antioxidants

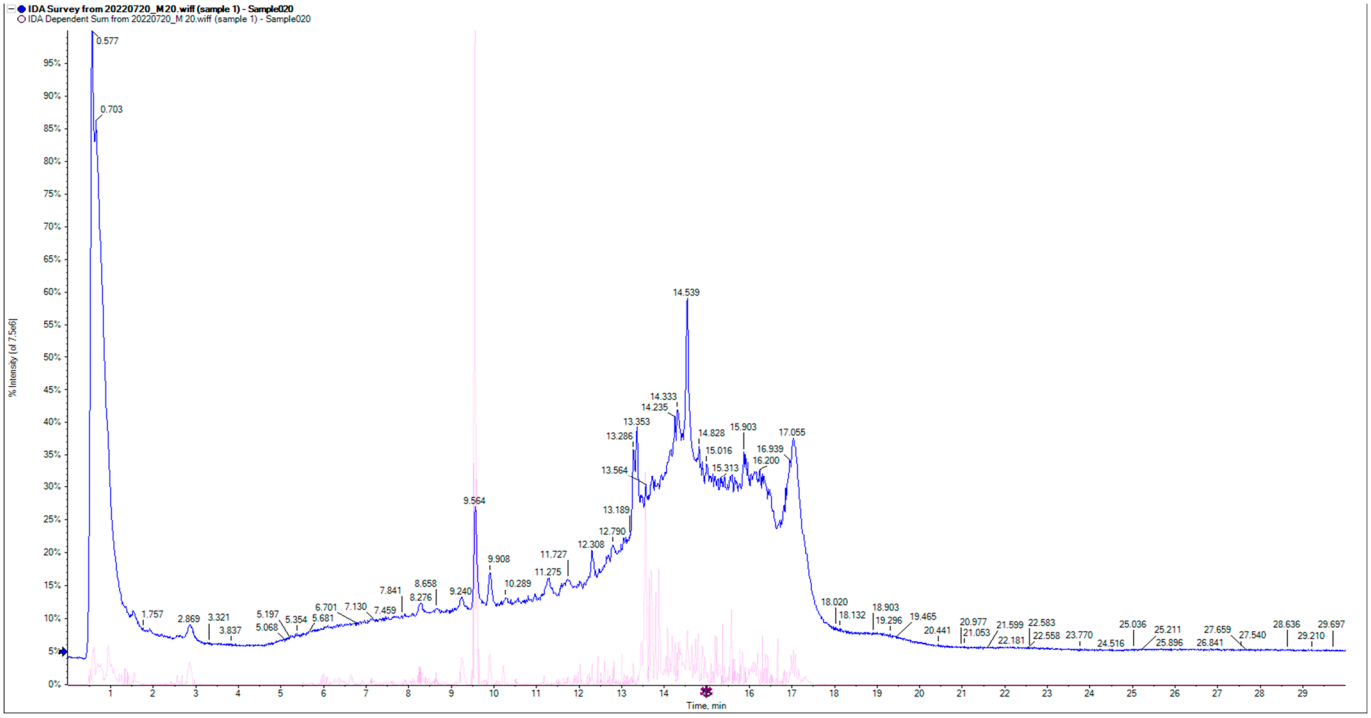
Supplementary Material

Table S1. Phenolic compounds quantified and identified in pulsed electric fields (PEF) extracts and conventional extracts from *Agaricus bisporus, Agaricus brunnescens, Lentinula edodes* and *Pleurotus ostreatus* mushrooms by Triple TOF-LC-MS-MS.

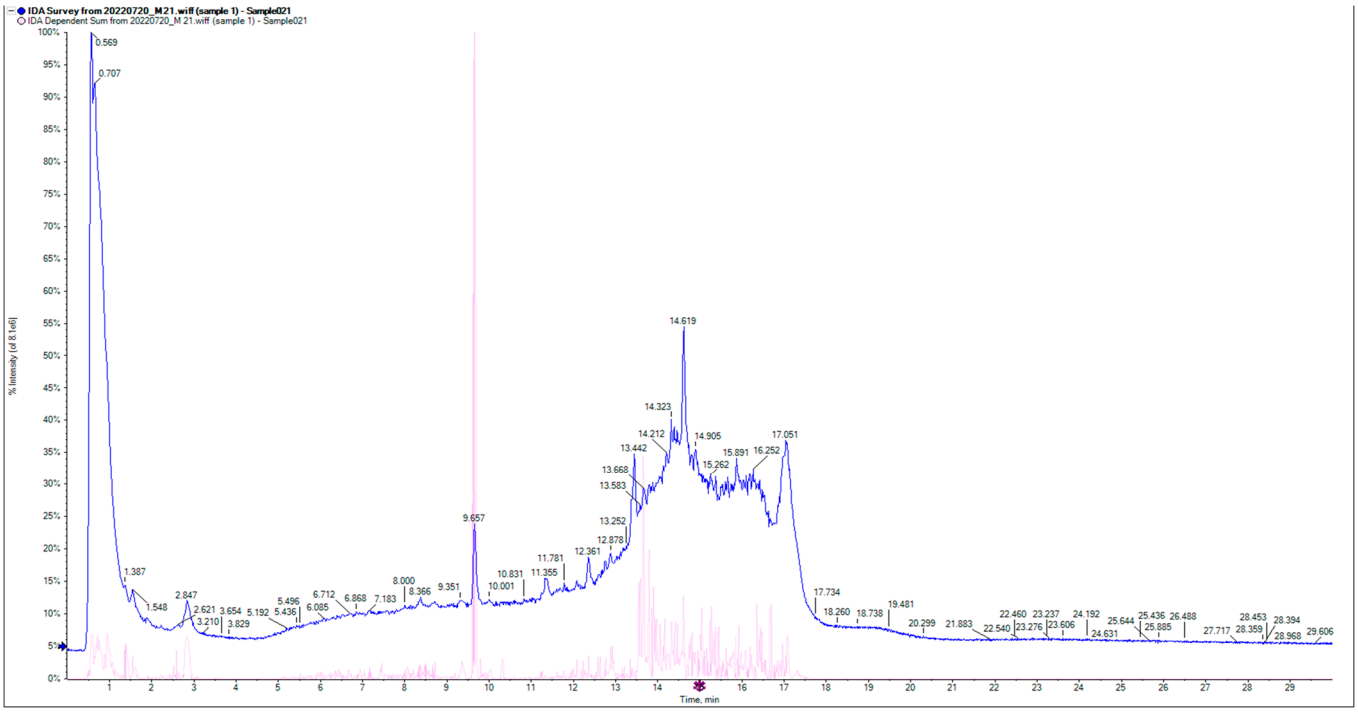
Compound	Sample	Treatment	Retention time (min)	Concentration (ppm)*
Cinnamic acid	*A. bisporus*	Conventional	1.62	0.254
		PEF	1.64	0.303
	A. brunnescens	Conventional	1.55	0.212
		PEF	1.56	0.256
	L. edodes	Conventional	1.59	0.164
		PEF	1.60	0.209
	P. ostreatus	Conventional	1.55	0.197
		PEF	1.58	0.242
Chlorogenic acid	*A. bisporus*	Conventional	8.39	0.155
		PEF	8.37	0.159
	A. brunnescens	Conventional	n.d	n.d
		PEF	n.d	n.d
	L. edodes	Conventional	n.d	n.d
		PEF	n.d	n.d
	P. ostreatus	Conventional	8.34	0.157
		PEF	n.d	n.d
Vanillic acid	*A. bisporus*	Conventional	n.d	n.d
		PEF	n.d	n.d
	A. brunnescens	Conventional	n.d	n.d
		PEF	n.d	n.d
	L. edodes	Conventional	10.56	0.210
		PEF	10.41	0.165
	P. ostreatus	Conventional	n.d	n.d
		PEF	n.d	n.d
Ellagic acid	*A. bisporus*	Conventional	n.d	n.d
		PEF	n.d	n.d
	A. brunnescens	Conventional	n.d	n.d
		PEF	n.d	n.d
	L. edodes	Conventional	n.d	n.d
		PEF	n.d	n.d

	P. ostreatus	Conventional	8.51	0.162
		PEF	8.41	0.161
Thymol	*A. bisporus*	Conventional	13.52	0.170
		PEF	13.42	0.179
	A. brunnescens	Conventional	13.57	0.171
		PEF	13.66	0.179
	L. edodes	Conventional	13.67	0.176
		PEF	13.33	0.169
	P. ostreatus	Conventional	13.65	0.184
		PEF	n.d	n.d
Hesperidin	*A. bisporus*	Conventional	8.88	7.21E-02
		PEF	8.87	7.24E-02
	A. brunnescens	Conventional	n.d	n.d
		PEF	8.91	7.27E-02
	L. edodes	Conventional	8.91	7.25E-02
		PEF	9.03	7.28E-02
	P. ostreatus	Conventional	n.d	n.d
		PEF	8.91	7.27E-02
Quercetin	*A. bisporus*	Conventional	8.5	3.62E-02
		PEF	8.49	4.53E-02
	A. brunnescens	Conventional	8.4	3.23E-02
		PEF	8.46	4.54E-02
	L. edodes	Conventional	8.49	3.84E-02
		PEF	8.6	3.97E-02
	P. ostreatus	Conventional	8.41	3.13E-02
		PEF	8.51	3.56E-02
Kaempferol	*A. bisporus*	Conventional	10.32	2.31E-03
		PEF	10.31	1.36E-03
	A. brunnescens	Conventional	10.29	4.89E-03
		PEF	11.69	3.14E-03
	L. edodes	Conventional	10.43	6.77E-03
		PEF	10.22	1.70E-02
	P. ostreatus	Conventional	11.68	3.64E-03
		PEF	11.76	2.27E-02

