

# Chemical Characterization of Flowers and Leaf Extracts Obtained from *Turnera subulata* and Their Immunomodulatory Effect on LPS-Activated RAW 264.7 Macrophages

Jefferson Romário Duarte da Luz <sup>1,2</sup>, Eder A. Barbosa <sup>3</sup>, Thayse Evellyn Silva do Nascimento <sup>2,4</sup>, Adriana Augusto de Rezende <sup>1,4</sup>, Marcela Abbott Galvão Ururahy <sup>4</sup>, Adriana da Silva Brito <sup>5</sup>, Gabriel Araujo-Silva <sup>6</sup>, Jorge A. López <sup>2</sup> and Maria das Graças Almeida <sup>1,2,4,\*</sup>

<sup>1</sup> Post-Graduation Program in Health Sciences, Health Sciences Center, Federal University of Rio Grande do Norte, R. Gen. Gustavo Cordeiro de Farias, s/n—Petrópolis, Natal/RN 59012-570, Brazil; jefferson\_romaryo@hotmail.com (J.R.D.L.); adrirezende@yahoo.com (A.A.R.)

<sup>2</sup> Multidisciplinary Research Laboratory, DACT, Health Sciences Center, Federal University of Rio Grande do Norte, R. Gen. Gustavo Cordeiro de Farias, s/n—Petrópolis, Natal/RN 59012-570, Brazil; t\_hayse\_13@hotmail.com (T.E.S.N.); jorgejal@gmail.com (J.A.L.)

<sup>3</sup> Laboratory of Synthesis and Analysis of Biomolecules (LSAB), Institute of Chemistry, Darcy Ribeiro University Campus, University of Brasilia, Brasília/DF 70910-900, Brazil; bioederr@gmail.com

<sup>4</sup> Post-Graduation Program in Pharmaceutical Sciences, Health Sciences Center, Federal University of Rio Grande do Norte, R. Gen. Gustavo Cordeiro de Farias, s/n—Petrópolis, Natal/RN 59012-570, Brazil; marcelaururahy@yahoo.com.br

<sup>5</sup> Faculty of Health Sciences of Trairi (FACISA/UFRN), R. Passos de Miranda, Santa Cruz/RN 59200-000, Brazil; britoa.ufn@gmail.com

<sup>6</sup> Organic Chemistry and Biochemistry Laboratory, Amapá State University (UEAP), Av. Presidente Vargas, s/n, Centro, Macapá/AP 68900-070, Brazil; gabriel\_ar4@yahoo.com.br

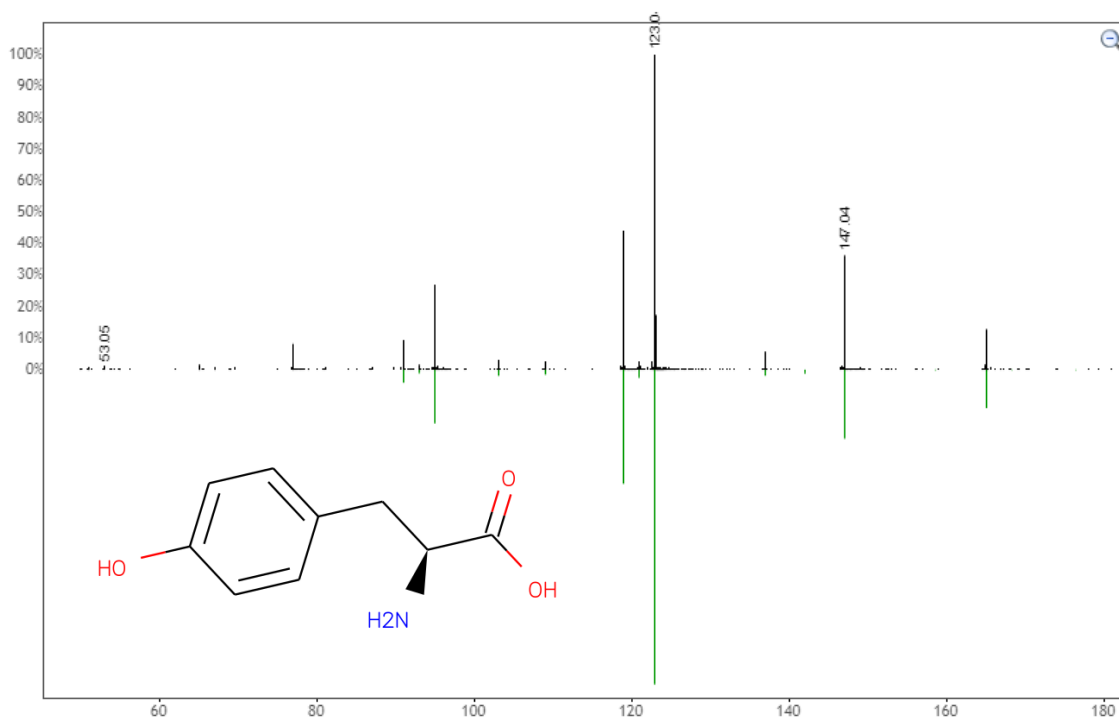
\* Correspondence: mgalmeida84@gmail.com; Tel.: +55-84-3342-9807; Fax: +55-84-3342-9833

## Supplementary material

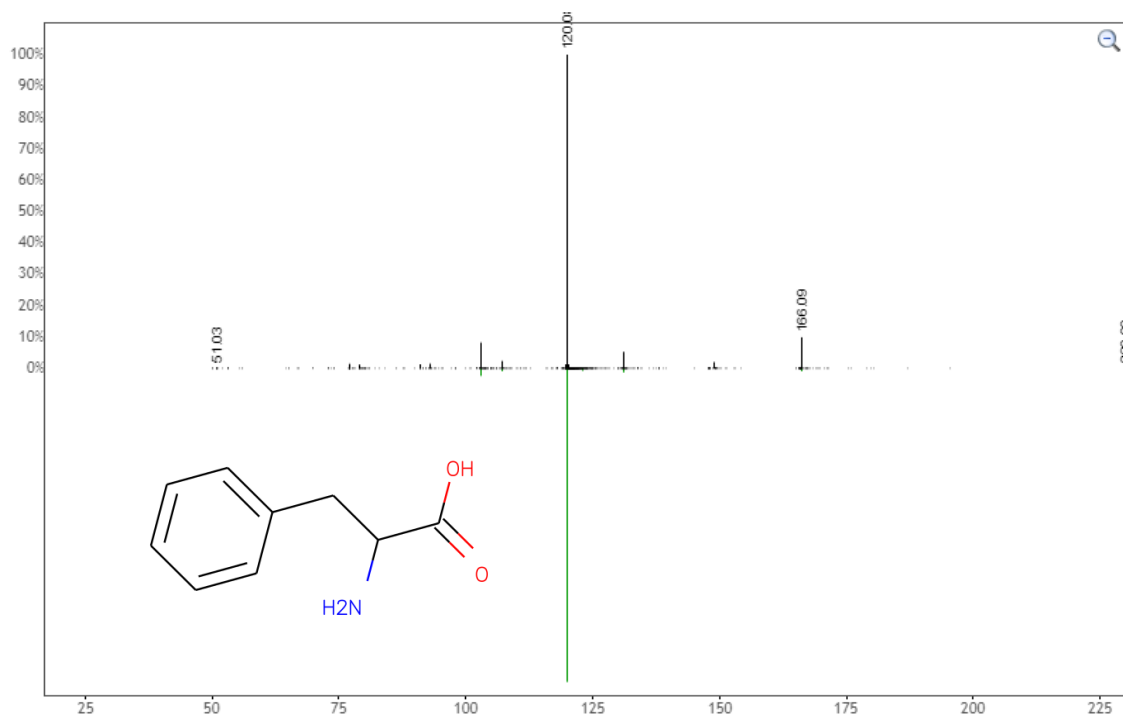
Comparison between library GNPS and query spectra of phytocomponents identified in *Turnera subulata* flower and leaf extracts by LC-MS/MS analyses

Comparison between library GNPS (bottom) and query spectra phytocomponents identified in **AFETS** (top). The structure of the phytocomponent identified is represented.

