AVIAS
RANCH

2024 Notis Estate Early Harvest

In 2024 the climate was mild, with an annual rainfall of 567 mm (22.3 inches) between September and May. Average temperatures ranged from 9°C (48°F) in the cooler months to 25°C (78°F) in warmer periods, providing optimal conditions for olive cultivation. The area had over 250 days a year sun.

The 2024 Notis Early Harvest, has a vibrant, grassy, and slightly vegetal aromatic profile with a fresh and slightly peppery finish that reflects the youthful nature of the olives and due to their higher campesterol and oleocanthal content. This compositional profile not only enhances the taste but also offers anti-inflammatory and heart-protective benefits. Early harvesting early preserved natural compounds like cis-3-hexenal, which gives the 2024 oil its fresh, green apple notes. This premium olive oil is perfect for drizzling over salads or finishing gourmet dishes.

Total number of trees harvested: 1,224
Date: November 16, 2023
Areas Harvested: Reza and Potami
Maturity Index: 0.6
Yield of olives per tree (kg): 32 kg
Total yield olives per acre: 3.4
Total yield of olives at estate: 26.8 tons
Time from harvest to milling: 3 hours
Malaxation Time: 45 minutes
Total EVOO produced: 931 kg
Yield: 3.48%
Total olives in 500mL: 14.38 kg early harvest olives

1st km Olympic Skopeftirio str., P.O. Box 13, 19003 Markopoulo, Tel. +30 22990 63910, 63920 Fax: +30 22990 63544

Fats & Oils Lab, Athens

Report No : 12-579/15.02.2024/EN

VELTIA LABS FOR LIFE
A Tentamus Company

6
No. of Certificate 044

"IOC Recognition Type B
01/12/22-30/11/23"

"Associate Analyst Member"

TEST REPORT

Client	ΑΓΓΕΛΙΔΗΣ ΚΙΜΩΝ
Client's address	ΠΛΟΥΤΑΡΧΟΥ 30
Sample description	ΕΛΑΙΟΛΑΔΟ/OLIVE OIL
Sampling	As stated by client: CLIENT
Date of sample receipt	05/02/2024
Date of Import	05/02/2024
Sample code	2024-6687
Type of analysis	Chemical Analysis

The results of this report are valid only for the analyzed samples.
This Report may be reproduced in full as is.
Partial reproduction and / or alterations are not allowed.
For any information please contact the commercial department.

Results

Sample Code **2024-6687**
Period of Analysis **05/02/2024 - 15/02/2024**
Client's Declaration **ΕΛΑΙΟΛΑΔΟ - ΔΕΙΓΜΑ 1**
Sample condition upon receipt **Acceptable**

Parameter	Units	Result	Reporting limit	Accept. lev.	Uncertainty at the accept. level	Method
Acidity % as Oleic Acid	%	**0.22**	0,03	0,8		COI/T.20/Doc.34
Oil specific extinction K270		**0.135**		0,22		COI/T.20/Doc.19
Oil specific extinction K232		**1.600**		2,50		COI/T.20/Doc.19
Delta-K (ΔK)		**-0.002**		0,01		COI/T.20/Doc.19
Peroxide Value	mEqO2/Kg	**10.04**	0,3	20		COI/T.20/Doc.35
Intencity of fruitty		**4,8**		> 0,0		Modified based on EU 2568/91*
Intencity of Bitter		**3,8**				Modified based on EU 2568/91*
Intencity of Pungent		**4,0**				Modified based on COI/T.20/Doc.15*
Intencity of Diffect		**-**		0,0		Modified based on COI/T.20/Doc.15*
ΔECN42 (ECN42 exp – ECN42 theor)		**0.05**		0,2		COI/T.20/Doc.20
Waxes	mg/Kg	**< LOQ**	20	150		COI/T.20/Doc.28
Ethyl-esters	mg/Kg	**< LOQ**	2	35		COI/T.20/Doc.28*
3,5-Stigmastadiene content	mg/Kg	**0.02**	0,01	0,05		COI/T.20/Doc.11
1,2-Diglycerides (DAG's)	%	**75.9**				ISO 29822:2009*
Pyropheophytin (PPP)	%	**0,33**				ISO 29841:2009*
Total Phenols (Folin method)	mg Tyrosol/Kg	**275**				FOLIN - CIOCALTEAU*
a-Tocopherol content	mg/Kg	**263**				ISO 9936:2006*

