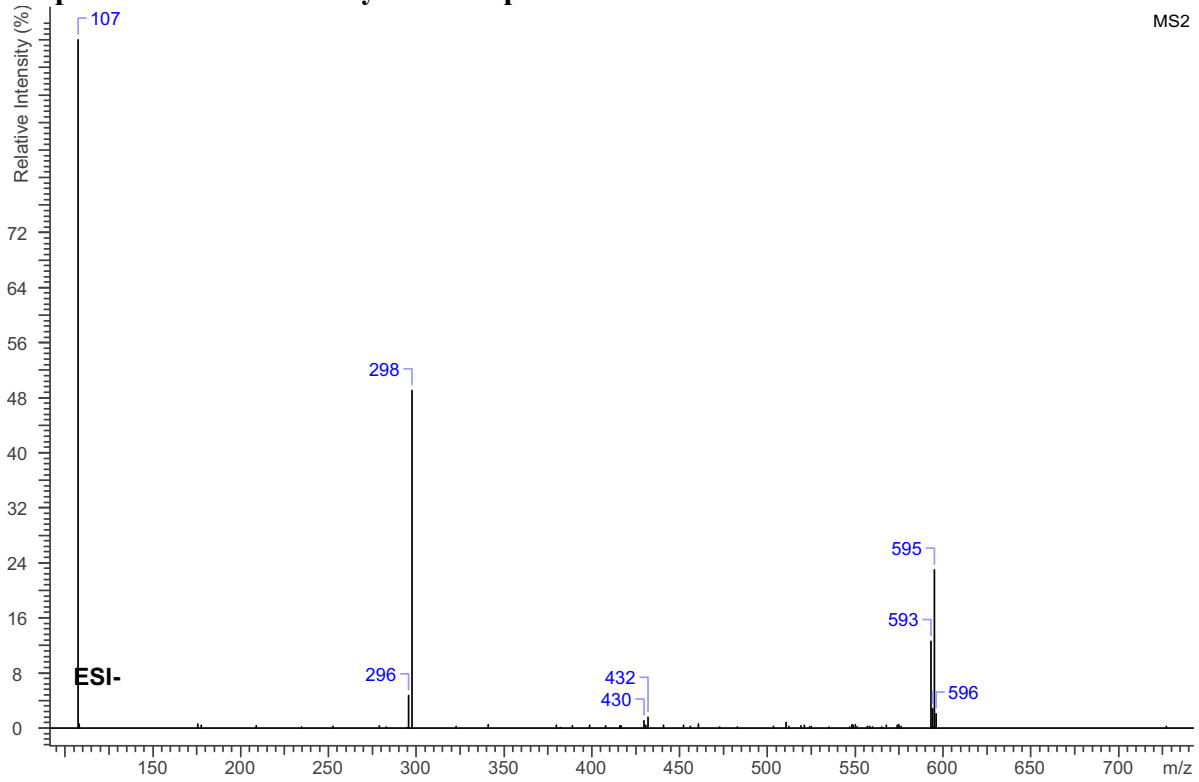
Compound 19: Cannabisin E



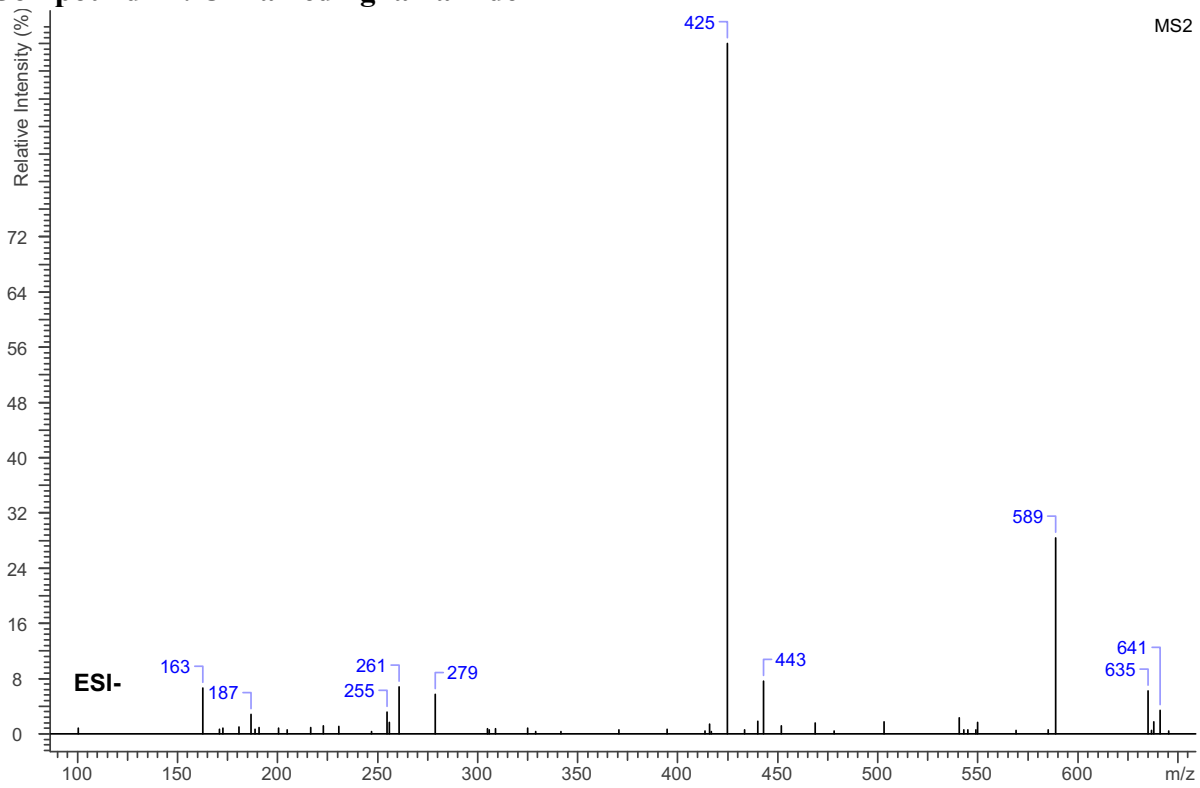