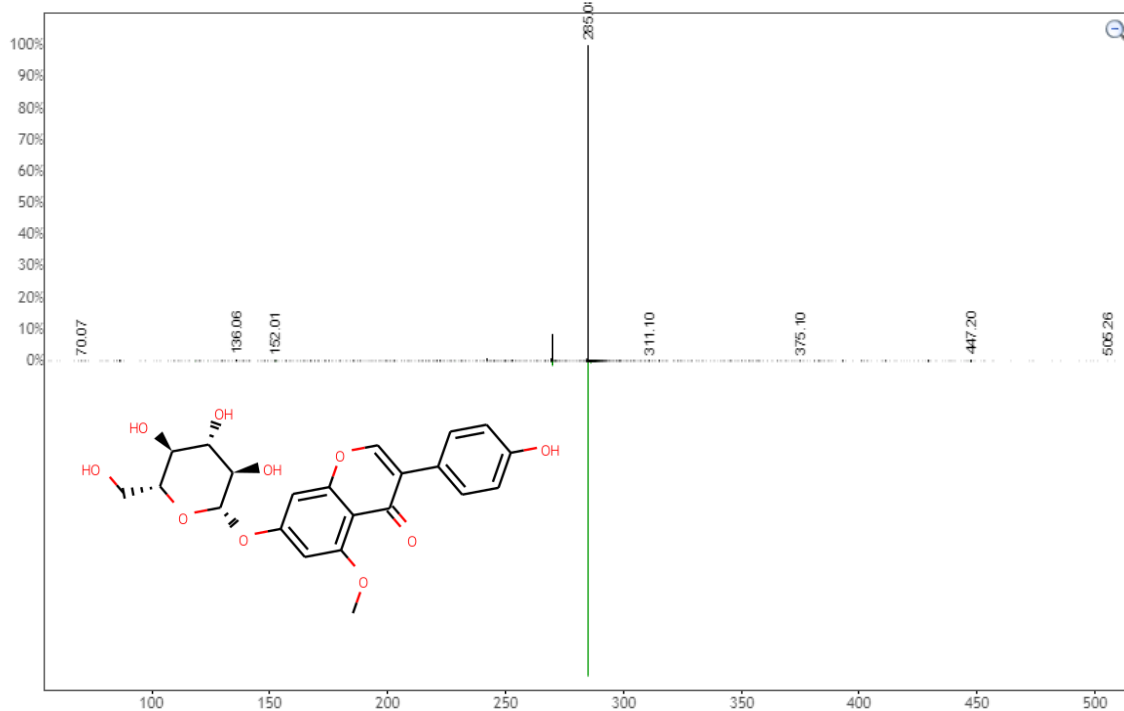
### L-Tyrosine



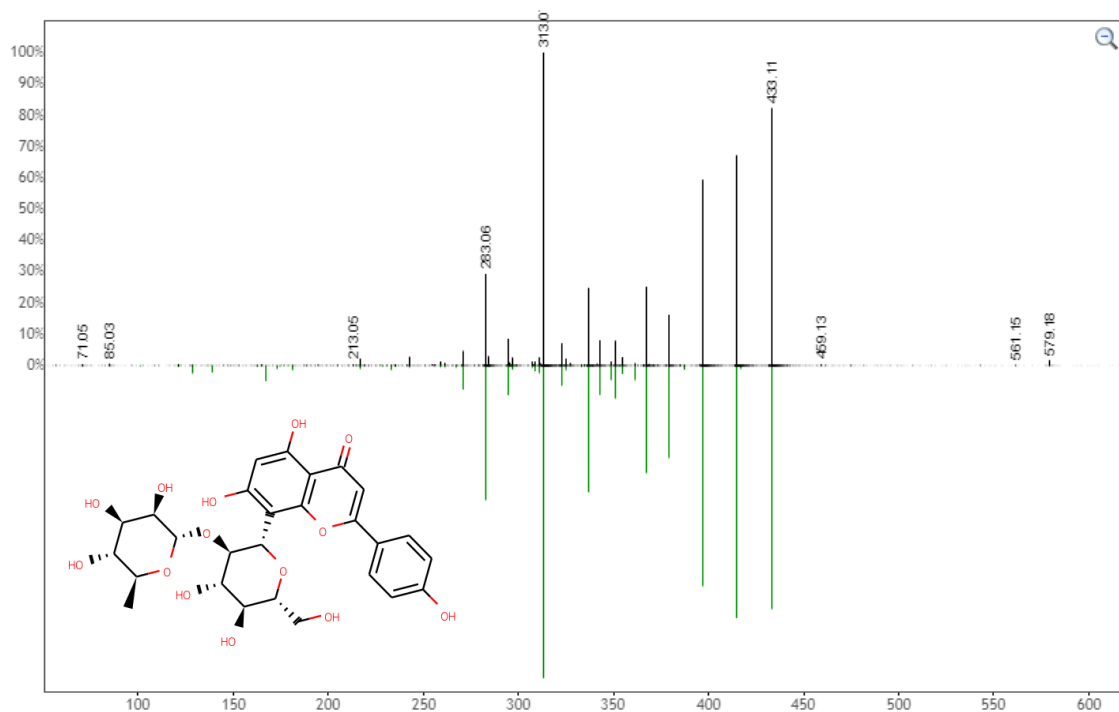
### Phenylalanine



### 7-O-beta-glucopyranosyl-4'-hydroxy-5-methoxyisoflavone

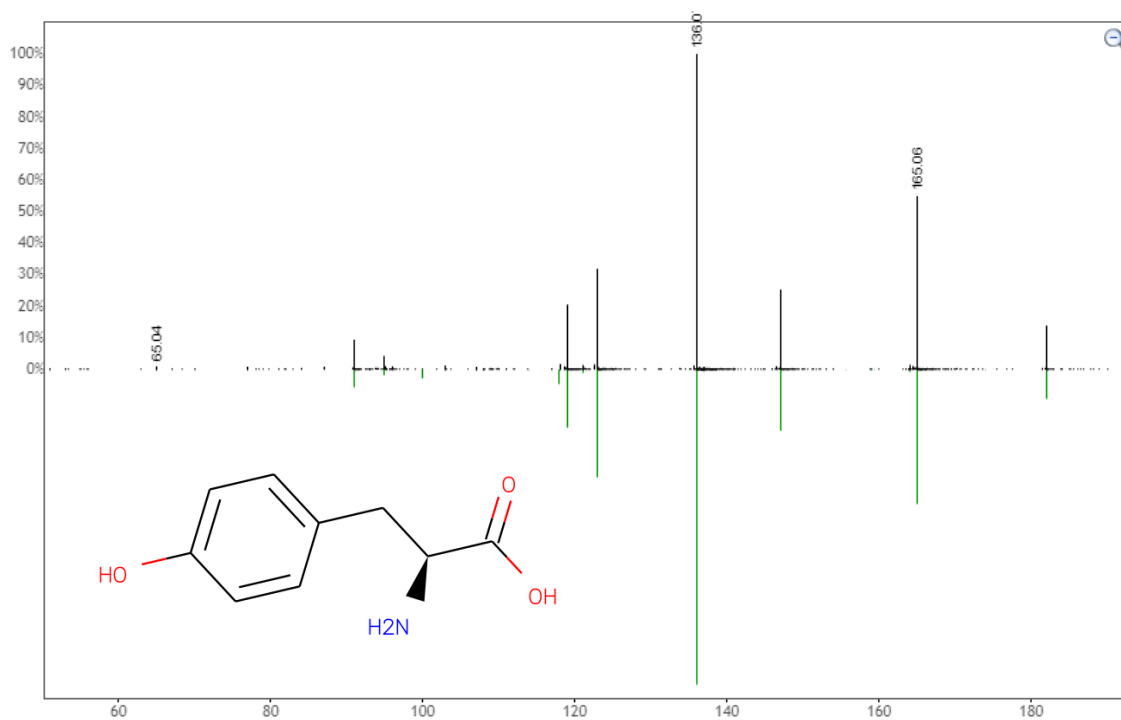


### Vitexin-2-O-rhamnoside

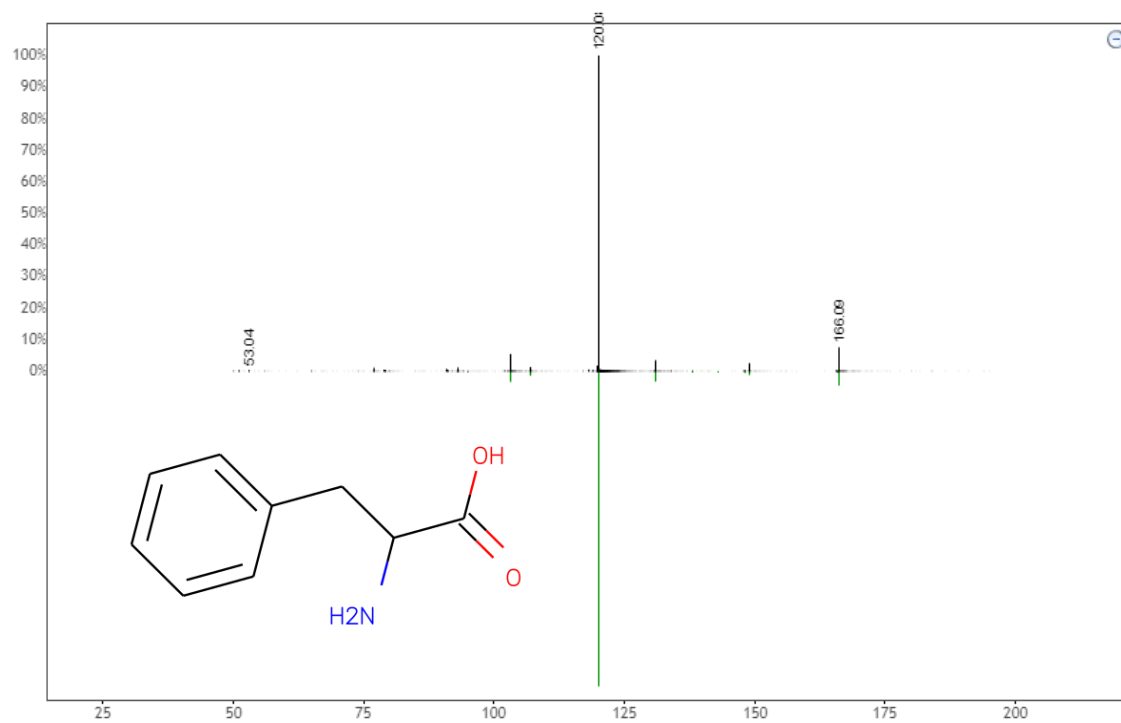


Comparison between library GNPS (bottom) and query spectra phytocomponents identified in **ALETS** (top). The structure of the phytocomponent identified is represented.