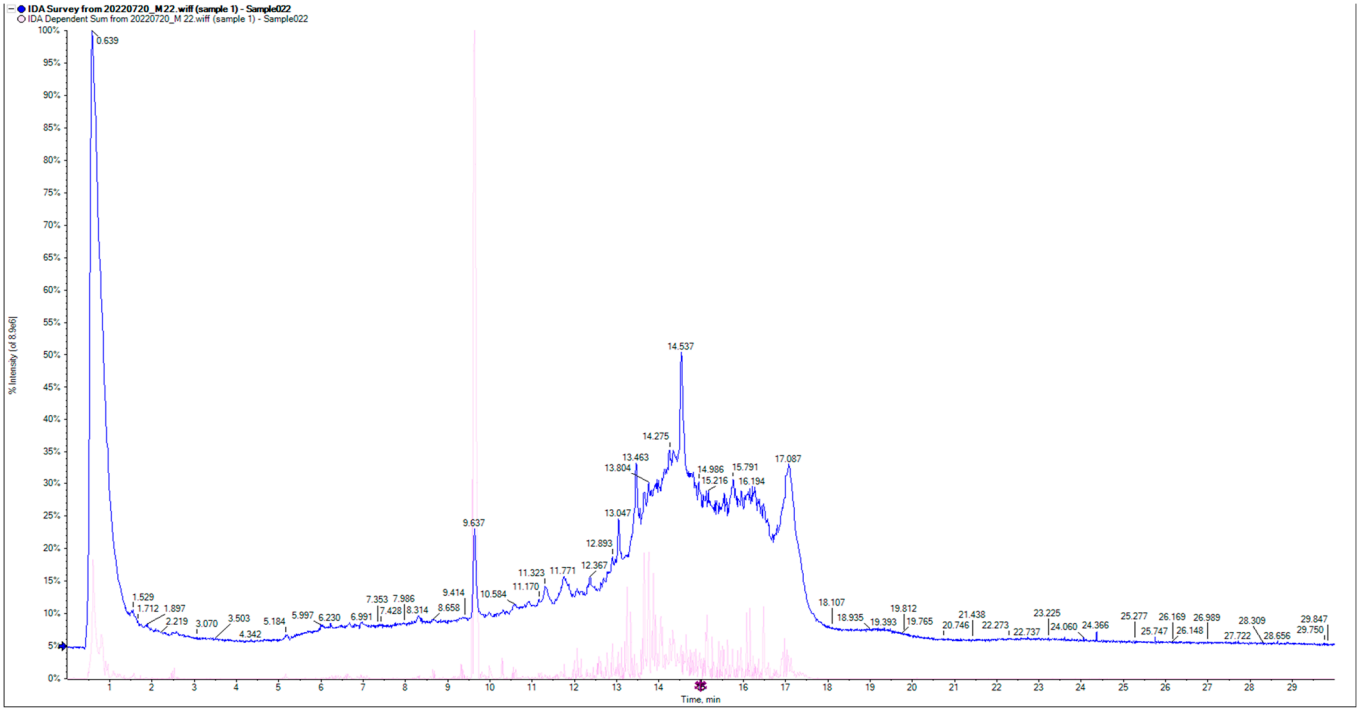
* Phenolic compounds quantification was carried out considering a relative standard deviation (RSD%) of a maximum of 10%.


IDA Survey from 20220720_M20.wiff (sample 1) - Sample020
IDA Dependent Sum from 20220720_M 20.wiff (sample 1) - Sample020
% Intensity (of 7.5e6)
Time, min

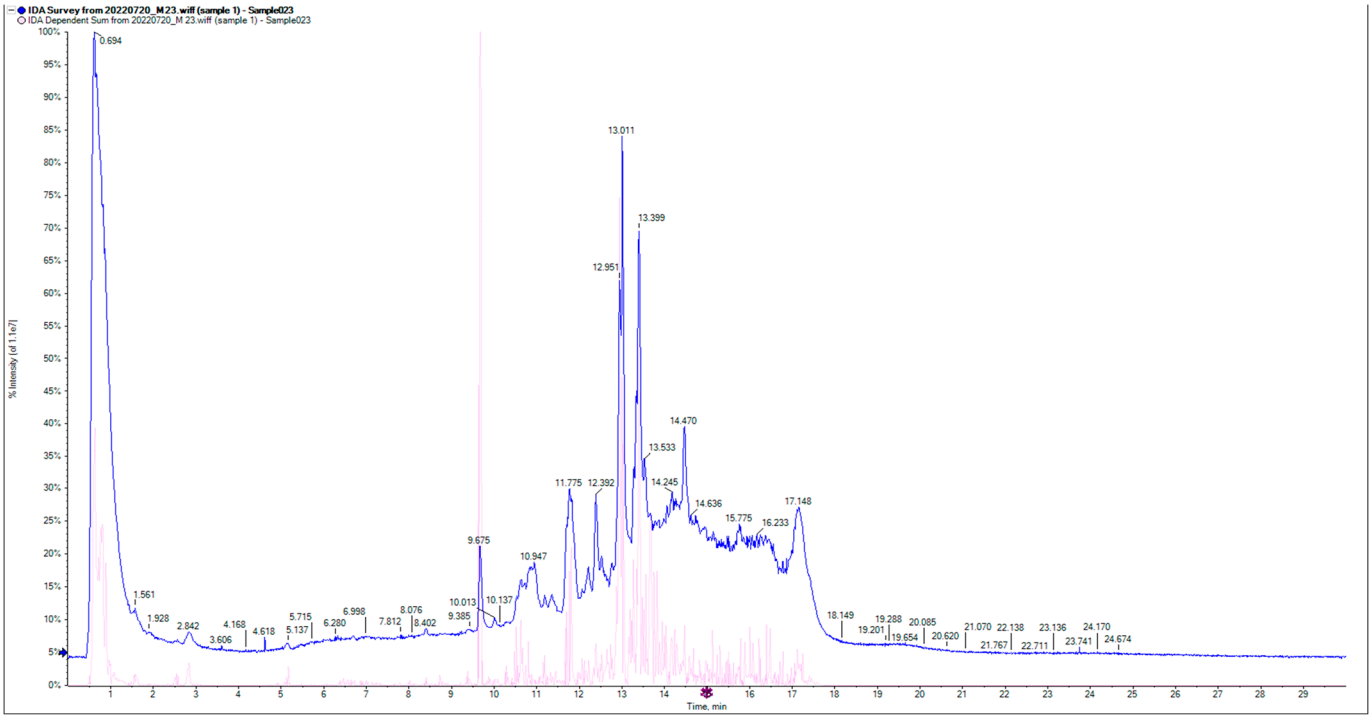
(A)


IDA Survey from 20220720_M21.wiff (sample 1) - Sample021
IDA Dependent Sum from 20220720_M 21.wiff (sample 1) - Sample021
% Intensity (of 8.1e6)
Time, min

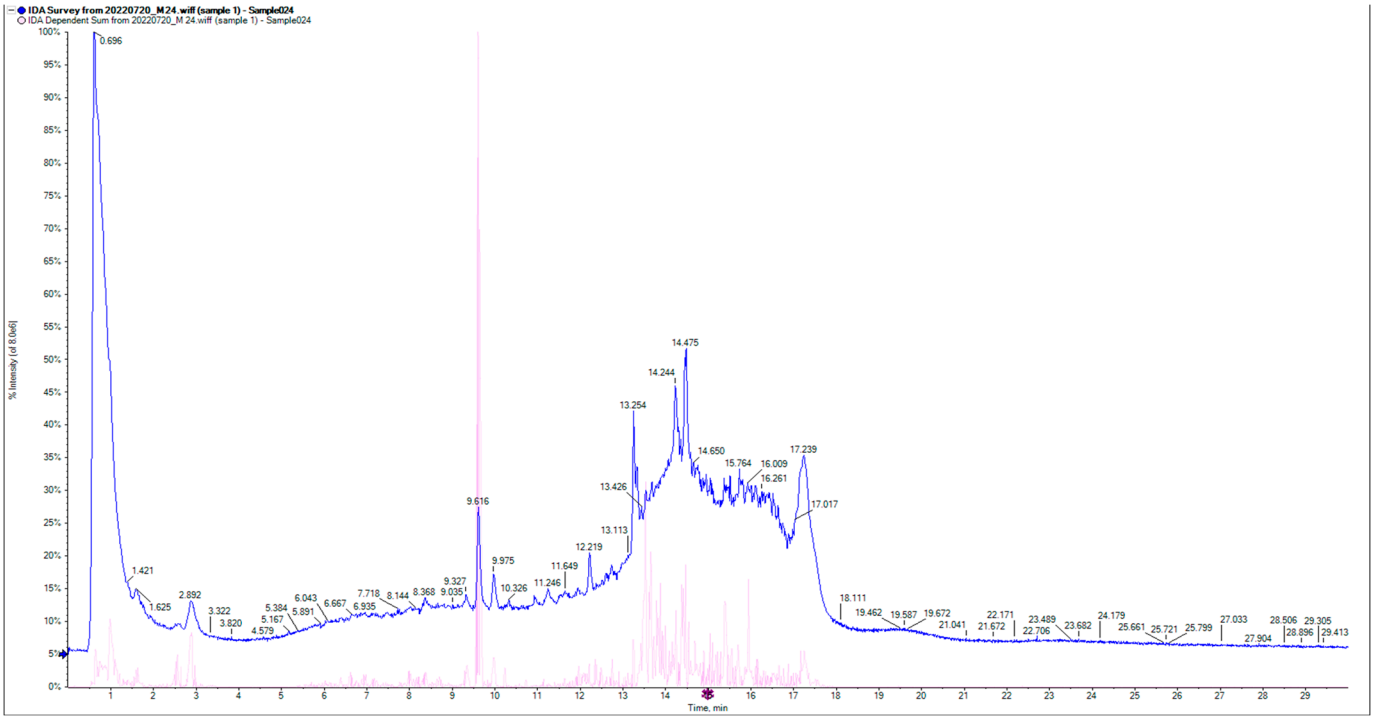
(B)


IDA Survey from 20220720_M22.wiff (sample 1) - Sample022
IDA Dependent Sum from 20220720_M 22.wiff (sample 1) - Sample022
% Intensity (of 8.9e6)
Time, min

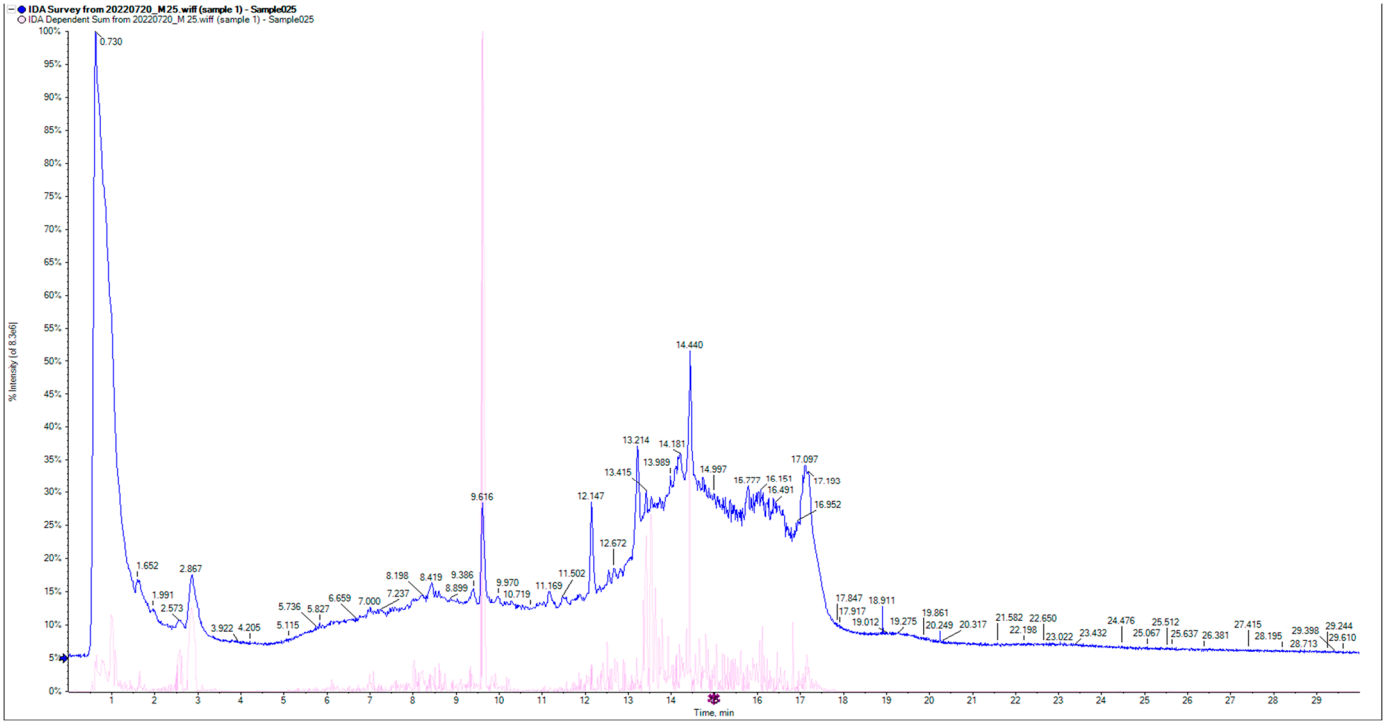
(C)