Compound 20: Cannabisin M



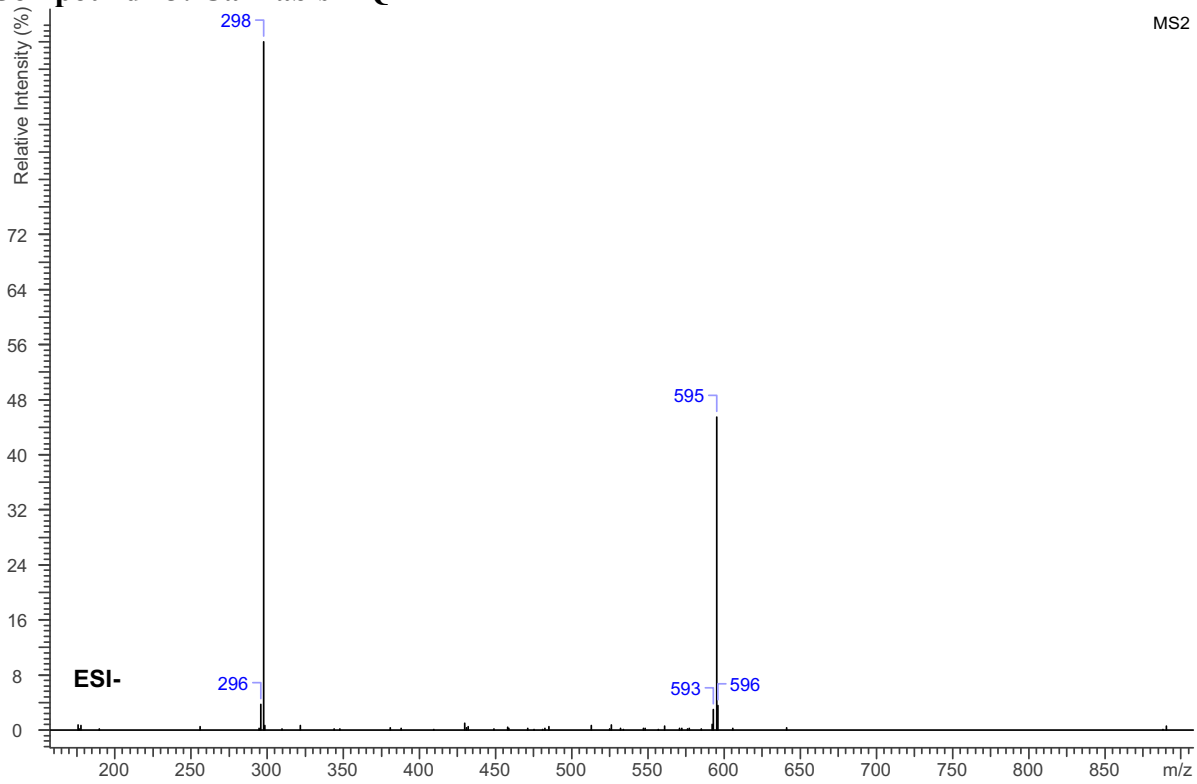
Compound 21: 3.3′-demethyl-heliotropamide