33

Results

Sample Code 2024-6687
Period of Analysis 05/02/2024 - 15/02/2024
Client's Declaration ΕΛΑΙΟΛΑΔΟ - ΔΕΙΓΜΑ 1
Sample condition upon receipt Acceptable

COMPOSITION OF FATTY ACIDS				
Parameter	**Result**		**Accept. lev.**	**Method**
	(%) Fatty acid, of total Fatty acids	**g/100g fat**		
Butyric (C4:0)	<0,01	<0,01		Gas Chromatography (GC -FID),COI/T.20/Doc.33
Capronic (C6:0)	<0,01	<0,01		
Caprylic (C8:0)	<0,01	<0,01		
Capric (C10:0)	<0,01	<0,01		
Undecanoic (C11:0)	<0,01	<0,01		
Lauric (C12:0)	<0,01	<0,01		
Tridecanoic (C13:0)	<0,01	<0,01		
Myristic (C14:0)	**0,01**	**0,01**	max 0,03	
Myristoleic (C14:1 cis-9)	<0,01	<0,01		
Pentadecanoic (C15:0)	<0,01	<0,01		
Pentadecenoic (C15:1 cis-10)	**0,01**	**0,01**		
Palmitic (C16:0)	**11,40**	**11,40**		
Palmitoleic trans (C16:1 trans-9)	**0,11**	**0,11**		
Palmitoleic cis (C16:1 cis-9)	**0,67**	**0,67**		
Heptadecanoic (C17:0)	**0,04**	**0,04**		
Heptadecenoic cis (C17:1 cis-10)	**0,06**	**0,06**		
Stearic (C18:0)	**2,53**	**2,53**		
Elaidic (C18:1 trans ω9)	<0,01	<0,01		
Oleic (C18:1 cis ω9)	**78,07**	**78,07**		
Vaccenic (C18:1 cis ω7)	<0,01	<0,01		
Linelaidic (C18:2 trans ω6)	<0,01	<0,01		
Linoleic (C18:2 cis ω6)	**5,65**	**5,65**		
Arachidic (C20:0)	**0,39**	**0,39**	max 0,60	
Linolenic trans (C18:3 trans ω3)	<0,01	<0,01		
α-Linolenic cis (C18:3 cis ω3)	**0,62**	**0,62**	max 1,00	
Eicosenoic trans (C20:1 trans ω9)	<0,01	<0,01		
Eicosenoic cis (C20:1 cis ω9)	**0,25**	**0,25**	max 0,50	
Heneicosanoic (C21:0)	<0,01	<0,01		
Eicosadienoic (C20:2 cis ω6)	<0,01	<0,01		
Ecosatrienoic (C20:3 cis ω3)	<0,01	<0,01		
Behenic (C22:0)	**0,14**	**0,14**	max 0,20	
Ecosatrienoic (C20:3 cis ω6)	<0,01	<0,01		
Arachidonic (C20:4 cis ω6)	<0,01	<0,01		
Docosenoic trans (C22:1 trans ω9)	<0,01	<0,01		
Erucic (C22:1 cis ω9)	<0,01	<0,01		
Tricosanoic (C23:0)	<0,01	<0,01		
Docosadienoic (C22:2 cis ω6)	<0,01	<0,01		
Eicosapentaenoic (C20:5 cis ω3)	<0,01	<0,01		
Lignoceric (C24:0)	**0,05**	**0,05**	max 0,20	
Nervonic (C24:1 cis ω9)	<0,01	<0,01		
Docosadienoic (C22:2 cis ω3)	<0,01	<0,01		
Docosatrienoic (C22:3 cis ω3)	<0,01	<0,01		
Docosatetrenoic (C22:4 cis ω3)	<0,01	<0,01		
Docosapentaenoic (C22:5 cis ω3)	<0,01	<0,01		
Docosahexaenoic (C22:6 cis ω3)	<0,01	<0,01		
(Saturated fats)	**14,56**	**14,56**		
(Monounsaturated fats)	**79,17**	**79,17**		
(Polyunsaturated fats)	**6,27**	**6,27**		
Total ω3	**0,62**	**0,62**		
Total ω6	**5,65**	**5,65**		
Total trans	**0,11**	**0,11**		
Total C18:1 trans	<0,01	<0,01	max 0,05	
Total C18:2 + C18:3 trans	<0,01	<0,01	max 0,05	