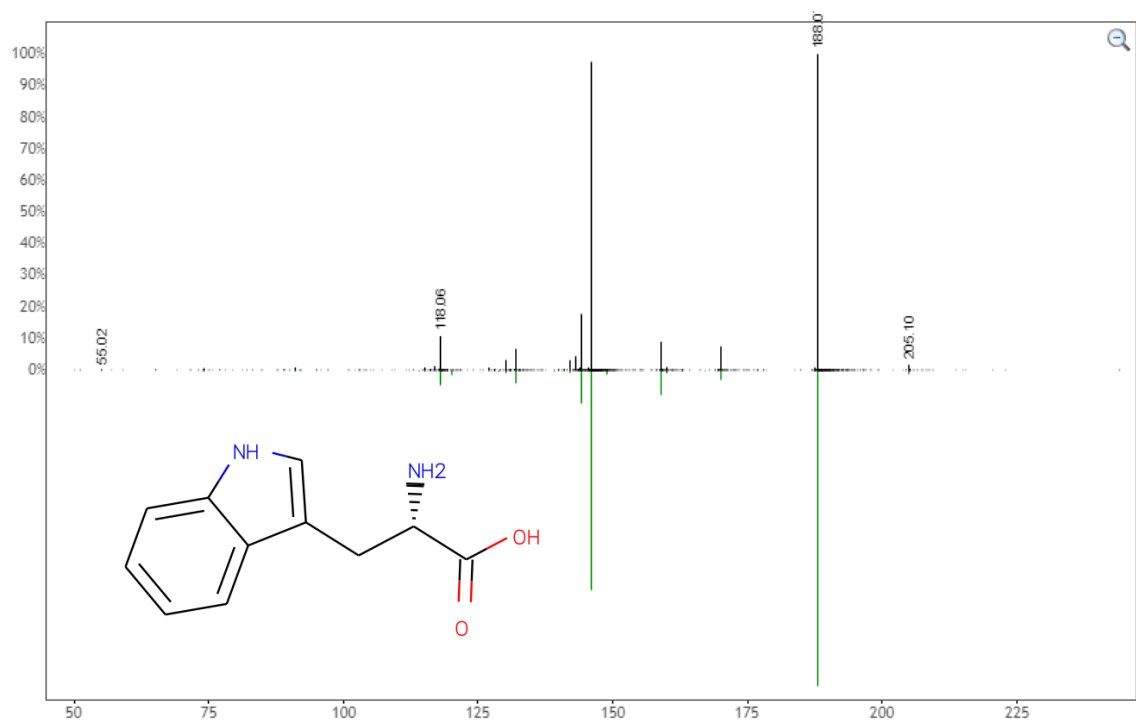
### L-Tyrosine



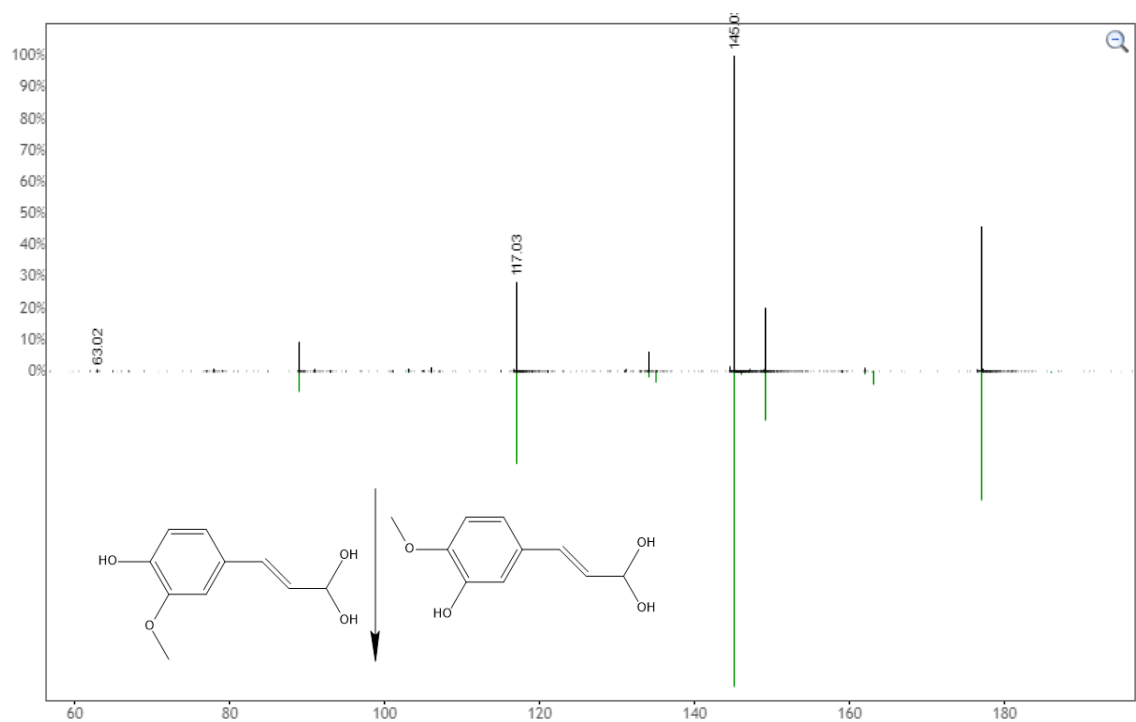
### DL-Phenylalanine



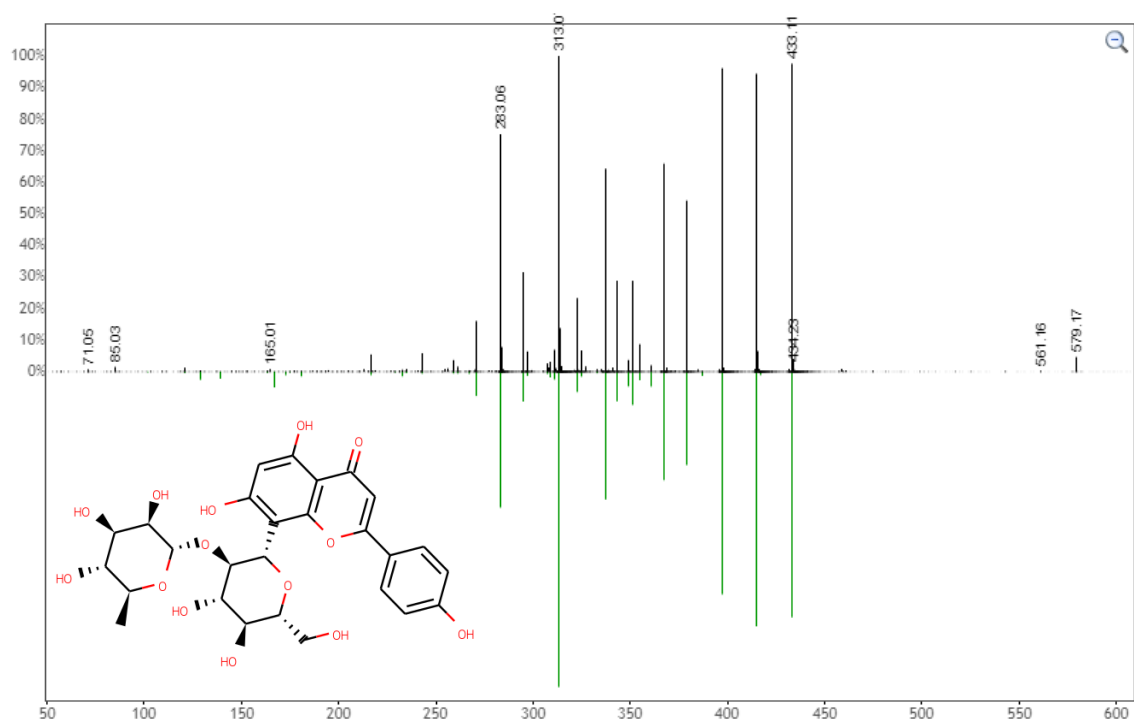
# L-Tryptophan



# Ferulate/isoferulate

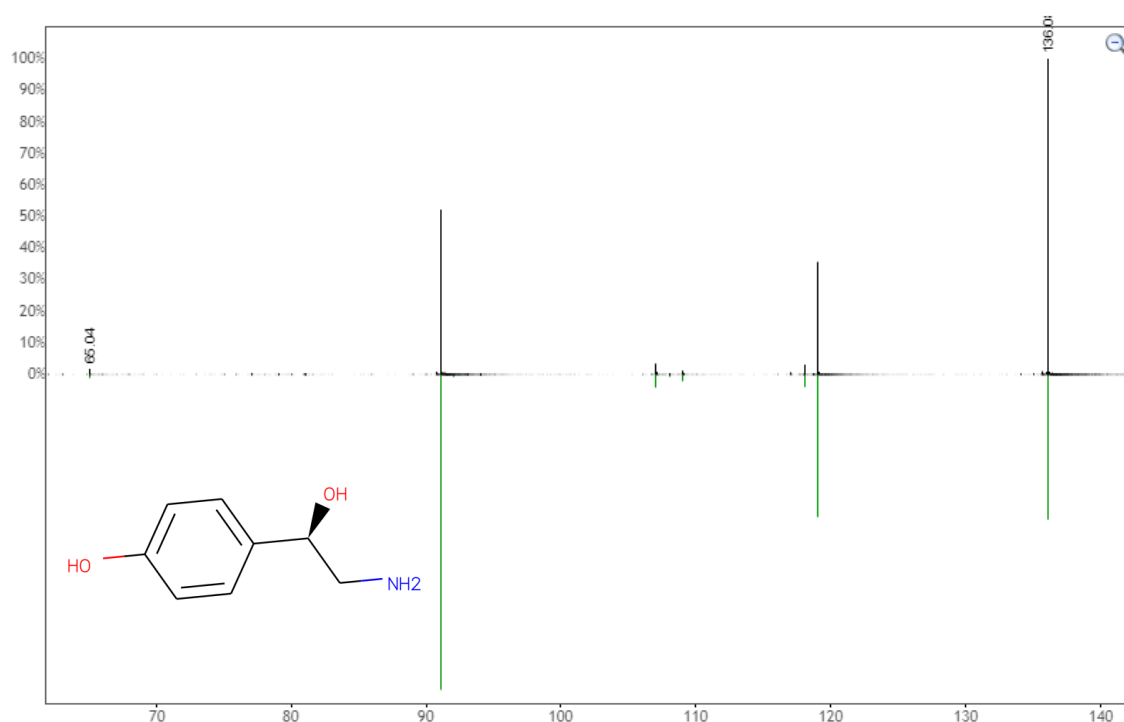