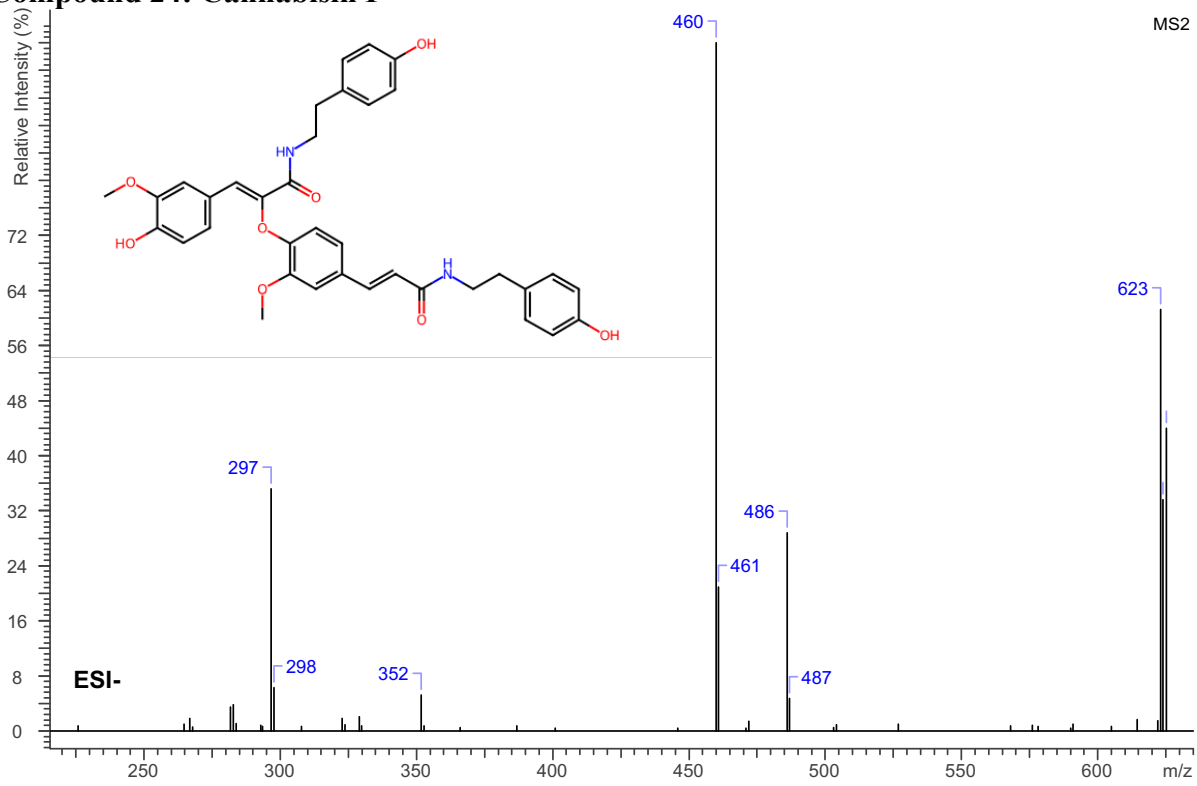
Compound 22: Unnamed lignan amide



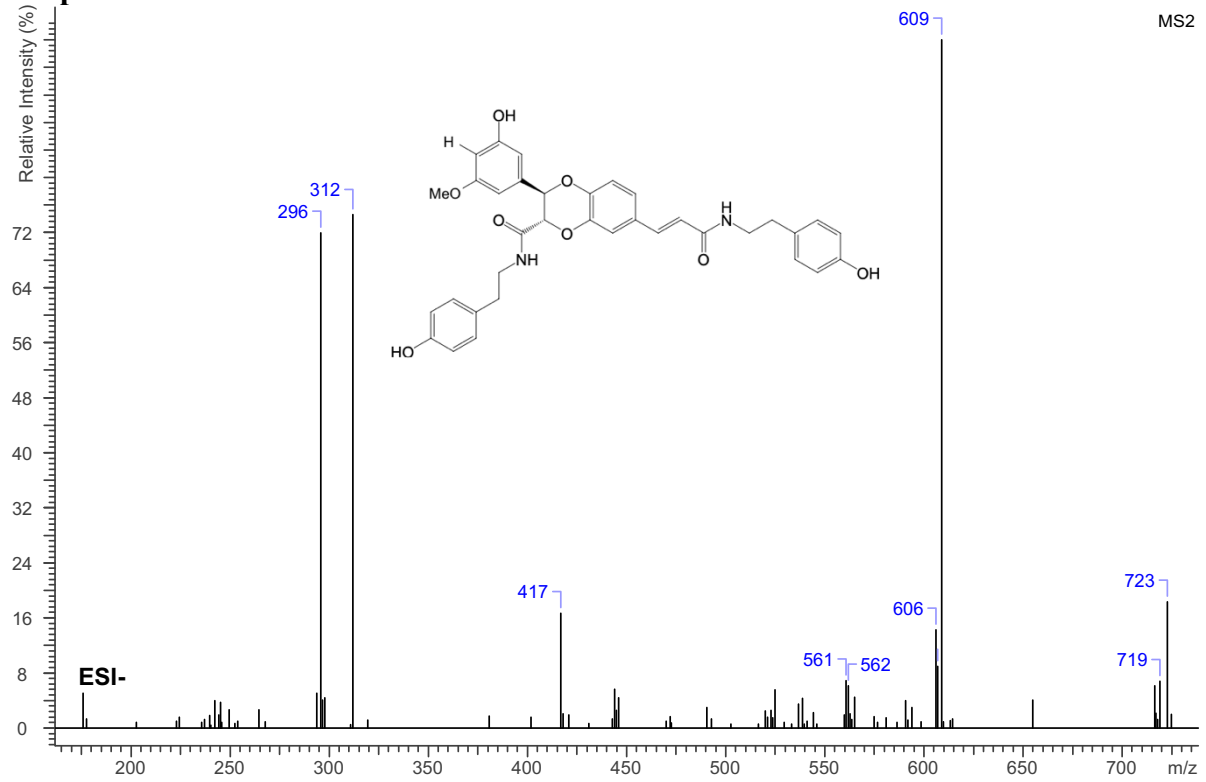
Compound 23: Cannabisin Q



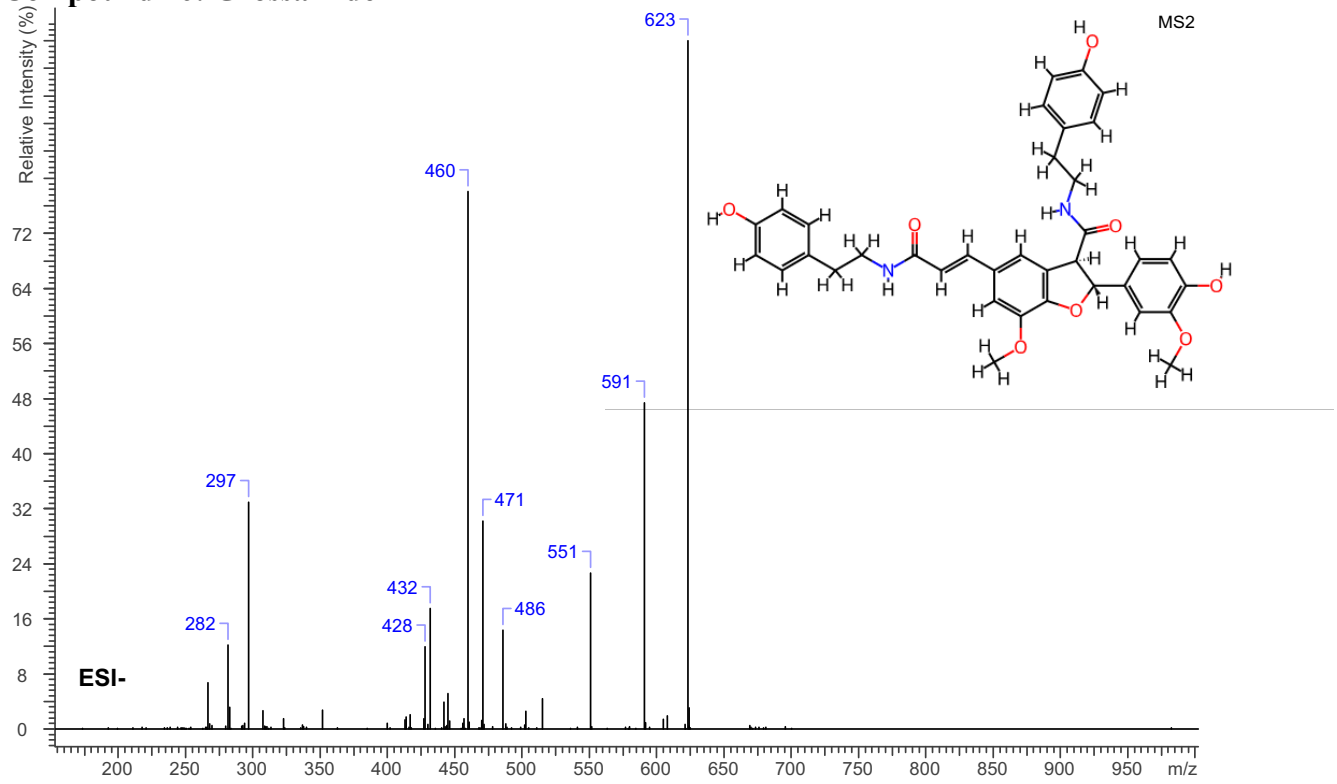
Compound 24: Cannabisin F



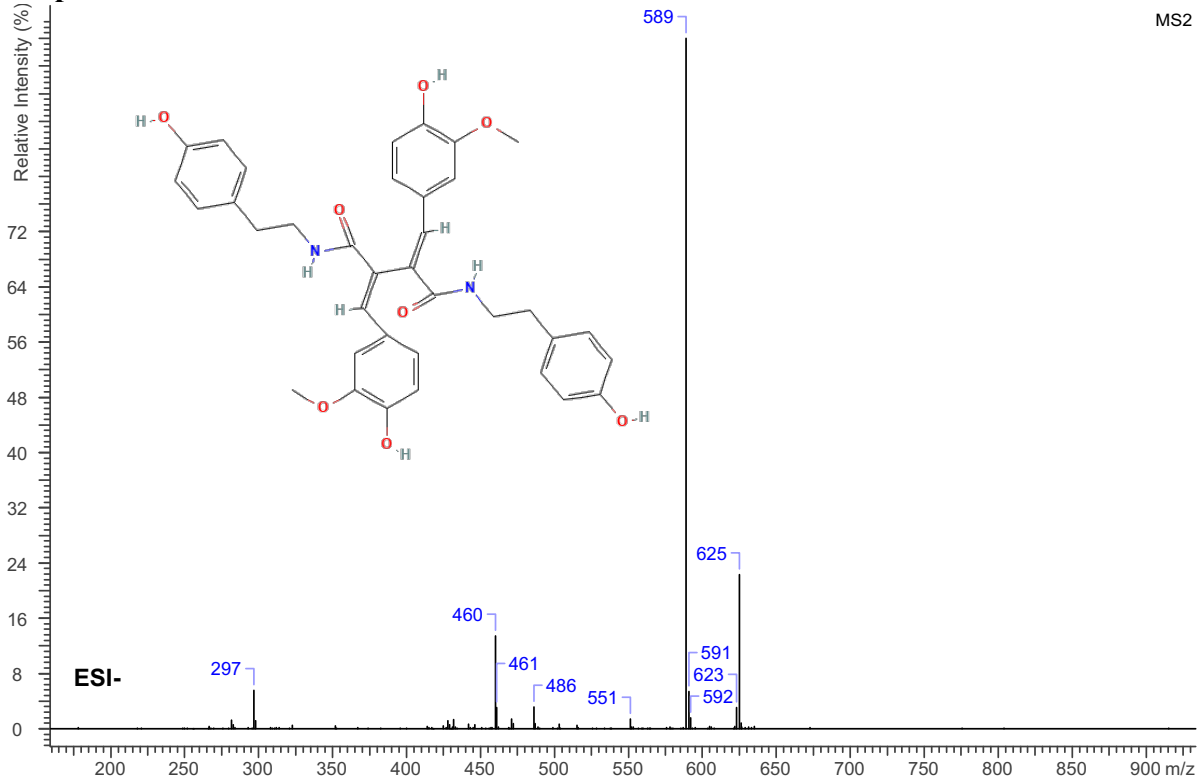
Compound 25: Isocannabisin N



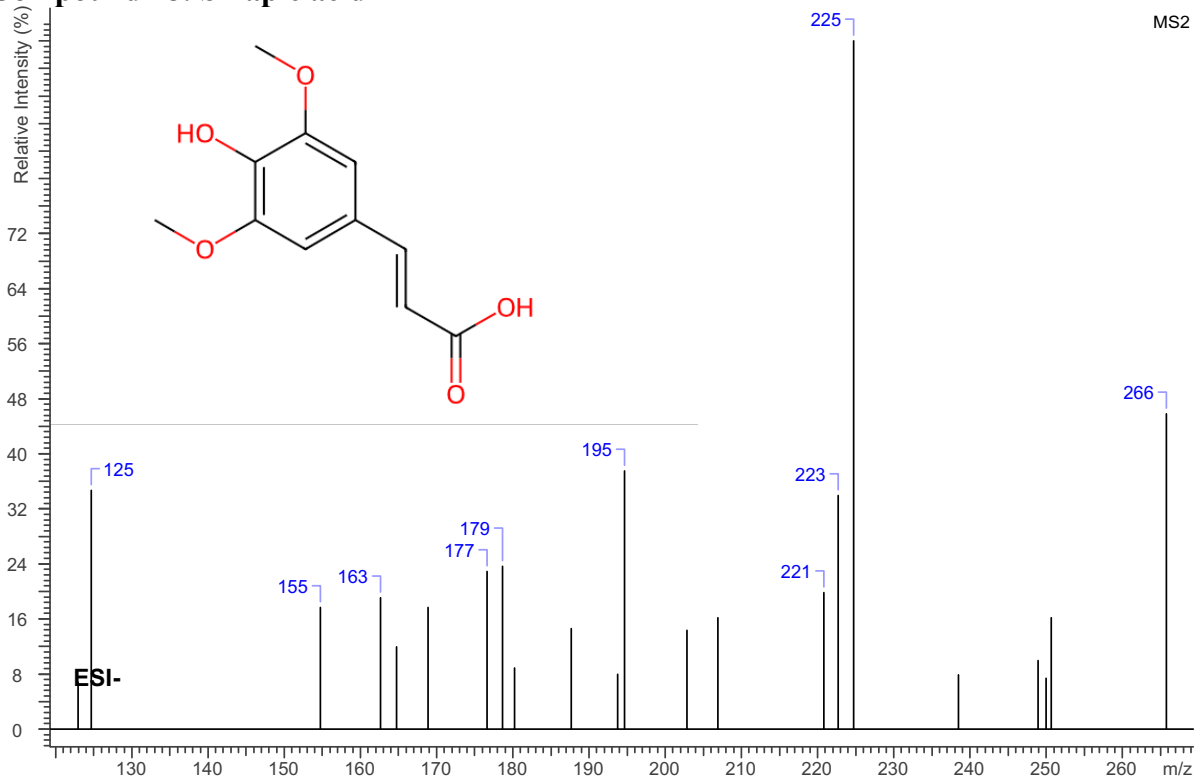
Compound 26: Grossamide



Compound 27: Cannabisin G



Compound 28: Sinapic acid



Supplementary Figure S1. MS² fragmentation spectra of the phenolic compounds identified in hemp (*Cannabis sativa* L.) seed oil, obtained by different methods.