Results

Sample Code 2024-6687
Period of Analysis 05/02/2024 - 15/02/2024
Client's Declaration ΕΛΑΙΟΛΑΔΟ - ΔΕΙΓΜΑ 1
Sample condition upon receipt Acceptable

COMPOSITION OF STEROLS			
Parameter	**Result** (%) Sterol, of total Sterols	**Accept. lev.**	**Method**
Cholesterol	**0,11**	max 0,5	Gas Chromatography (GC -FID), COI/T.20/Doc.26
Brassicasterol	<0,01	max 0,1	
24-methyl-cholesterol	**0,43**		
Campesterol	**3,77**	max 4,0	
Campestanol	**0,04**		
Stigmasterol	**0,66**	< Καμπεστερόλη	
d7-campesterol	<0,01		
d5,23-stigmastadienol	<0,01		
Clerosterol	**0,85**		
b-Sitosterol	**75,37**		
Sitostanol	**0,24**		
d5-Avenasterol	**17,57**		
d5,24-stigmastadienol	**0,51**		
d7-Stigmastenol	**0,12**	max 0,5	
d7-Avenasterol	**0,34**		
Erythrodiol & Uvaol	**4,55**	max 4,5	
Apparent b-Sitosterol	**94,54**	min 93,0	
Total Sterols (mg/Kg of oil/fat)	**1066**	min 1000	

Phthalic Acid Esters						
Parameter	**Units**	**Result**	**Reporting limit**	**Accept. lev.**	**Uncertainty at the accept. level**	**Method**
Di-ethyl-adipate (DEA)	mg/Kg	**< LOQ**	0,20			Internal Method GC-MS
Di-methyl-phthalate (DMP)	mg/Kg	**< LOQ**	0,20			
Tri-butyl-phosphate (TBP)	mg/Kg	**< LOQ**	0,20			
Di-isobutyl-adipate (DIBA)	mg/Kg	**< LOQ**	0,20			
Di-ethyl-phthalate (DEP)	mg/Kg	**< LOQ**	0,20			
Di-butyl-adipate (DBA)	mg/Kg	**< LOQ**	0,20			
Di-isobutyl-phthalate (DIBP)	mg/Kg	**< LOQ**	0,20			
Di-butyl-phthalate (DBP)	mg/Kg	**< LOQ**	0,20	0,3"		
Bis-2-ethyl-hexyl-adipate (DEHA)	mg/Kg	**< LOQ**	0,20			
Butyl-benzyl-phthalate (BBP)	mg/Kg	**< LOQ**	0,20	30,0"		
Bis-2-ethyl-hexyl-phthalate (DEHP)	mg/Kg	**< LOQ**	0,20	1,5"		
Di-n-octyl-phthalate (DNOP)	mg/Kg	**< LOQ**	0,20			
Di-isononyl-phthalate (DINP)	mg/Kg	**< LOQ**	0,50	9,0"		
Di-isodecyl-phthalate (DIDP)	mg/Kg	**< LOQ**	0,50	9,0"		

MOSH – MOAH						
Parameter	**Units**	**Result**	**Reporting limit**	**Accept. lev.**	**Uncertainty at the accept. level**	**Method**
MOSH/POSH nC10 - nC16	mg/Kg	**< LOQ**	0,5			O.B.12,019 online HPLC-GC-FID based on ISO 16995:2017
MOSH/POSH nC16 - nC20	mg/Kg	**< LOQ**	0,5			
MOSH/POSH nC20 - nC25	mg/Kg	**0,08**	0,5			
MOSH/POSH nC25 - nC35	mg/Kg	**0,34**	0,5			
MOSH/POSH nC35 - nC40	mg/Kg	**0,29**	0,5			
MOSH/POSH nC40 - nC50	mg/Kg	**0,12**	0,5			
MOSH/POSH TOTAL (nC10 - nC50)	mg/Kg	**0,83**	1,0			
MOAH nC10 - nC16	mg/Kg	**< LOQ**	0,5			
MOAH nC16 - nC25	mg/Kg	**< LOQ**	0,5			
MOAH nC25 - nC35	mg/Kg	**< LOQ**	0,5			
MOAH nC35 - nC50	mg/Kg	**< LOQ**	0,5			
MOAH TOTAL (nC10 - nC50)	mg/Kg	**< LOQ**	1,0			