IDA Survey from 20220720_M23.wiff (sample 1) - Sample023
IDA Dependent Sum from 20220720_M 23.wiff (sample 1) - Sample023
% Intensity (of 1.1e7)
Time, min

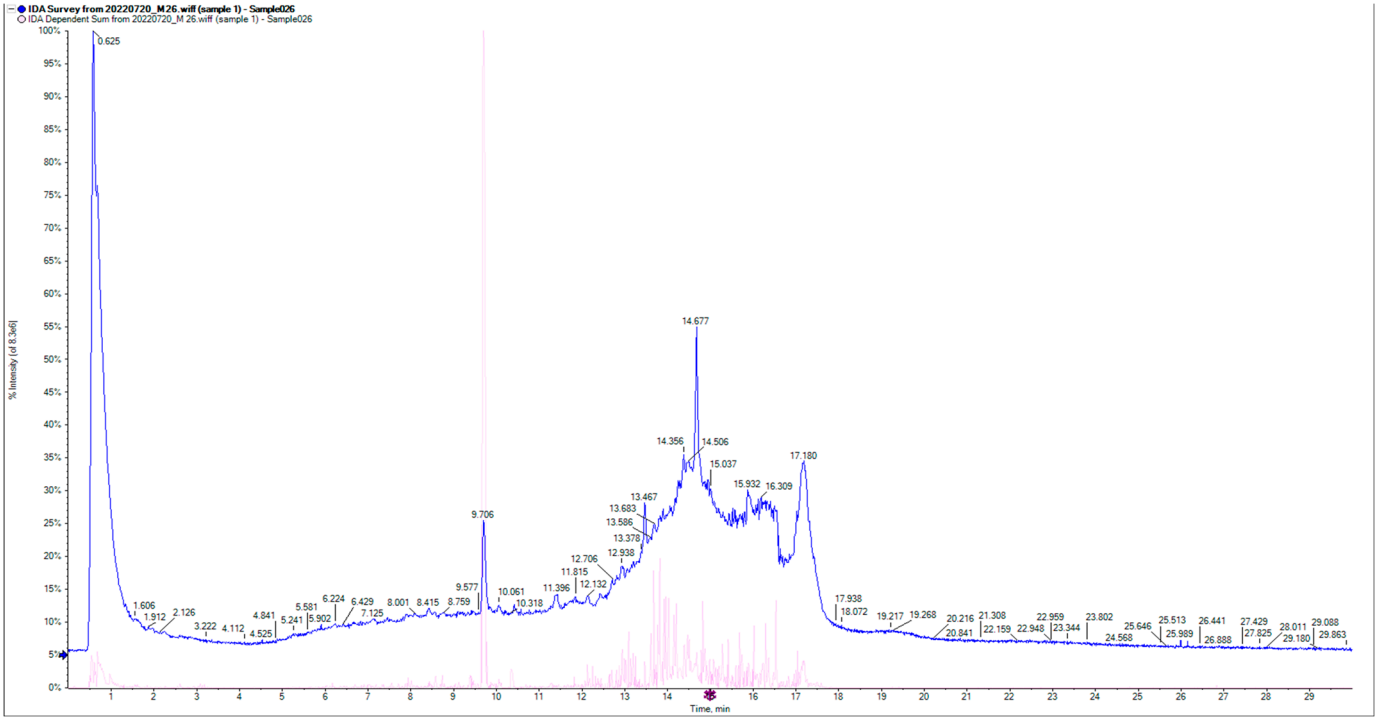
(D)


IDA Survey from 20220720_M24.wiff (sample 1) - Sample024
IDA Dependent Sum from 20220720_M 24.wiff (sample 1) - Sample024
% Intensity (of 8.0e6)
Time, min

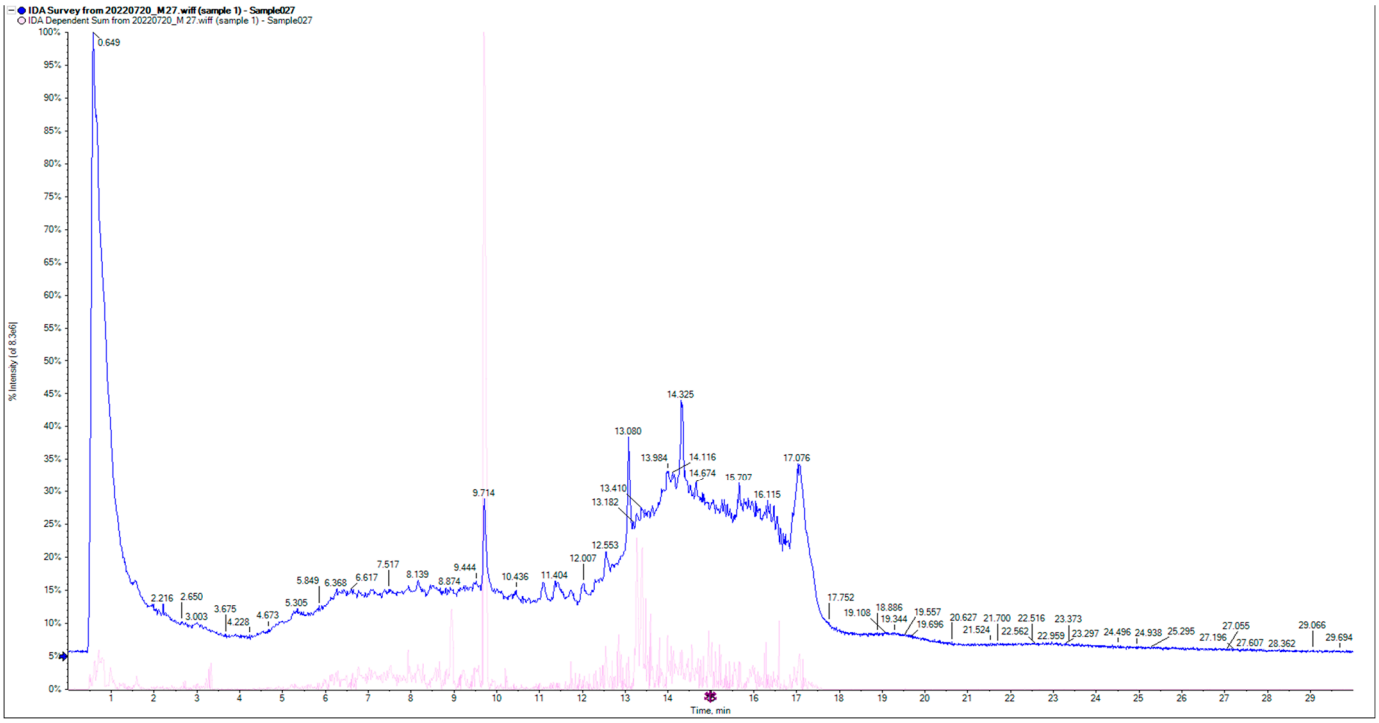
(E)


IDA Survey from 20220720_M25.wiff (sample 1) - Sample025
IDA Dependent Sum from 20220720_M 25.wiff (sample 1) - Sample025
% Intensity (of 8.3e6)
Time, min

(F)

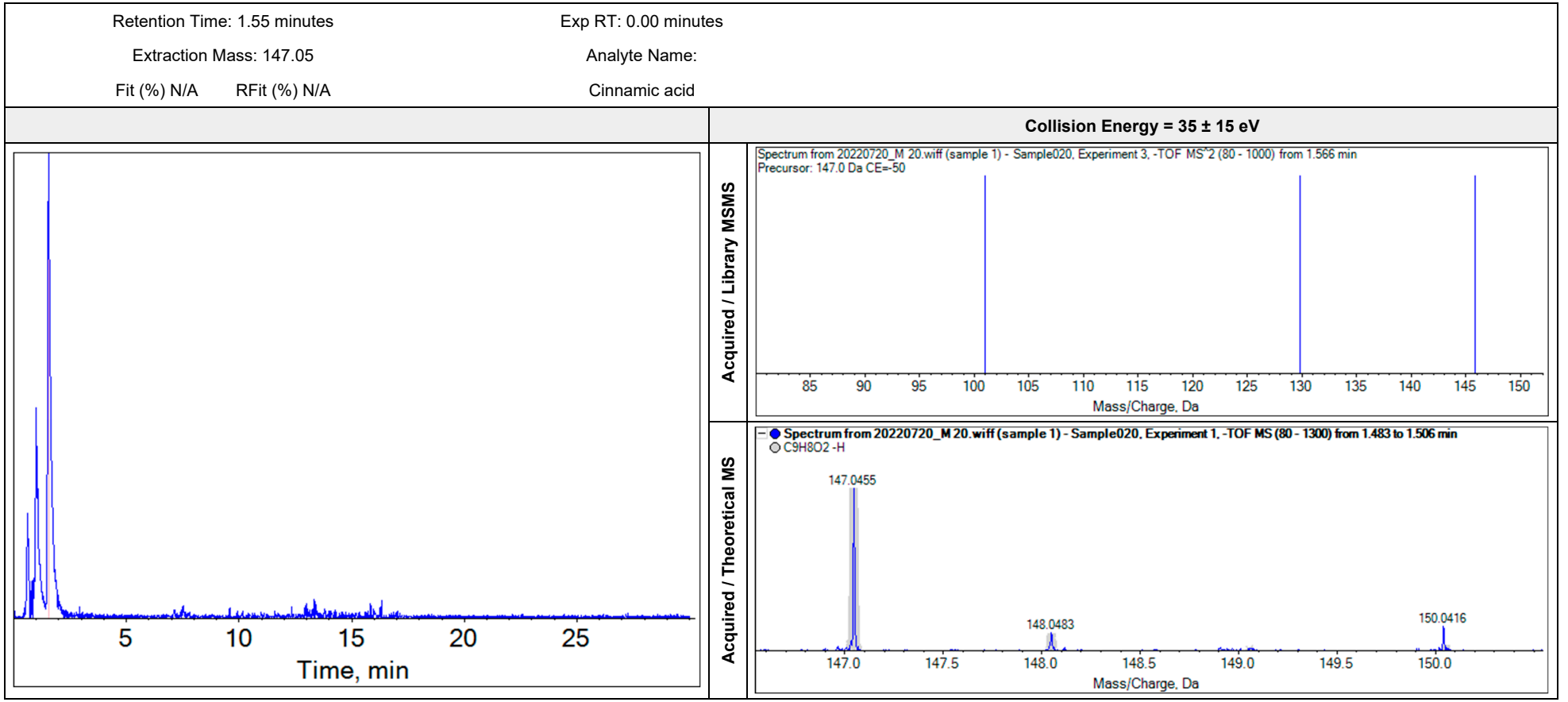


(G)



(H)

Figure S1. LC- MS/MS IDA Survey from (**A**) *A. brunnescens* conventional extract, (**B**) *A. brunnescens* PEF extract, (**C**) *P. ostreatus* conventional extract, (**D**) *P. ostreatus* PEF extract, (**E**) *A. bisporus* conventional extract, (**F**) *A. bisporus* PEF extract, (**G**) *L. edodes* conventional extract, (**H**) *L. edodes* PEF extract.