# Vitexin-2-O-rhamnoside

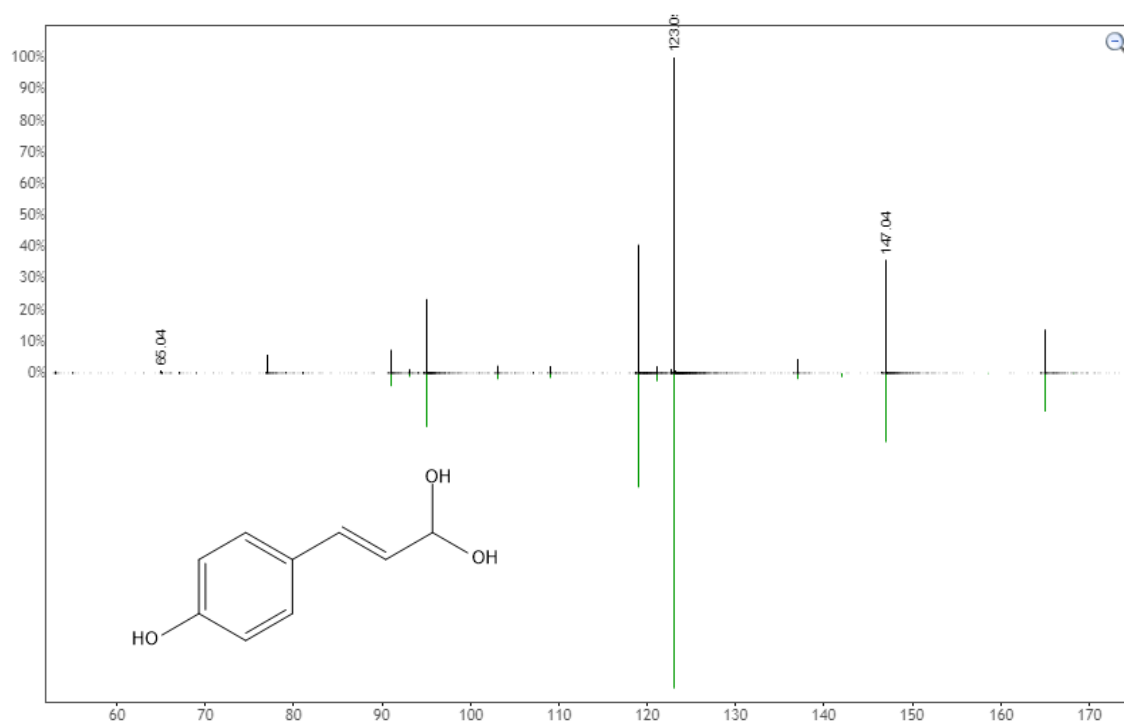


Comparison between library GNPS (bottom) and query spectra phytocomponents identified in **HEFTS** (top). The structure of the phytocomponent identified is represented.