"Τα όρια ειδικής μετανάστευσης που αναφέρονται, εκφρασμένα σε mg/kg ελαίου, αφορούν σε πλαστικά τα οποία πρόκειται να έρθουν σε επαφή με μη λιπαρά τρόφιμα, σύμφωνα με την Ευρωπαϊκή Οδηγία EC 10/2011.

*** Outside of the Scope of Accreditation**.
< L.O.Q.: Not determined at the reporting limit of the method.
The time of retention of the Sub-sample is two (2) months from the date of the issuing of the present certificate, unless otherwise instructed by the client. This refers only to samples which can be kept during this period of time in appropriate conditions.

Panagiotis. Konstantinou, Chemist

Head of Olive Oil & Fats Analysis Lab

Notable Chemistry-Summary

The quality profile of Avias Ranch extra virgin olive oil (EVOO) is supported by the analytic laboratory reports that show outstanding nutritional and sensory benefits. With a low acidity of 0.22% of the Early Harvest, a high monounsaturated fat content (79.17%), and an impressive oleic acid concentration (78.07%), our oil meets the highest standards for purity and healthfulness. Rich in natural antioxidants like phenols (255 mg/kg) and vitamin E (a-tocopherol content at 263 mg/kg), our EVOO supports heart health, combats inflammation, and provides robust protection against oxidative stress. Additionally, the omega-6:omega-3 ratio of 8:1 supports a balanced diet by reducing inflammation compared to oils with higher ratios. Its chemical integrity is further evidenced by low peroxide values (10.04 mEqO2/kg), reflecting exceptional oxidative stability, and UV-specific extinction coefficients (K270 at 0.135 and K232 at 1.600), which demonstrate the oil's freshness and authenticity. With it vibrant green hue and a starting level of 34 mg/kg chlorophyll, the pyropheophytin (PPP) level of 0.33% after 6 months of settling is consistent with a well-preserved, high-chlorophyll oil that has undergone minimal natural aging, preserving its freshness and bold flavor.

These measures exceed stringent international standards of the International Olive Council, North American Olive Oil Association, and others, ensuring that our oil delivers both premium taste and substantial wellness benefits.

The oil’s organoleptic profile further sets it apart, with fruitiness (4.8), bitterness (3.8), and pungency (4.0) that showcase a balanced and vibrant sensory experience. These scores indicate a complex flavor profile with fresh olive aromas and pleasant bitter and peppery notes. Unlike many EVOOs that may lack balance or flavor intensity and may score higher in one category, such as pungency or bitterness, they lack balance. Avias Ranch’s even distribution across these attributes highlights a versatile oil that appeals to a broader range of palates. The absence of defects (0.0) underscores the meticulous care in harvesting and production, ensuring a pure and fresh product. The polyphenol content of 255 mg/kg is ideal for delivering the antioxidant and anti-inflammatory effects that you expect in a good EVOO, while maintaining a flavor and taste profile that is approachable and enjoyable.

The results show that Avias Ranch EVOO also meets rigorous safety and purity standards, with MOAH levels undetectable at less than 0.5 mg/kg and MOSH/POSH levels at 0.83 mg/kg, far below industry benchmarks. These results, combined with sustainable practices and a well-rounded flavor and health profile, position Avias Ranch EVOO as a product of high quality and integrity and exceed the standards for extra virgin olive oil from the International Olive Council, North American Olive Oil Association, and the USDA.