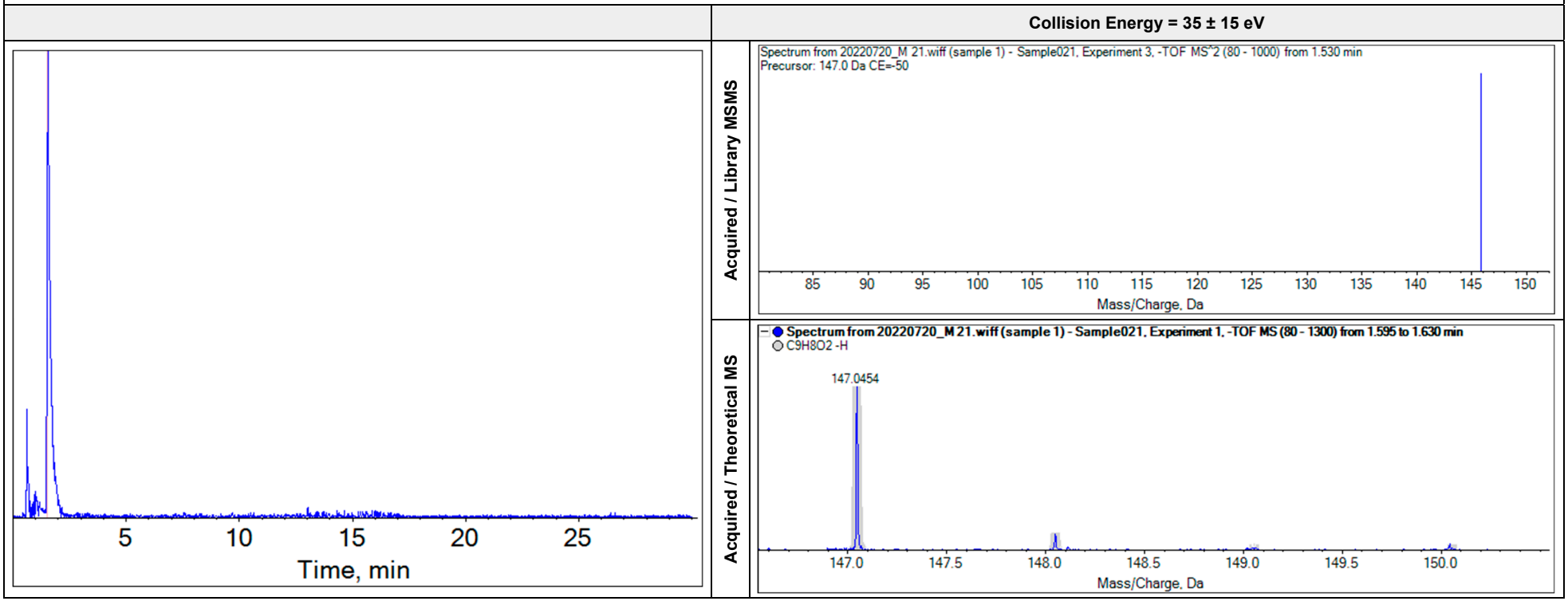

Retention Time: 1.55 minutes
Exp RT: 0.00 minutes
Extraction Mass: 147.05
Analyte Name:
Fit (%) N/A
RFit (%) N/A
Cinnamic acid
Collision Energy = 35 ± 15 eV
Time, min
Acquired / Library MSMS
Spectrum from 20220720_M 20.wiff (sample 1) - Sample020, Experiment 3, -TOF MS^2 (80 - 1000) from 1.566 min
Precursor: 147.0 Da CE=-50
Mass/Charge, Da
Acquired / Theoretical MS
Spectrum from 20220720_M 20.wiff (sample 1) - Sample020, Experiment 1, -TOF MS (80 - 1300) from 1.483 to 1.506 min
C9H8O2 -H
147.0455
148.0483
150.0416
Mass/Charge, Da

(A)

Retention Time: 1.56 minutes Exp RT: 0.00 minutes

Extraction Mass: 147.05 Analyte Name:

Fit (%) N/A RFit (%) N/A Cinnamic acid

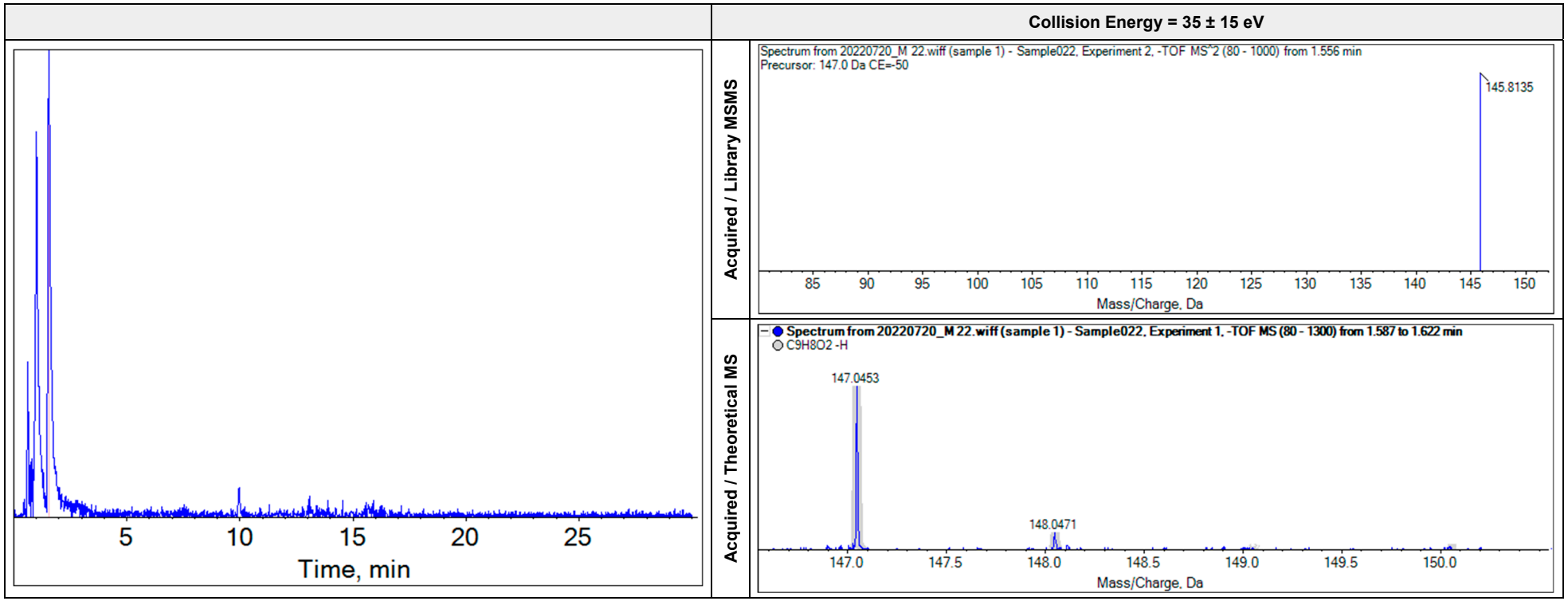


(B)

Retention Time: 1.55 minutes Exp RT: 0.00 minutes

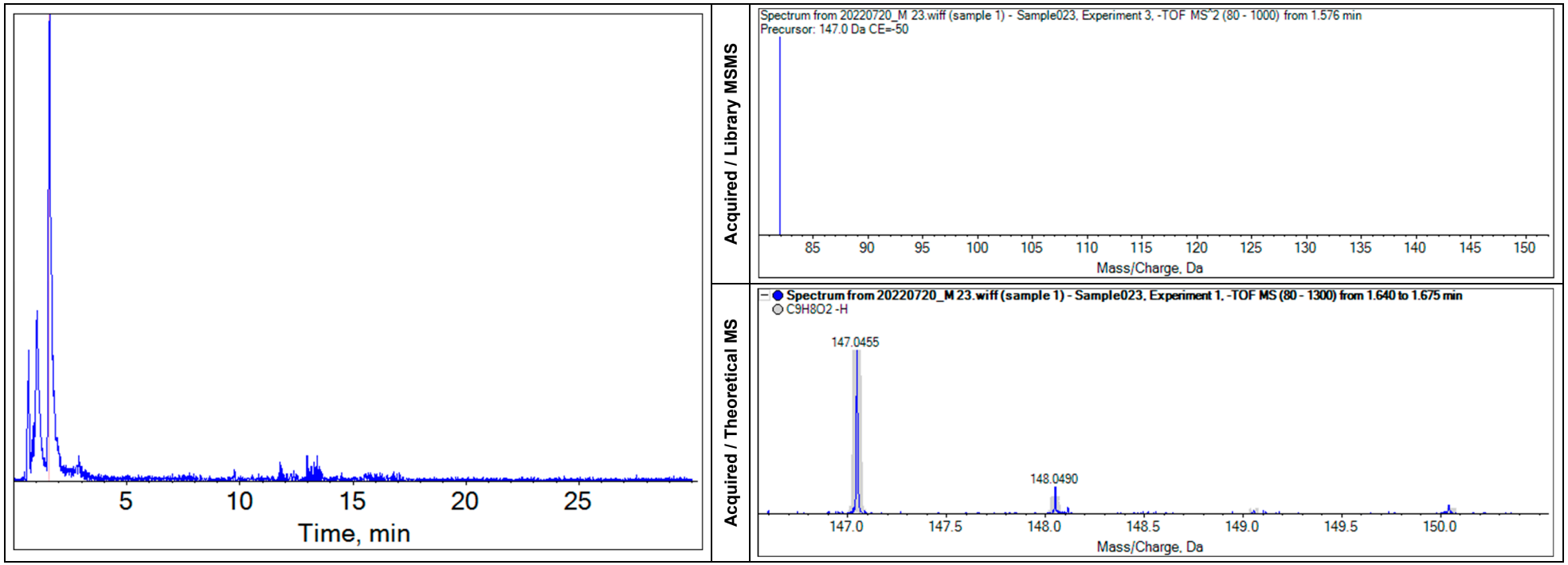
Extraction Mass: 147.05 Analyte Name:

Fit (%) N/A RFit (%) N/A Cinnamic acid



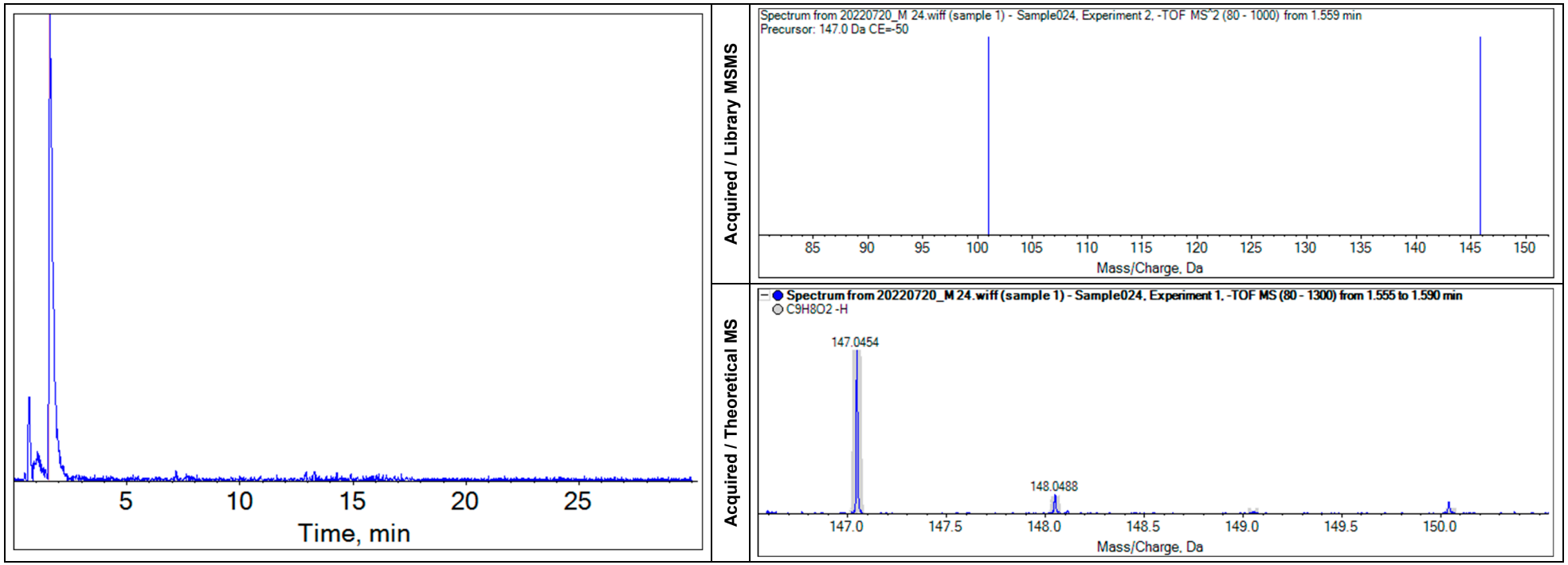
(C)

Retention Time: 1.58 minutes	Exp RT: 0.00 minutes
Extraction Mass: 147.05	Analyte Name:
Fit (%) N/A RFit (%) N/A	Cinnamic acid
	Collision Energy = 35 ± 15 eV



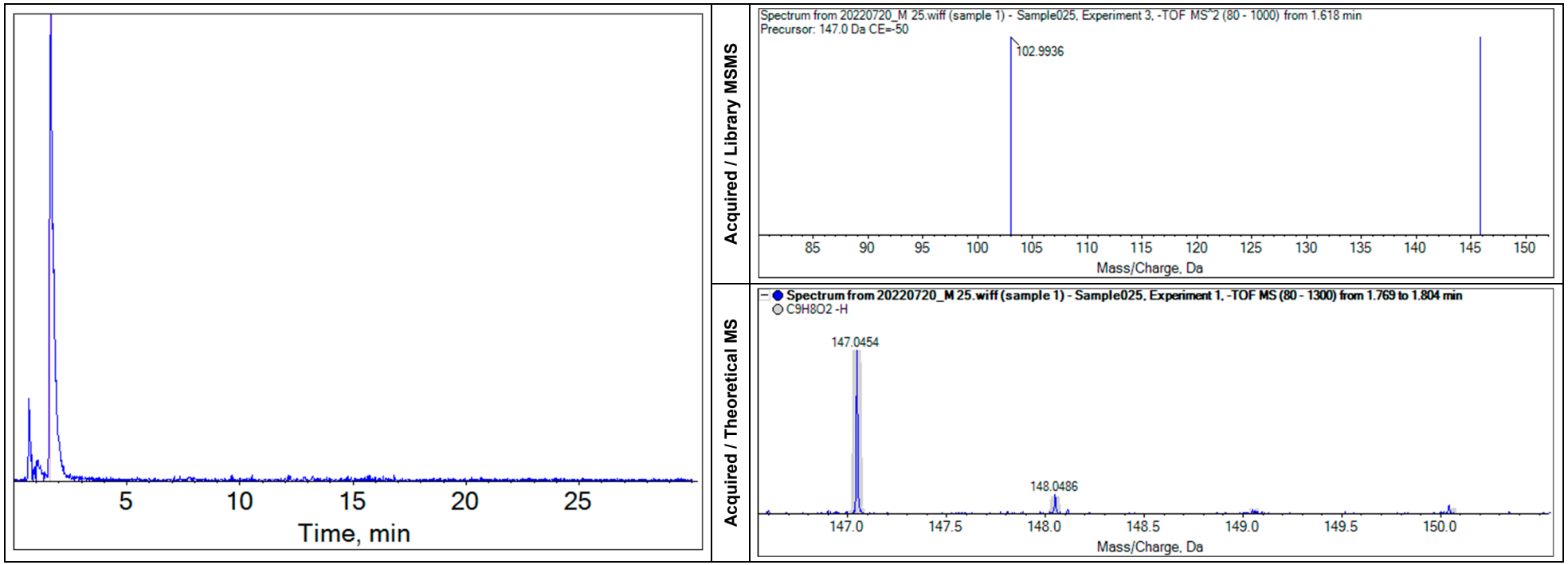
(D)

Retention Time: 1.62 minutes	Exp RT: 0.00 minutes
Extraction Mass: 147.05	Analyte Name:
Fit (%) N/A RFit (%) N/A	Cinnamic acid
	Collision Energy = 35 ± 15 eV



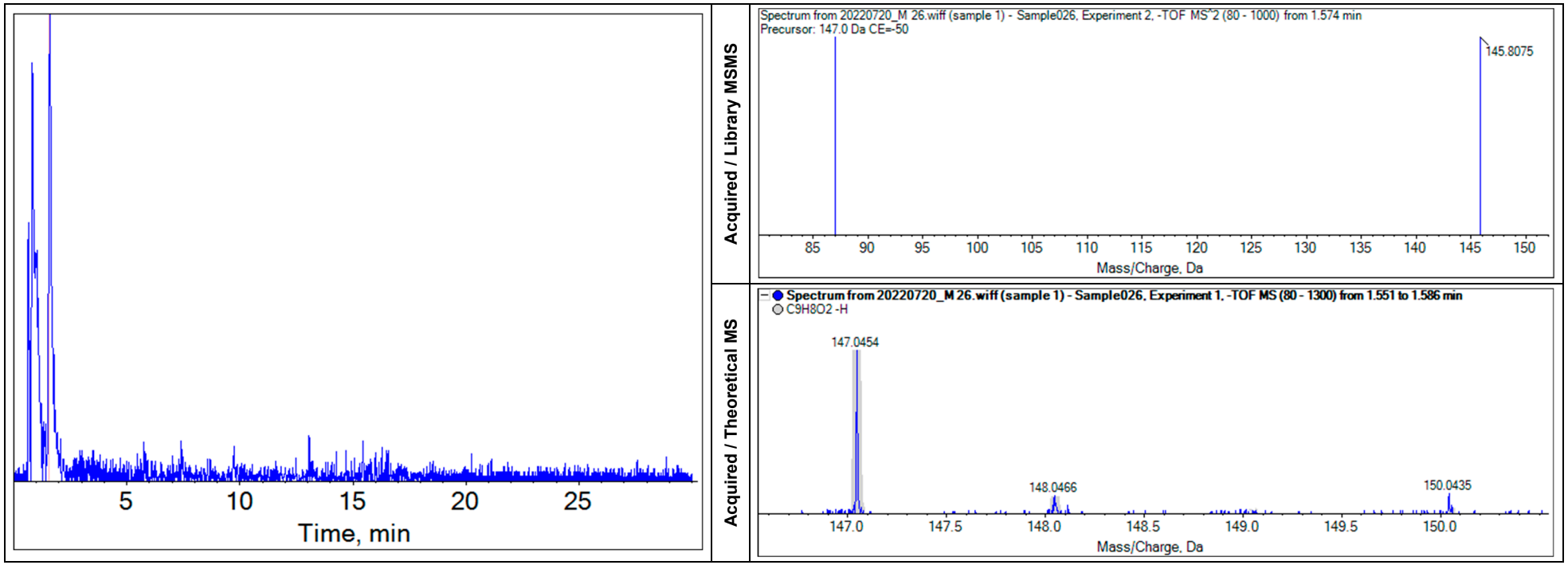
(E)

Retention Time: 1.64 minutes	Exp RT: 0.00 minutes
Extraction Mass: 147.05	Analyte Name:
Fit (%) N/A RFit (%) N/A	Cinnamic acid
	Collision Energy = 35 ± 15 eV



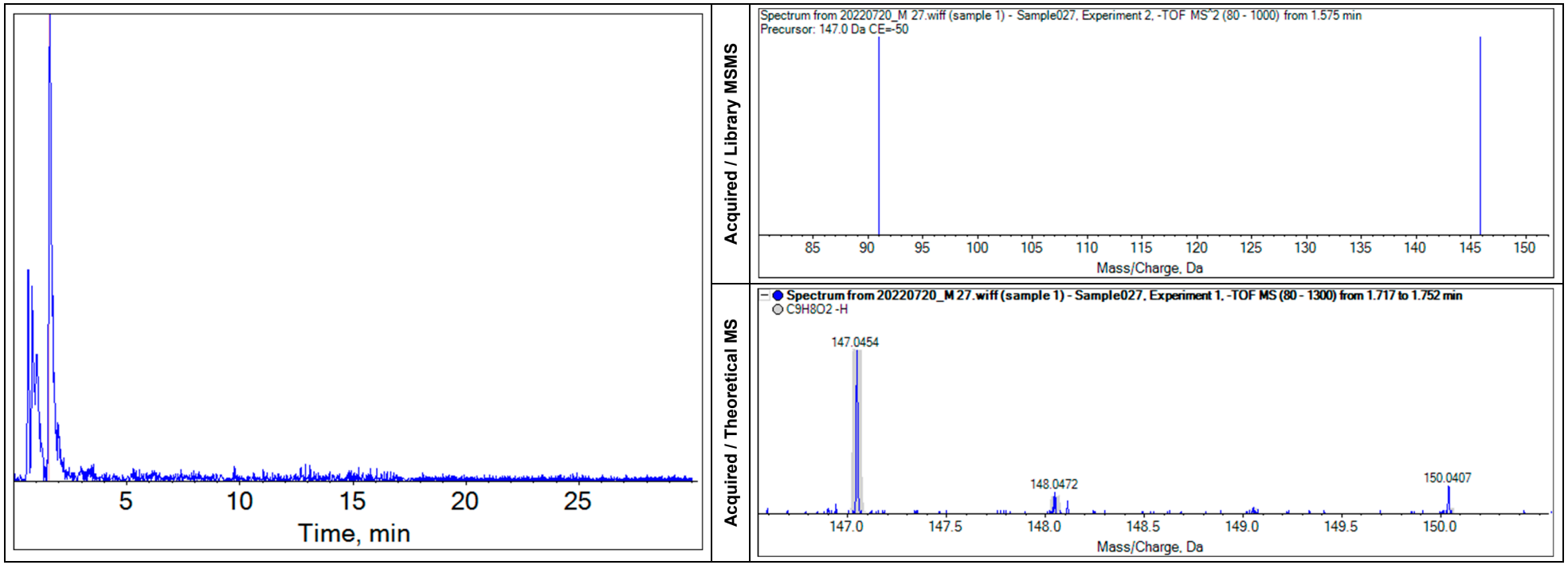
(F)