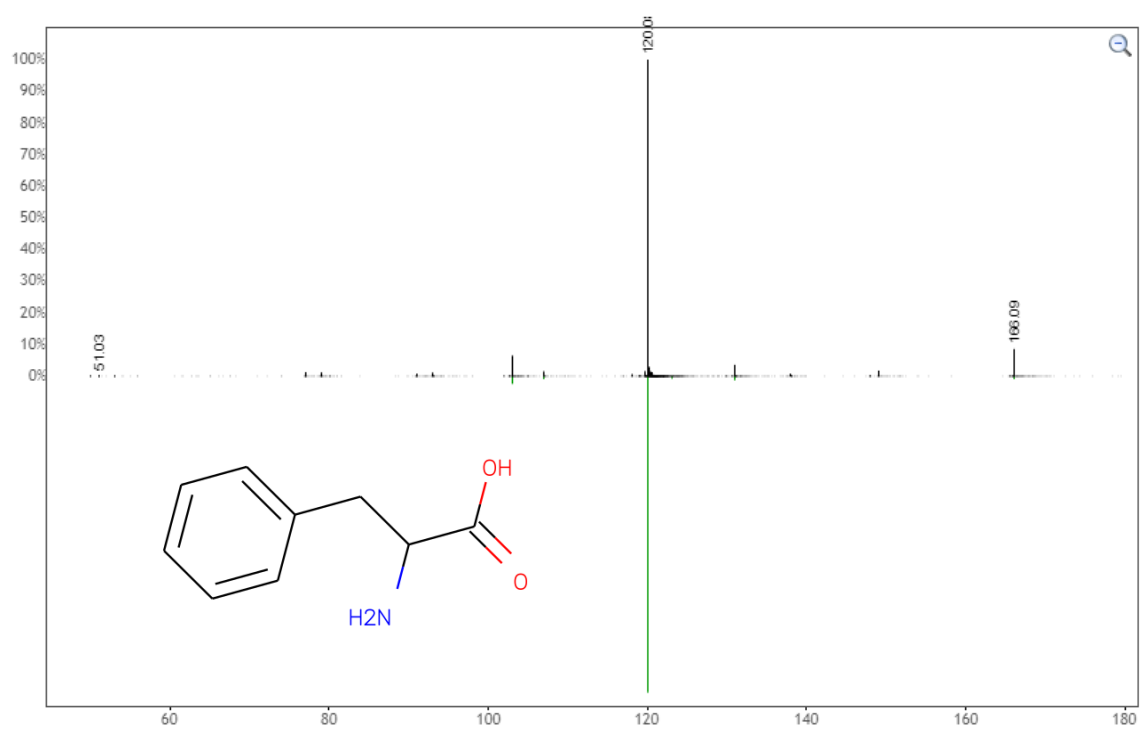
### DL-Octopamine



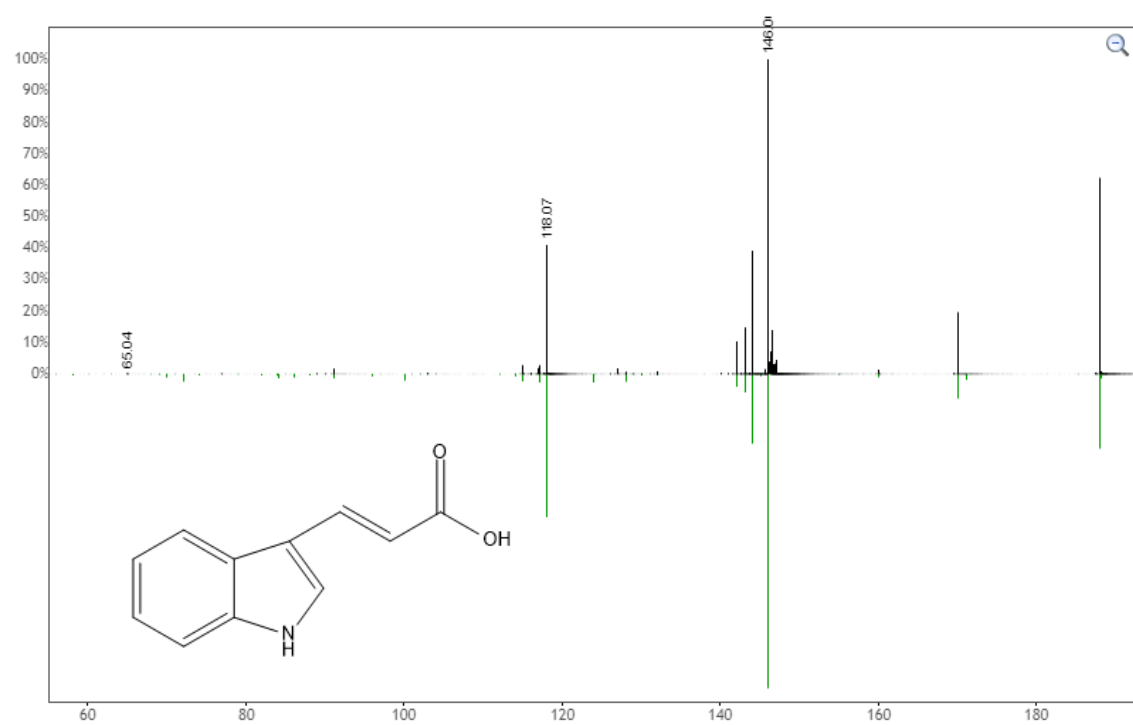
### L-Tyrosine



### Phenylalanine

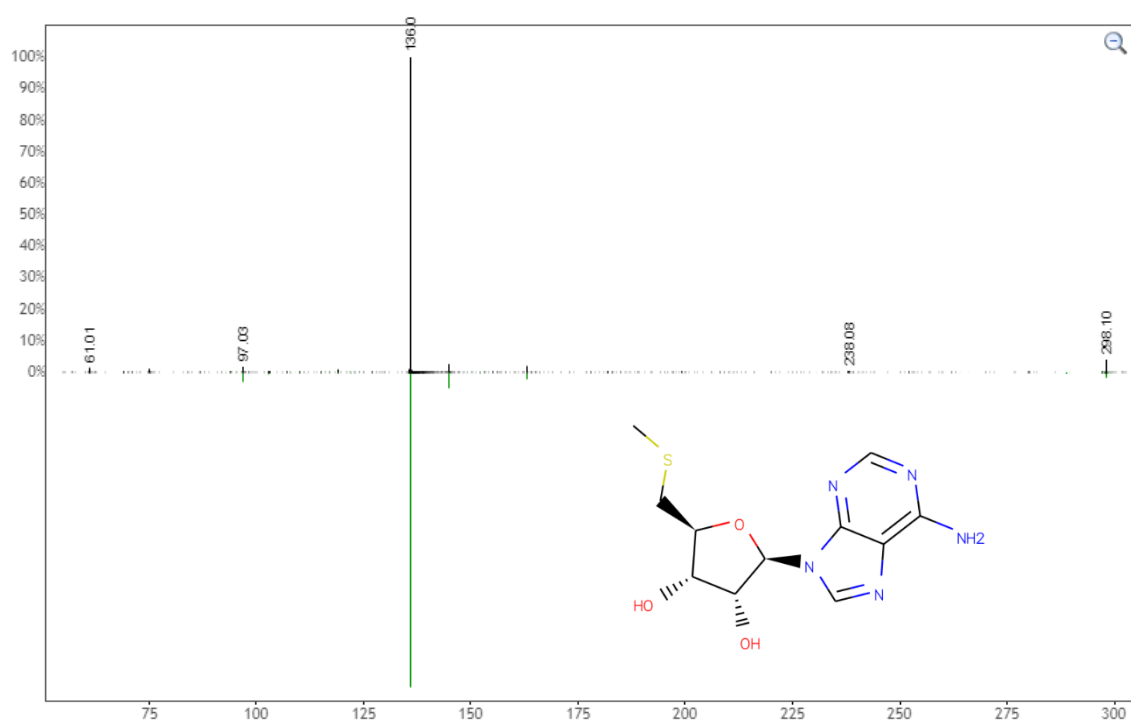


### L-Tryptophan

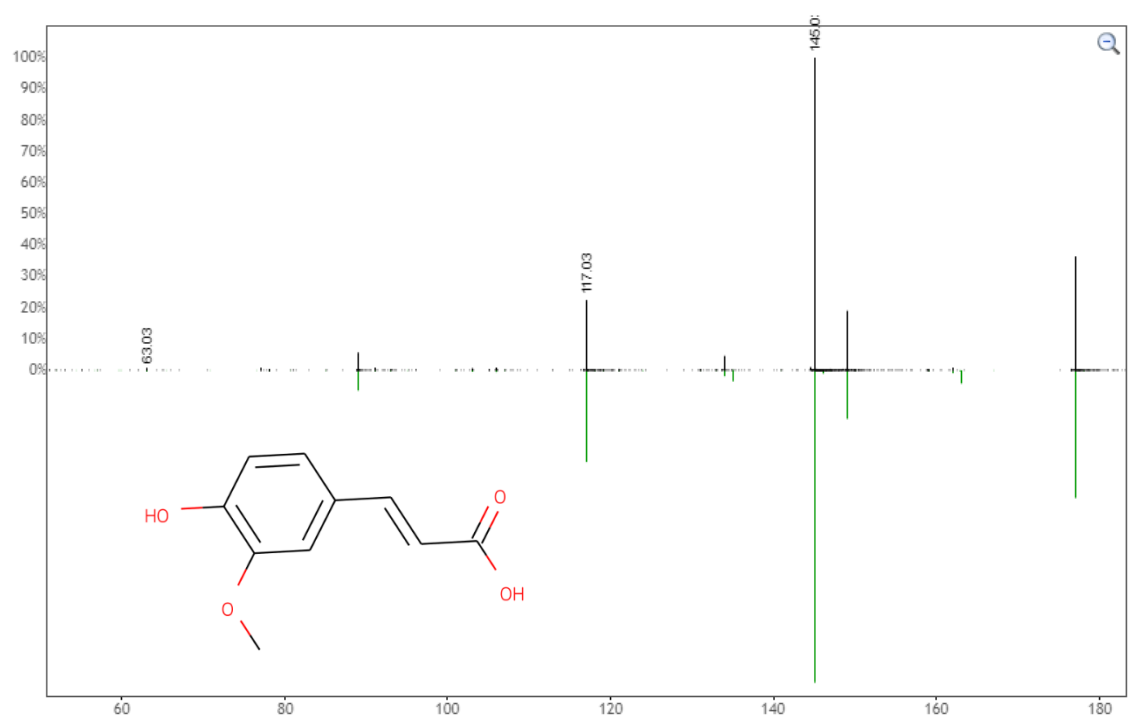




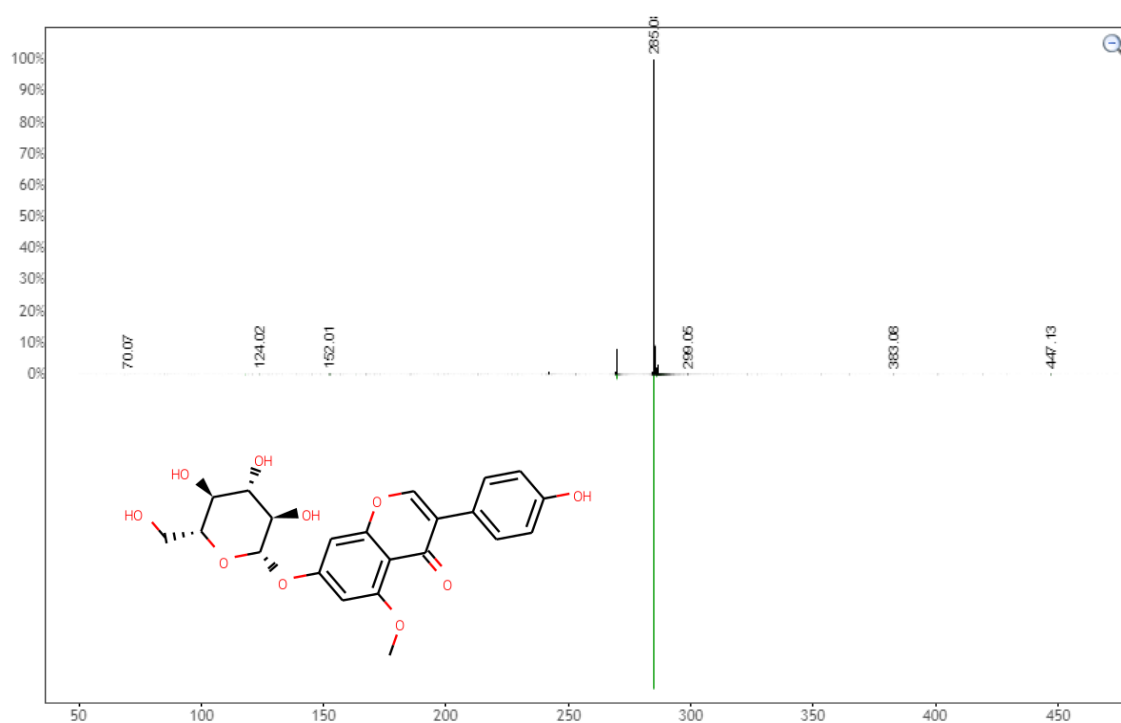
### Adenosine, 5\_-S-methyl-5\_-thio-



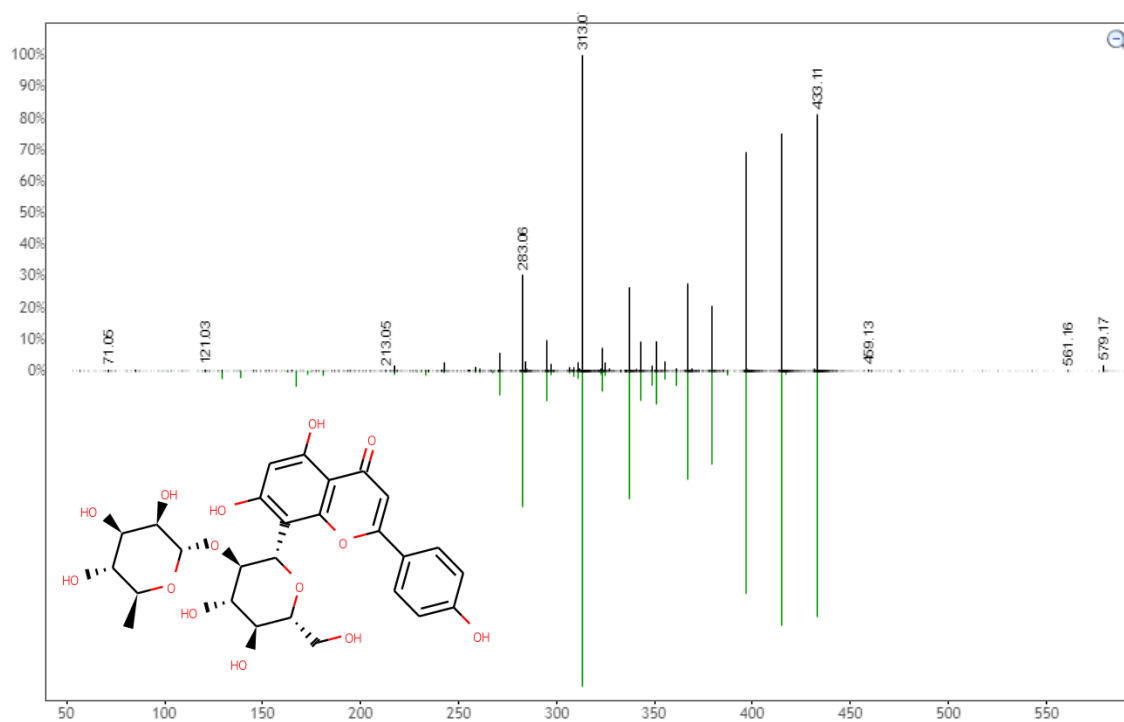
