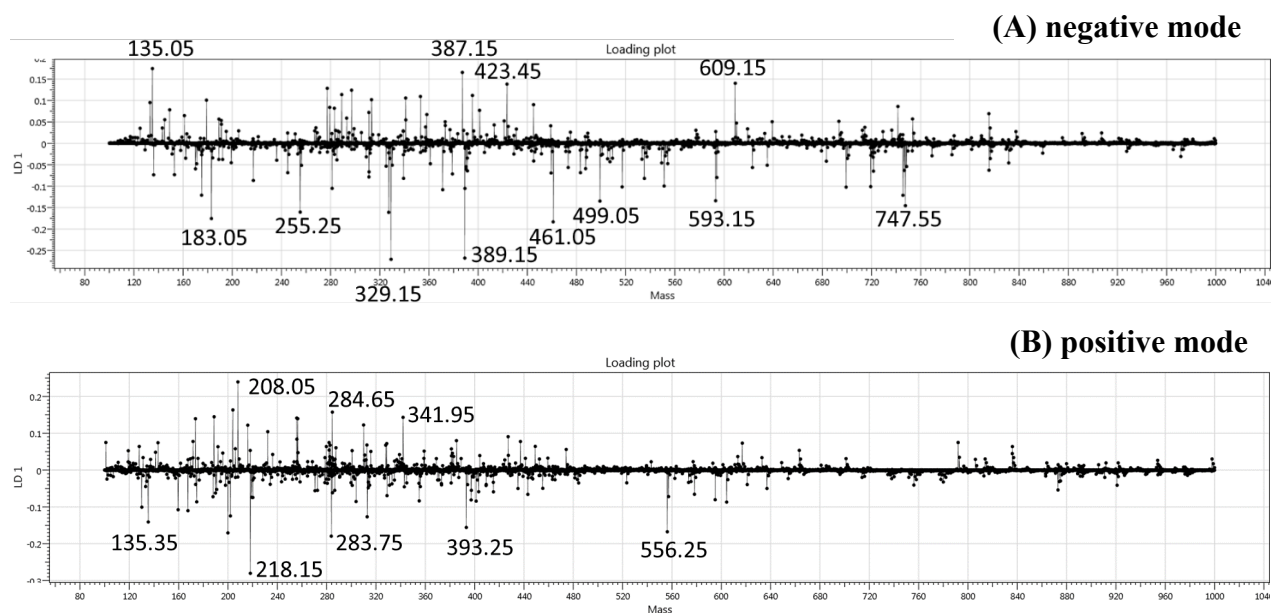
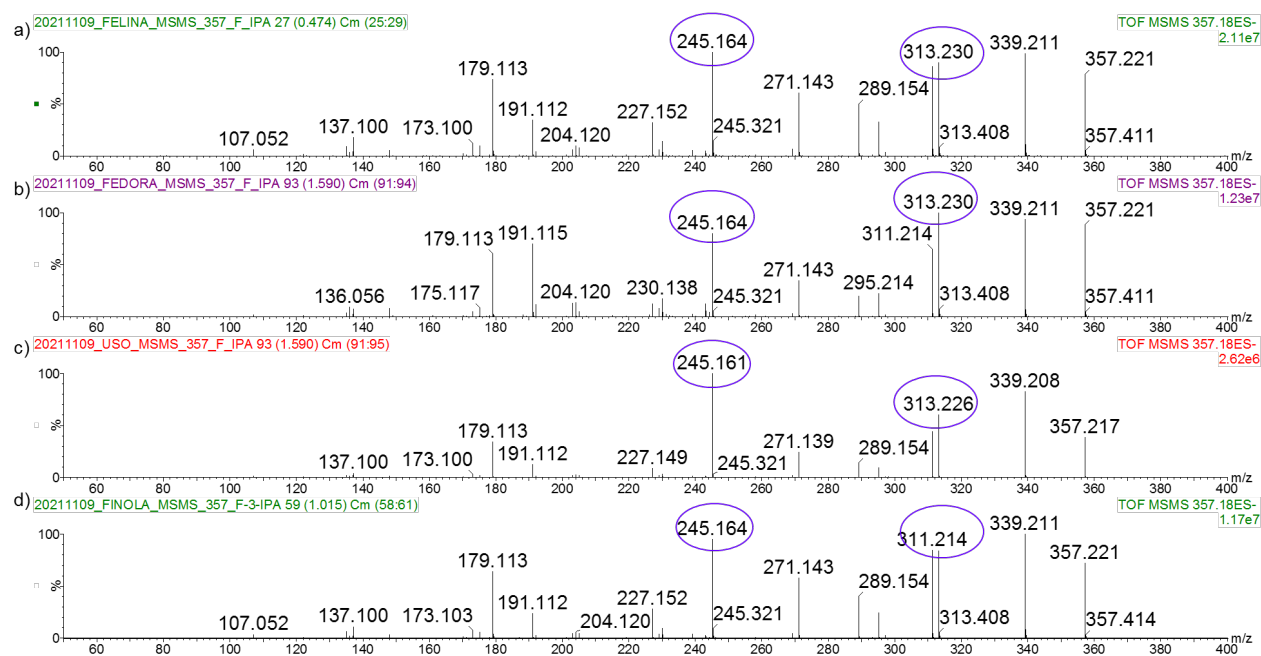


Supplementary Materials



Supplemental Fig. 1. LD1 loading mass spectra showing the discrimination between the Finola LD1 + and the rest of the Cannabis subtypes LD1- in negative **(A)** and positive **(B)** ion mode. The most discriminative peaks are indicated in the loading spectra.



Supplemental Fig. 2 MS/MS fragmentation spectra from the flowers of each *Cannabis* subtype (a) Felina, (b) Fedora, (c) USO and (d) Finola. The highlighted fragments correspond to the indicated ions for the workflow for rapid and straightforward discrimination of acid phytocannabinoid isomers. The fragments indicated the presence of THC- and CBD- acid type cannabinoids.

Table S1. Calculated relative abundances, standard deviation (σ), and coefficient of variance (CV) for m/z 339.21, 313.23, 311.21, and 245.26 ions for each cultivar. Calculated ratios for -18Da/-44Da and -44Da/-46Da neutral losses for each cultivar.

Relative abundances (N=4)		m/z 339.21 [M-H-H ₂ O] ⁻	σ	CV	m/z 313.23 [M-H-CO ₂] ⁻	σ	CV	m/z 311.21 [M-H-H ₂ O-CO] ⁻	σ	CV	m/z 245.26	σ	CV
Cultivar	Finola	0.968	0.055	0.06	0.822	0.017	0.02	0.821	0.044	0.05	0.940	0.066	0.07
	USO	0.889	0.048	0.05	0.748	0.099	0.13	0.478	0.036	0.07	1.000	0.000	0.00
	Felina	0.996	0.008	0.01	0.825	0.104	0.13	0.792	0.126	0.16	0.963	0.030	0.03
	Fedora	0.975	0.031	0.03	0.935	0.075	0.08	0.632	0.038	0.06	0.792	0.016	0.03

		m/z 339/ m/z 313 -18Da/-44Da	m/z 313/ m/z 311 -44Da/-46Da	<1 >1 THC m/z 339/ 313 ratio is <<1 and the m/z 313/ 311 ratio >>1 >1<1 CBD
Cultivar				
	Finola	1.18	1.00	
	USO	1.19	1.56	
	Felina	1.21	1.04	
	Fedora	1.04	1.48	