Retention Time: 1.59 minutes	Exp RT: 0.00 minutes
Extraction Mass: 147.05	Analyte Name:
Fit (%) N/A RFit (%) N/A	Cinnamic acid
	Collision Energy = 35 ± 15 eV



(G)

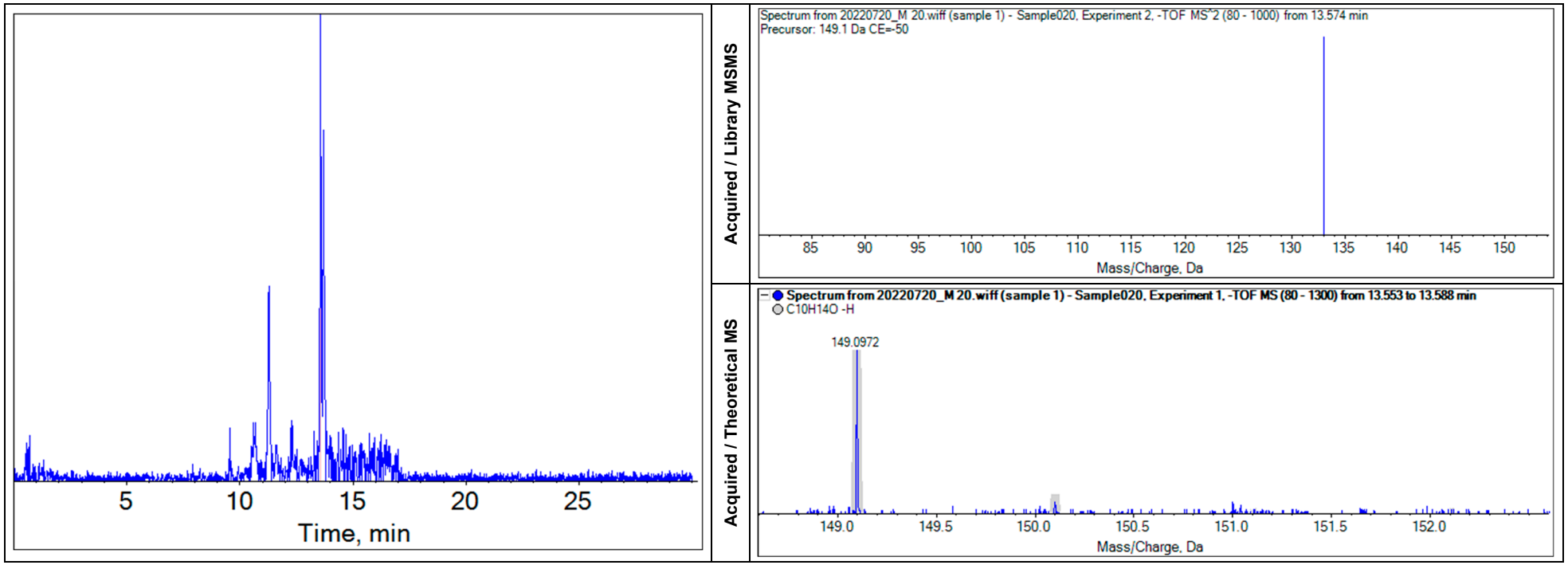
Retention Time: 1.60 minutes	Exp RT: 0.00 minutes
Extraction Mass: 147.05	Analyte Name:
Fit (%) N/A RFit (%) N/A	Cinnamic acid
	Collision Energy = 35 ± 15 eV



(H)

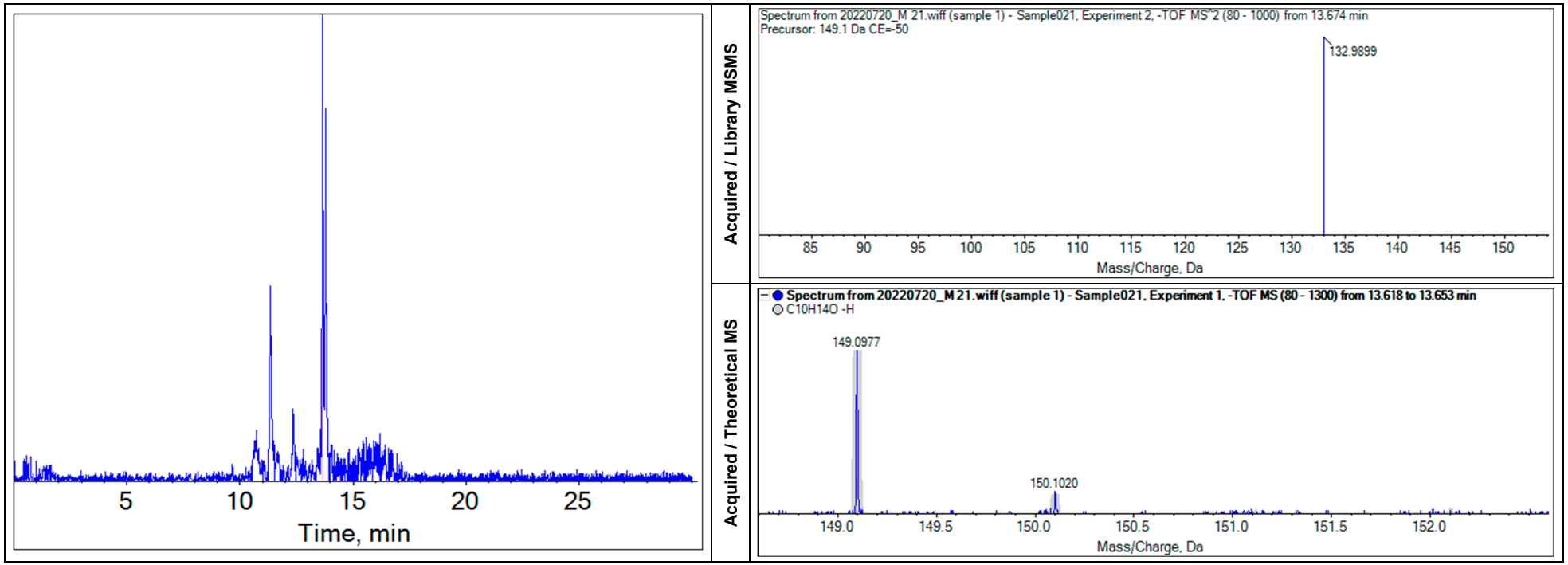
Figure S2. LC- MS/MS cinnamic acid chromatographs from (**A**) *A. brunnescens* conventional extract, (**B**) *A. brunnescens* PEF extract, (**C**) *P. ostreatus* conventional extract, (**D**) *P. ostreatus* PEF extract, (**E**) *A. bisporus* conventional extract, (**F**) *A. bisporus* PEF extract, (**G**) *L. edodes* conventional extract, (**H**) *L. edodes* PEF extract.

Retention Time: 13.57 minutes	Exp RT: 0.00 minutes	
Extraction Mass: 149.10	Analyte Name:	
Fit (%) N/A RFit (%) N/A	Thymol	
		Collision Energy = 35 ± 15 eV



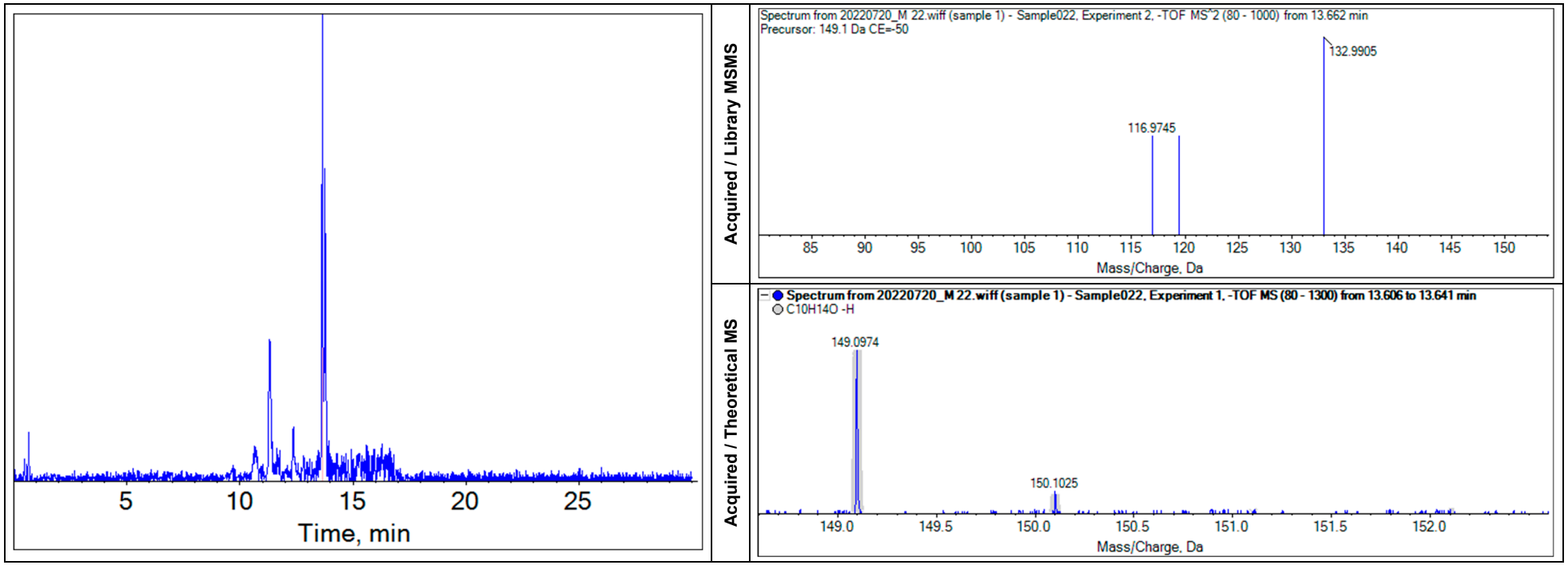
(A)