### Ferulate



### 7-O-beta-glucopyranosyl-4'-hydroxy-5-methoxyisoflavone

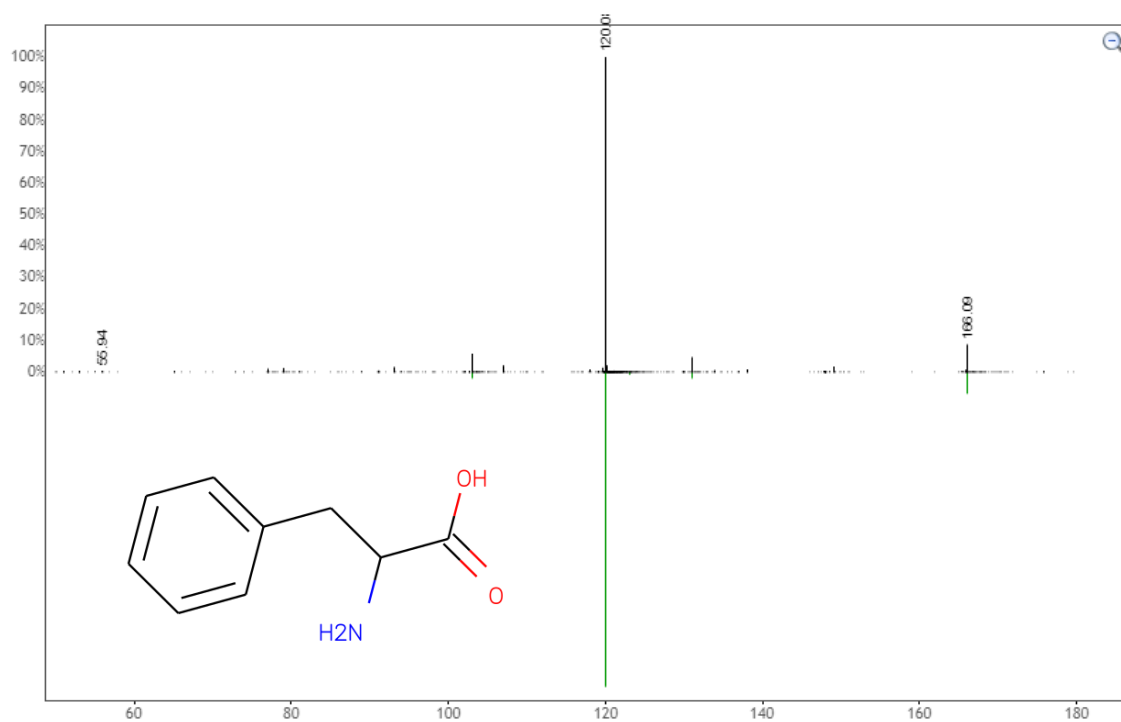


### Vitexin-2-O-rhamnoside

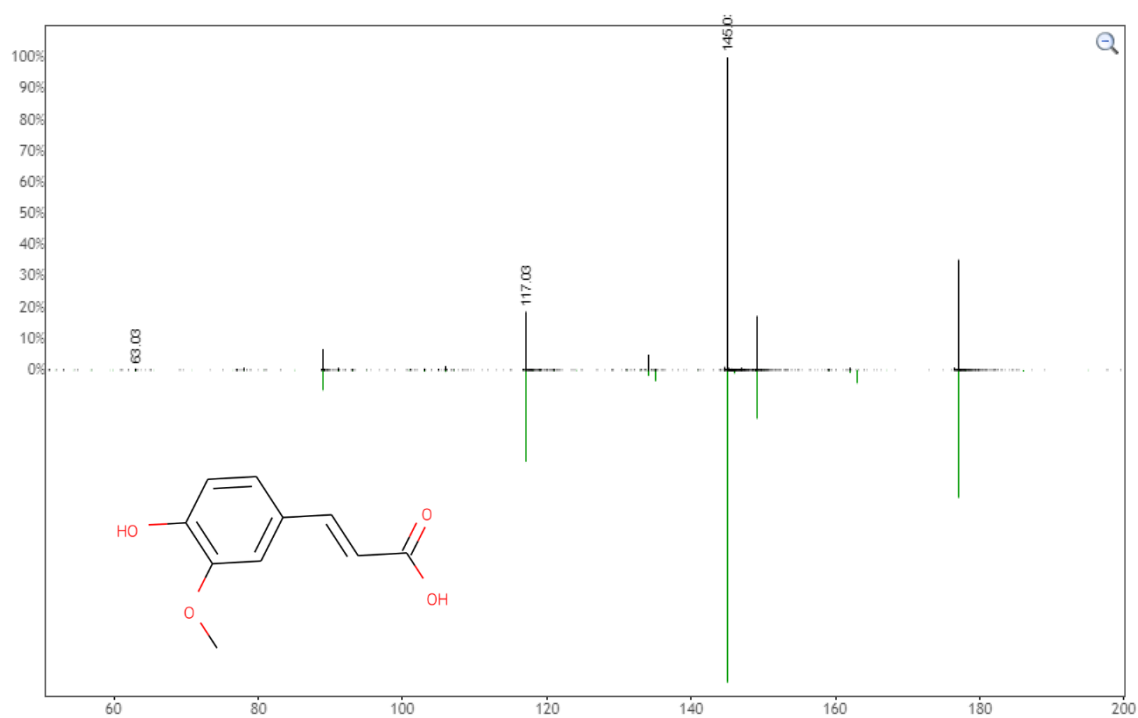


Comparison between library GNPS (bottom) and query spectra phytocomponents identified in **HELTS** (top). The structure of the phytocomponent identified is represented.