Supplementary Table S1. Pearson correlation matrix between the main composition and quality variables of hemp seed oils obtained by different extraction methods.

Variables		T.tocopherols	g.tocopherol	OSI	T.Chlorophyll	T.Carotenoid	AV	PV	OY	PAs	HCAAs	Lignanamides	Phenylpropanoids	T.Phenolics
T.tocopherol	Pearson correlation	1												
	P-value													
γ.tocopherol	Pearson correlation	0.887**	1											
	P-value	0.000												
OSI	Pearson correlation	0.411	0.552*	1										
	P-value	0.128	0.033											
T.Chlorophylls	Pearson correlation	0.686**	0.760**	0.827**	1									
	P-value	0.005	0.001	0.000										
T.Carotenoids	Pearson correlation	0.674**	0.759**	0.831**	0.989**	1								
	P-value	0.006	0.001	0.000	0.000									
AV	Pearson correlation	-0.726**	-0.499	0.040	-0.322	-0.287	1							
	P-value	0.002	0.058	0.887	0.242	0.300								
PV	Pearson correlation	-0.749**	-0.581*	-0.296	-0.498	-0.466	0.918**	1						
	P-value	0.001	0.023	0.284	0.059	0.080	0.000							
OY	Pearson correlation	-0.176	0.059	0.614*	0.442	0.416	0.621*	0.410	1					
	P-value	0.530	0.833	0.015	0.099	0.123	0.014	0.129						
PAs	Pearson correlation	0.258	0.331	0.846**	0.534*	0.511	-0.034	-0.418	0.443	1				
	P-value	0.354	0.228	0.000	0.040	0.052	0.905	0.121	0.098					