Retention Time: 13.66 minutes	Exp RT: 0.00 minutes
Extraction Mass: 149.10	Analyte Name:
Fit (%) N/A RFit (%) N/A	Thymol
	Collision Energy = 35 ± 15 eV



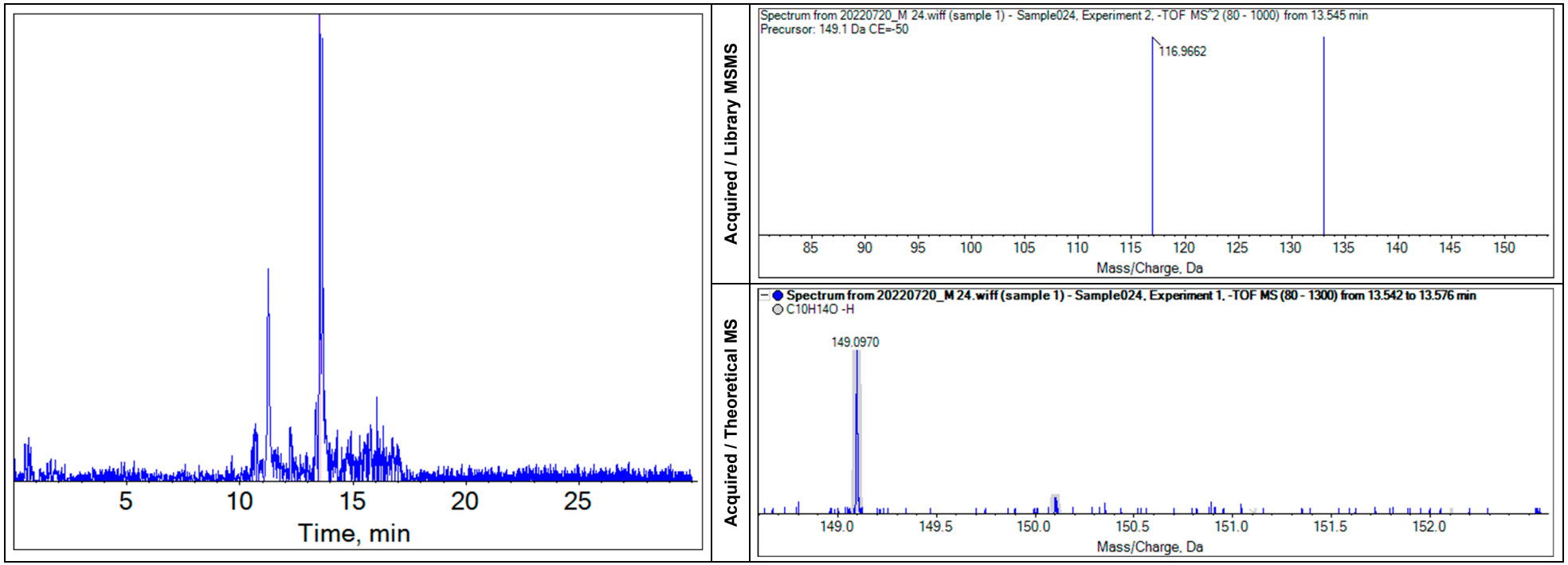
(B)

Retention Time: 13.65 minutes	Exp RT: 0.00 minutes
Extraction Mass: 149.10	Analyte Name:
Fit (%) N/A RFit (%) N/A	Thymol
	Collision Energy = 35 ± 15 eV



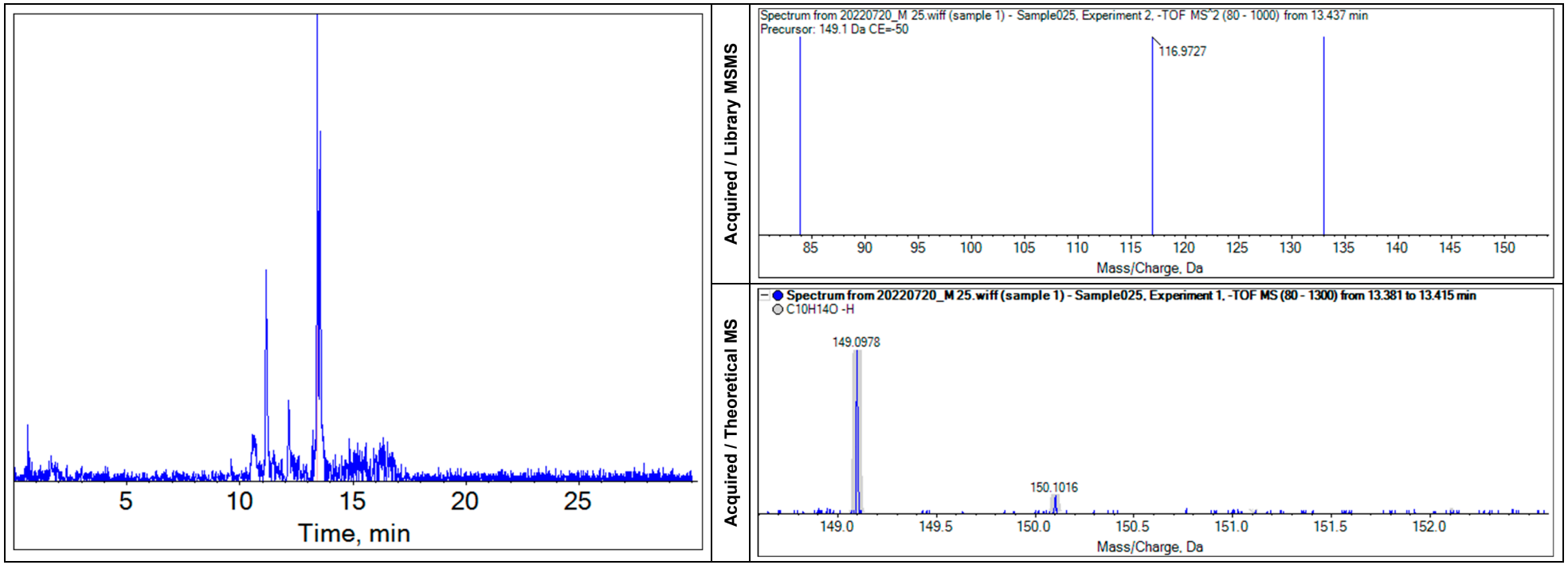
(C)

Retention Time: 13.53 minutes	Exp RT: 0.00 minutes
Extraction Mass: 149.10	Analyte Name:
Fit (%) N/A RFit (%) N/A	Thymol
	Collision Energy = 35 ± 15 eV



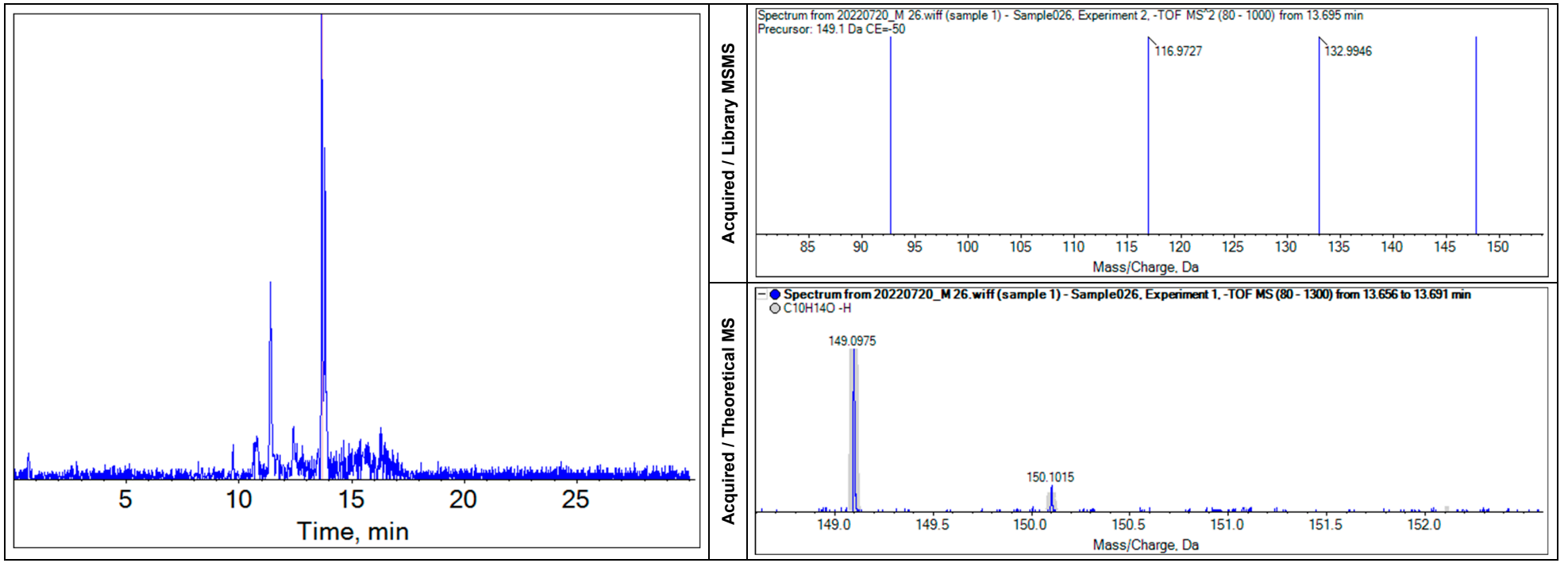
(D)

Retention Time: 13.42 minutes	Exp RT: 0.00 minutes
Extraction Mass: 149.10	Analyte Name:
Fit (%) N/A RFit (%) N/A	Thymol
	Collision Energy = 35 ± 15 eV



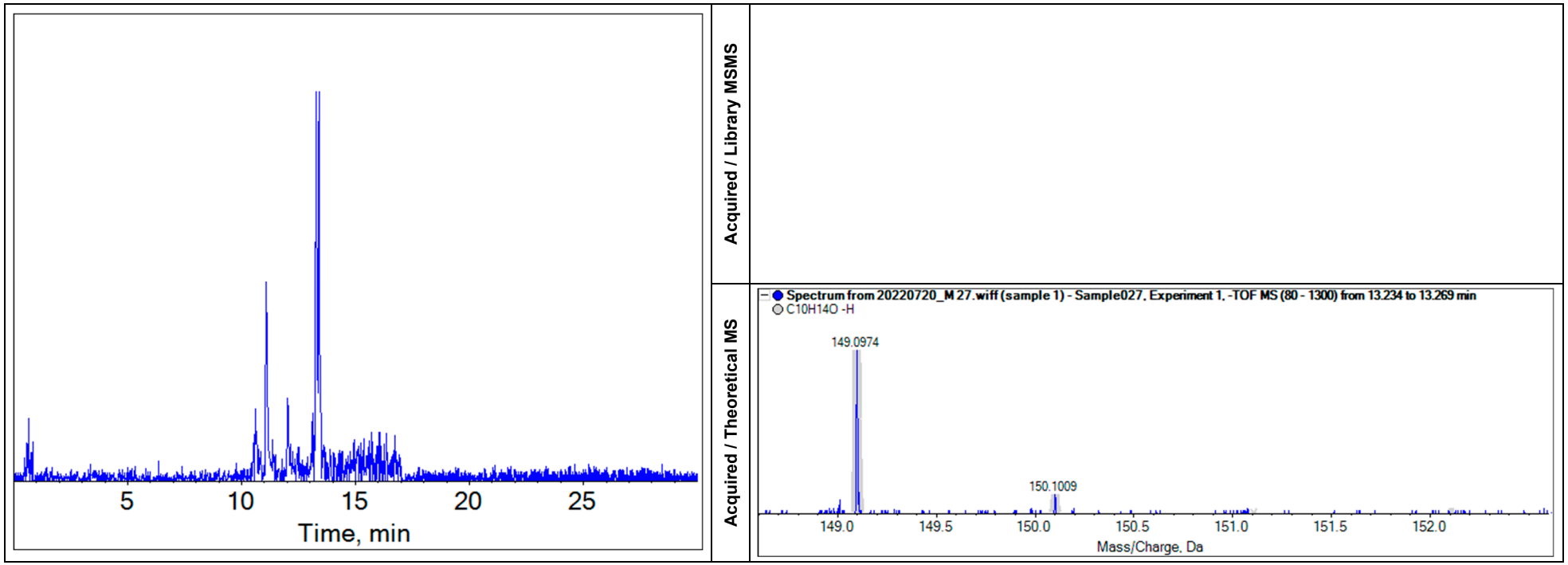
(E)