Interpretation of the Compositional Profile of Notis Estate 2024 Early Harvest

General Chemistry

1. **Acidity (% as Oleic Acid)**: The result is 0.22%, which is well below the upper limit of 0.8%. This suggests that the oil is of high quality since lower acidity is typically associated with fresh, properly processed olives and is an indicator of the oil's overall quality.
2. **Oil Specific Extinction (K270)**: This value is 0.135, which is below the limit of 0.22. A lower K270 value indicates that the oil has not been excessively exposed to light or heat, helping to preserve its quality.
3. **Oil Specific Extinction (K232)**: The value of 1.600 is within the acceptable range (up to 2.50). This measure relates to the presence of impurities or oxidation products. The result indicates good oil quality.
4. **Delta-K (ΔK)**: The value of -0.002 is below the threshold of 0.01, which indicates that the oil has not undergone excessive oxidation or degradation, maintaining its freshness.
5. **Peroxide Value (mEqO2/Kg)**: A value of 10.04 is within the acceptable range of 0.3–20. Peroxide value measures the extent of oxidation. Lower values suggest that the oil is fresh and has not undergone significant oxidation.
6. **Intensity of Fruity, Bitter, and Pungent**: These are sensory qualities that describe the taste and aroma:
    - Fruity: 4.8, which is good since it is above the minimum of 0.
    - Bitter: 3.8, indicating a moderate bitterness, which is typical of quality extra virgin olive oil.
    - Pungent: 4.0, which reflects a strong, peppery taste, also typical of high-quality oil. These indicate that the oil has strong, desirable flavor characteristics.
7. **Defect (Intensity of Defect)**: A value of 0.0 means no defects, indicating the oil is free from any undesirable flavors or off-putting characteristics (like rancidity).
8. **ΔECN42 (ECN42 exp – ECN42 theor)**: The result is 0.05, which is within the acceptable limit of 0.2. This measures the difference between the expected and actual fatty acid profile, ensuring that the oil is in line with the expected composition.
9. **Waxes**: The result is <LOQ (Below the Limit of Quantification), which is excellent. A high wax content can suggest poor processing, and this result means the wax level is very low, indicating good quality.
10. **Ethyl-esters**: The result is also <LOQ, which is a positive outcome, indicating the oil is free of ethyl esters, which can form due to fermentation or poor processing.
11. **3,5-Stigmastadiene Content**: The result of 0.02 mg/Kg is within the acceptable range (0.01–0.05). This substance is typically a marker of poor oil quality, and the low value suggests your oil is of high quality.
12. **1,2-Diglycerides (DAG's)**: At 75.9%, this is a good result. DAGs are important indicators of freshness and quality in extra virgin olive oil.
13. **Pyropheophytin (PPP)**: A value of 0.33% is within a good range showing that the oil stores well and that there has been minimal degradation over time.

14. **Total Phenols (Folin method)**: The result of 275 mg Tyrosol/Kg is a strong indicator of high-quality oil with a high but not overwhelming concentration of polpyphenols. The mass spectra show that it is primarily oleocanthal which contributes to both the flavor (bitterness) and the health benefits of this early harvest olive oil.
15. **a-Tocopherol (Vitamin E) Content**: 263 mg/Kg, which is good. This vitamin is an antioxidant, adding to the oil's shelf life and health properties.

Fats

1. **Monounsaturated Fats (Oleic Acid - C18:1 cis ω9)**: The oil contains 78.07% monounsaturated fats, primarily oleic acid, which is known for its heart-healthy benefits. High levels of oleic acid can help reduce bad cholesterol (LDL) and increase good cholesterol (HDL), promoting cardiovascular health.
2. **Polyunsaturated Fats (ω6 and ω3)**: The oil contains 5.65% omega-6 (ω6) fatty acids and 0.62% omega-3 (ω3) fatty acids. Omega-6 and omega-3 fatty acids are essential for reducing inflammation and supporting overall health. Although omega-3 levels are lower, omega-6 fatty acids are still important, and the balance between these fats is key to promoting heart and brain health.
3. **Low Trans Fats**: The levels of trans fats are minimal (<0.01% for all trans fatty acids), which is excellent. Trans fats are harmful to health and can contribute to heart disease, so the absence of significant trans fats is beneficial.
4. **Saturated Fats**: The oil contains 14.56% saturated fats, which is relatively low compared to some other oils and fats. While some saturated fats are necessary for health, olive oil is a healthier source compared to animal fats.
5. **Alpha-Linolenic Acid (C18:3 cis ω3)**: This omega-3 fatty acid is present at 0.62%, which is beneficial for reducing inflammation, supporting heart health, and contributing to cognitive function. It's also a precursor to other important omega-3s like EPA and DHA.
6. **Low Content of Harmful Fatty Acids**: The oil contains negligible amounts of harmful fatty acids like trans fats (C18:3 trans ω3, C18:1 trans ω9), which are commonly found in processed oils and are associated with negative health impacts.