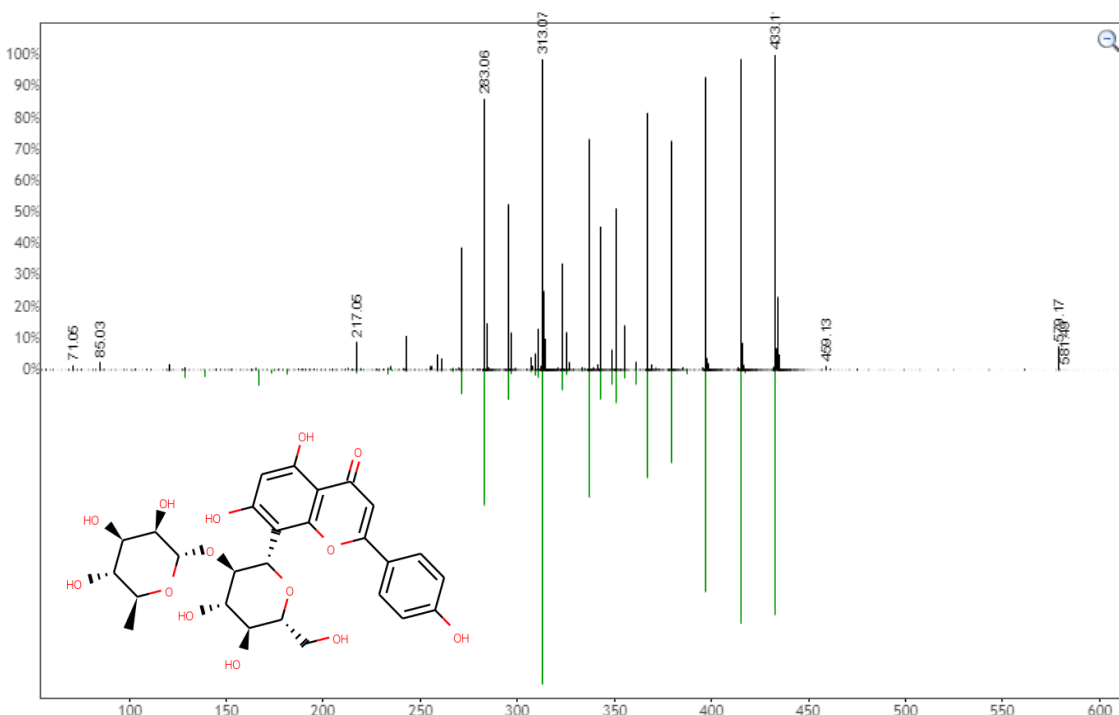
### Phenylalanine



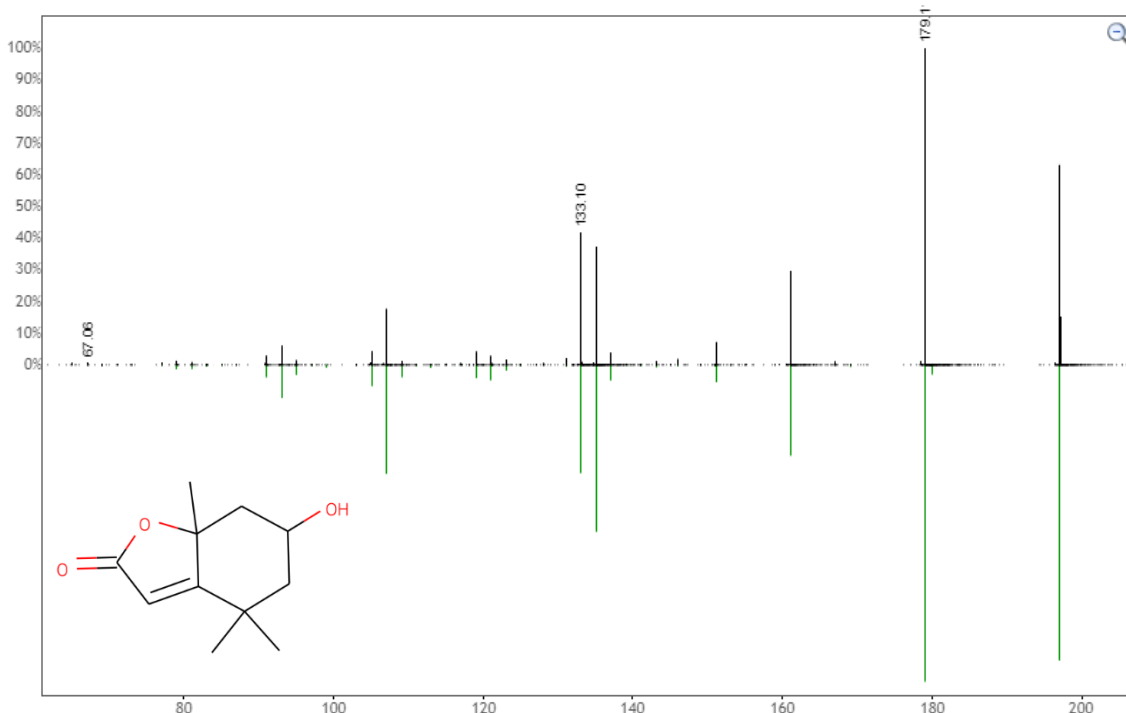
### Ferulate



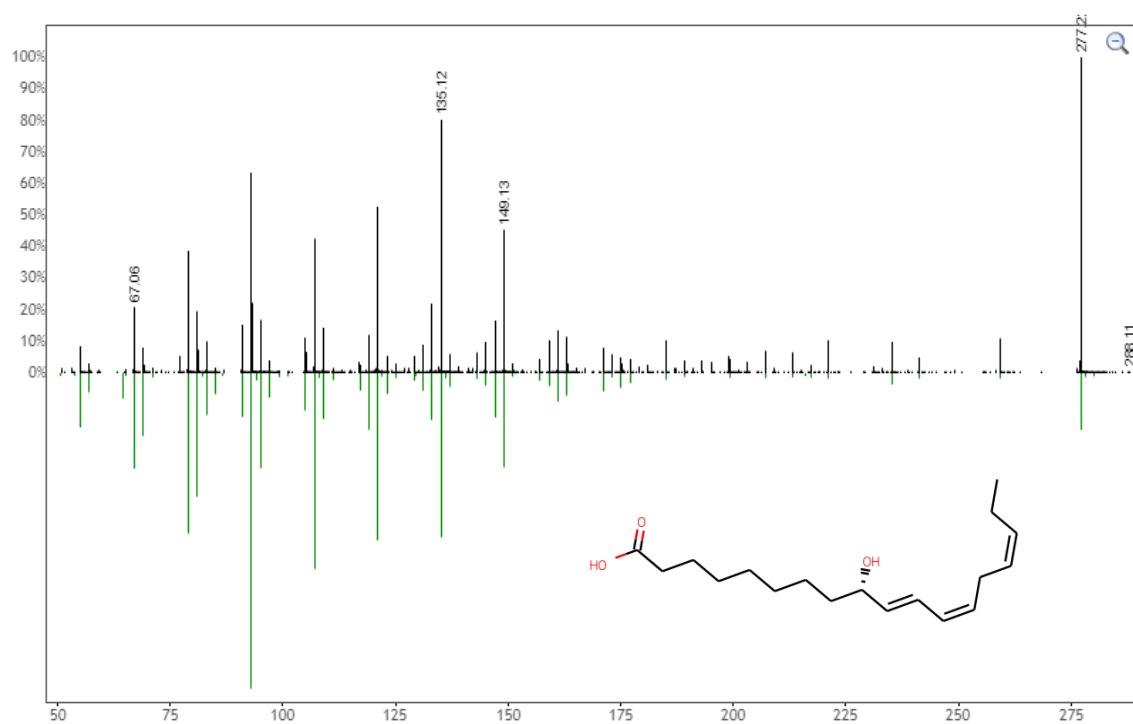
### Vitexin-2-O-rhamnoside



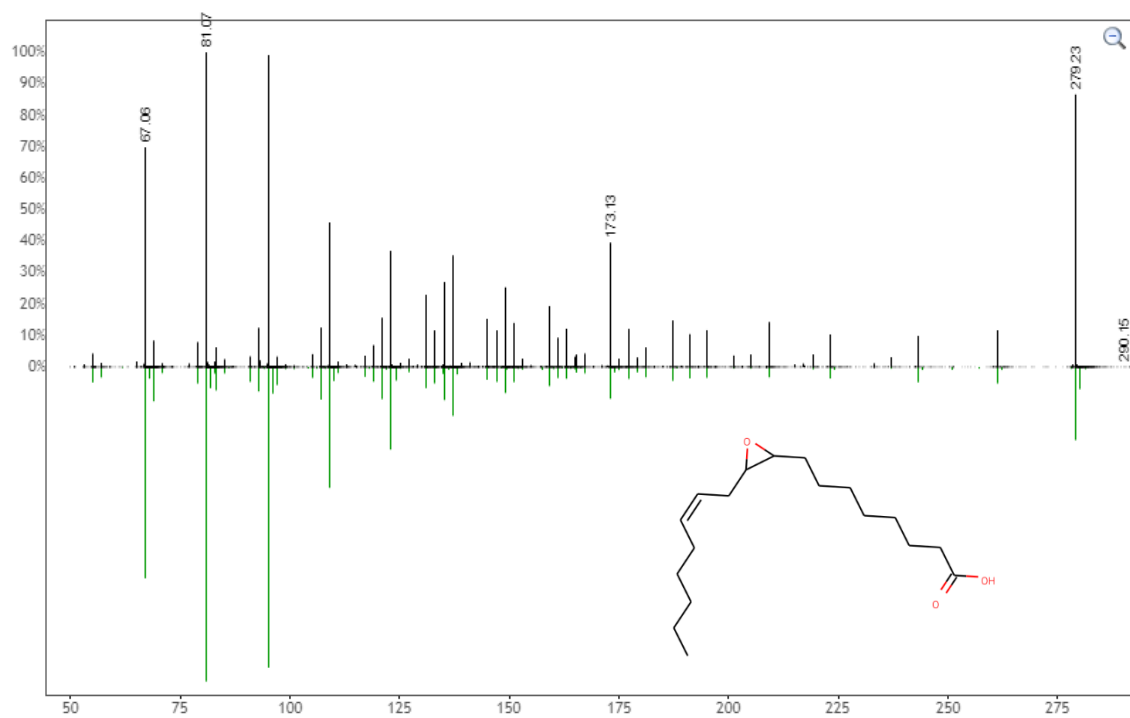