Retention Time: 13.67 minutes	Exp RT: 0.00 minutes
Extraction Mass: 149.10	Analyte Name:
Fit (%) N/A RFit (%) N/A	Thymol
	Collision Energy = 35 ± 15 eV



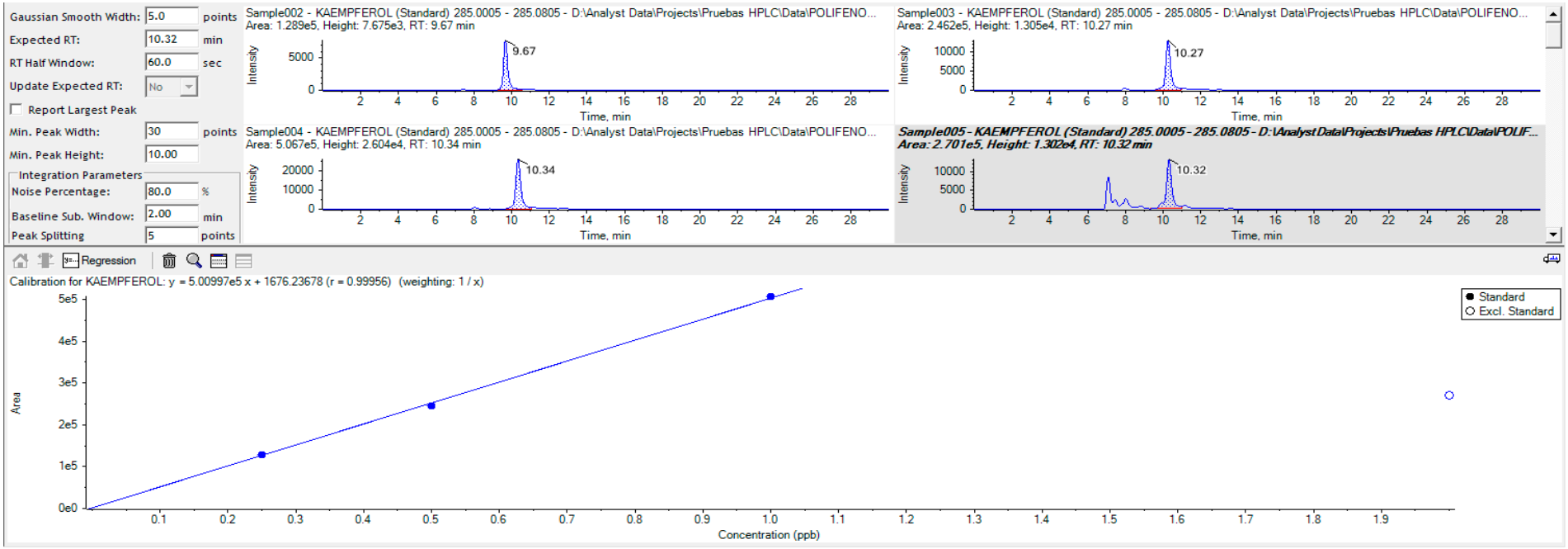
(F)

Retention Time: 13.33 minutes	Exp RT: 0.00 minutes
Extraction Mass: 149.10	Analyte Name:
Fit (%) N/A RFit (%) N/A	Thymol
	Collision Energy = 35 ± 15 eV

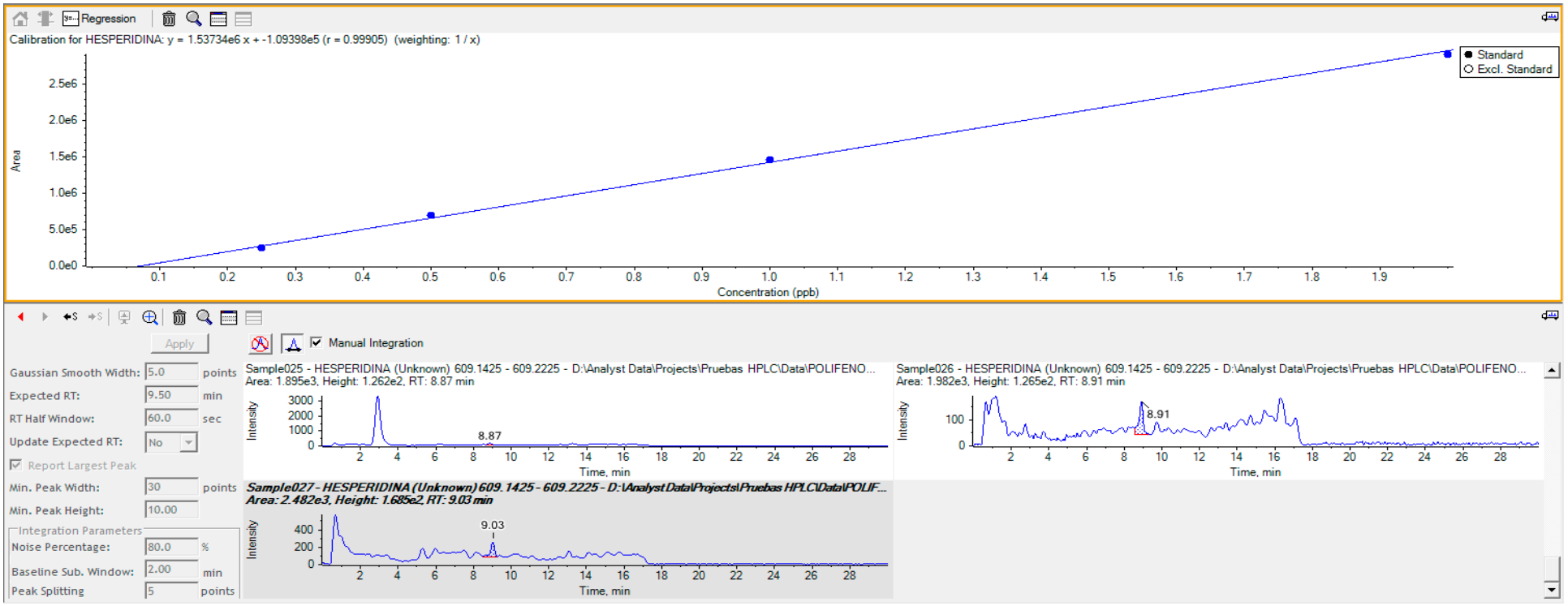


(G)

Figure S3. LC- MS/MS thymol chromatographs from (**A**) *A. brunnescens* conventional extract, (**B**) *A. brunnescens* PEF extract, (**C**) *P. ostreatus* conventional extract, (**D**) *A. bisporus* conventional extract, (**E**) *A. bisporus* PEF extract, (**F**) *L. edodes* conventional extract, (**G**) *L. edodes* PEF extract.


Gaussian Smooth Width: 5.0 points
Expected RT: 10.32 min
RT Half Window: 60.0 sec
Update Expected RT: No
Report Largest Peak
Min. Peak Width: 30 points
Min. Peak Height: 10.00
Integration Parameters
Noise Percentage: 80.0 %
Baseline Sub. Window: 2.00 min
Peak Splitting 5 points
Sample002 - KAEMPFEROL (Standard) 285.0005 - 285.0805 - D:\Analyst Data\Projects\Pruebas HPLC\Data\POLIFENO...
Area: 1.289e5, Height: 7.675e3, RT: 9.67 min
9.67
Sample003 - KAEMPFEROL (Standard) 285.0005 - 285.0805 - D:\Analyst Data\Projects\Pruebas HPLC\Data\POLIFENO...
Area: 2.462e5, Height: 1.305e4, RT: 10.27 min
10.27
Sample004 - KAEMPFEROL (Standard) 285.0005 - 285.0805 - D:\Analyst Data\Projects\Pruebas HPLC\Data\POLIFENO...
Area: 5.067e5, Height: 2.604e4, RT: 10.34 min
10.34
Sample005 - KAEMPFEROL (Standard) 285.0005 - 285.0805 - D:\Analyst Data\Projects\Pruebas HPLC\Data\POLIF...
Area: 2.701e5, Height: 1.302e4, RT: 10.32 min
10.32
Intensity
Time, min
Regression
Calibration for KAEMPFEROL: y = 5.00997e5 x + 1676.23678 (r = 0.99956) (weighting: 1 / x)
Standard
Excl. Standard
Area
Concentration (ppb)

(A)



(B)

Figure S4. LC- MS/MS standard calibration of (**A**) Kaempferol and (**B**) Hesperidin with sample data showed below.

Author Contributions: Conceptualization, Mara Calleja-Gómez, Patricia Roig, Suzana Rimac-Brnčić, Francisco J. Barba and Juan Manuel Castagnini; Data curation, Mara Calleja-Gómez, Patricia Roig and Juan Manuel Castagnini; Formal analysis, Mara Calleja-Gómez and Patricia Roig; Funding acquisition, Francisco J. Barba; Investigation, Mara Calleja-Gómez; Methodology, Patricia Roig, Suzana Rimac-Brnčić, Francisco J. Barba and Juan Manuel Castagnini; Project administration, Francisco J. Barba; Resources, Francisco J. Barba and Juan Manuel Castagnini; Supervision, Francisco J. Barba and Juan Manuel Castagnini; Validation, Patricia Roig, Suzana Rimac-Brnčić, Francisco J. Barba and Juan Manuel Castagnini; Visualization, Patricia Roig, Suzana Rimac-Brnčić and Juan Manuel Castagnini; Writing – original draft, Mara Calleja-Gómez; Writing – review & editing, Mara Calleja-Gómez, Patricia Roig, Suzana Rimac-Brnčić, Francisco J. Barba and Juan Manuel Castagnini.

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Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study are available on request from the corresponding author.

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Conflicts of Interest: The authors declare no conflict of interest.