HCAAs	Pearson correlation	0.251	0.391	0.929**	0.604*	0.613*	0.097	-0.296	0.521*	0.957**	1			
	P-value	0.367	0.150	0.000	0.017	0.015	0.730	0.284	0.046	0.000				
Lignanamides	Pearson correlation	0.232	0.362	0.931**	0.593*	0.605*	0.123	-0.269	0.522*	0.948**	0.997**	1		
	P-value	0.406	0.184	0.000	0.020	0.017	0.663	0.333	0.046	0.000	0.000			
Phenylpropanoids	Pearson correlation	0.239	0.377	0.932**	0.598*	0.608*	0.115	-0.277	0.522*	0.951**	0.999**	0.999**	1	
	P-value	0.391	0.166	0.000	0.019	0.016	0.684	0.317	0.046	0.000	0.000	0.000		
T.Phenolics	Pearson correlation	0.160	0.305	0.895**	0.509	0.527*	0.192	-0.202	0.503	0.930**	0.988**	0.993**	0.992**	1
	P-value	0.570	0.269	0.000	0.053	0.044	0.494	0.469	0.056	0.000	0.000	0.000	0.000	

Pearson correlation coefficients between the following variables : oil yield (OY), total tocopherols (T.tocopherol), γ-tocopherol, total chlorophylls (T. chlorophylls), total carotenoids (T. carotenoids), peroxide value (PV), acidity value (AV), oxidative stability index (OSI), PAs (Phenolic acids), HCAAs (Hydroxycinnamic acids amides), Lignanamides, Phenylpropanoids, and total phenolique compunds (T.Phenolics). * The correlation is significant at the 0.05 level (two-tailed). ** The correlation is significant at the 0.01 level (two-tailed).