## Loliolide



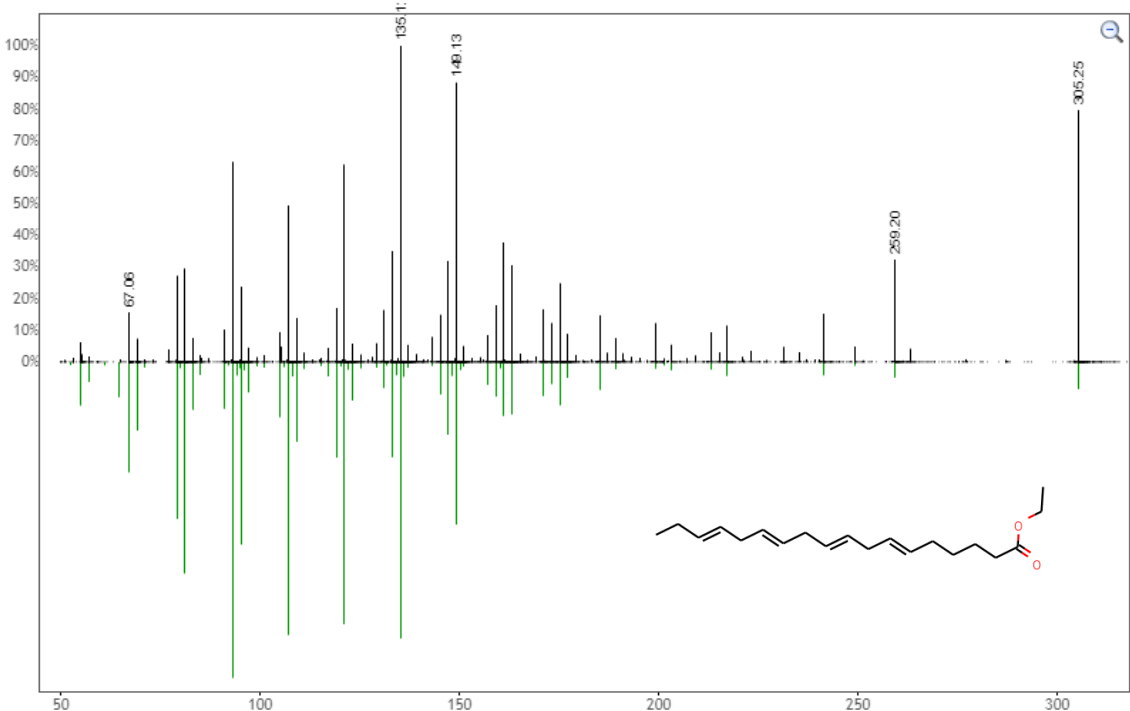
**9S-Hydroxy-10E,12Z,15Z-octadecatrienoic acid**



**9(10)-EpOME**



### Stearidonic acid Ethyl ester



## Pheophorbide A