Health Benefits.

- The high content of monounsaturated fats (oleic acid) promotes cardiovascular health by reducing LDL cholesterol.
- The presence of omega-3 fatty acids (although in moderate amounts) supports brain health and reduces inflammation.
- The absence of significant trans fats makes this olive oil a healthier choice compared to many other oils.
- The overall low content of saturated fats is a positive feature in terms of reducing the risk of heart disease.

Sterols

The sterol composition provides useful insights into its potential health benefits.

b-Sitosterol (75.37%)

- **Result**: 75.37% of the total sterols are b-sitosterol.
- **Health Significance**: b-Sitosterol is the most abundant sterol in olive oil and is known for its beneficial effects on lowering cholesterol levels, particularly by competing with cholesterol for absorption in the digestive tract. It also has anti-inflammatory properties and may help reduce the risk of cardiovascular diseases.

d7-Avenasterol (0.34%)

- **Result**: 0.34%.
- **Health Significance**: Avenasterol is another plant sterol that has been linked to cholesterol-lowering effects. While it is present in low amounts, it still contributes to the overall health benefits of the oil.

d5-Avenasterol (17.57%)

- **Result**: 17.57%.
- **Health Significance**: Avenasterol is beneficial for its cholesterol-lowering properties. Higher amounts of avenasterol in the oil can be a positive factor for cardiovascular health.

Stigmasterol (0.66%)

- **Result**: 0.66%, which is well below the maximum acceptable level of 1.0%.
- **Health Significance**: Stigmasterol is another sterol that may contribute to reducing cholesterol levels. It is also known to have anti-inflammatory properties, which are beneficial for heart health.

Campesterol (3.77%)

- **Result**: 3.77%, which is below the maximum allowable level of 4.0%.
- **Health Significance**: Campesterol, like other sterols, helps reduce cholesterol absorption. It also has anti-inflammatory and antioxidant effects, which promote overall heart and metabolic health.

Brassicasterol (<0.01%)

- **Result**: Negligible amount.
- **Health Significance**: Brassicasterol is a minor sterol that does not significantly affect health but is typically found in oils and can contribute to the oil's overall sterol profile.

Health Benefits:

- **Cholesterol-Lowering**: The high content of b-sitosterol, campesterol, avenasterol, and stigmasterol indicates that the olive oil has excellent potential for helping to lower LDL cholesterol levels and reduce the risk of heart disease.
- **Anti-inflammatory and Antioxidant**: Erythrodiol, uvaol, and other sterols contribute to the oil's anti-inflammatory and antioxidant properties, supporting overall cardiovascular health.
- **Minimal Cholesterol**: The very low cholesterol content further emphasizes that this olive oil is a heart-healthy choice.
- **High Quality**: The oil meets the minimum sterol content required for good health benefits, confirming its quality.

MOSH/POSH/MOAH

The levels of Mineral Oil Saturated Hydrocarbons (MOSH) and Mineral Oil Aromatic Hydrocarbons (MOAH) in our extra virgin olive oil confirm that our product at non detectable levels (below 0.5 mg/kg) is well below the proposed European Union thresholds of 0.5-2.0 mg/kg for MOAH, depending on fat content, and far lower than levels reported in other US products like vegetable oils that can exceed 40 mg/kg. While the United States does not currently regulate MOSH or MOAH specifically, our adherence to rigorous quality control and good manufacturing practices ensures minimal contamination. These results affirm that our olive oil is produced to the highest standards, aligning with upcoming EU regulations and surpassing consumer safety expectations.

Processing/Bottling Contaminants

Phthalates are used in plasticizers and are not typically found in food products unless there is contamination from the bottling. The fact that these are undetectable in this olive oil is a good sign, indicating that this product is free from such chemical contaminants, which are known to be harmful and are associated with endocrine disruption and other health risks. The results for phthalic acid esters indicate that this olive oil contains **no measurable amounts** of these

This confirms that the oil is not tainted by harmful industrial chemicals and meets high safety standards for use.

https://www.alfachemic.com/testinglab
101-5 Colin Dr. Holbrook, NY 11741
Tel: 1-516-662-5404 Fax: 1-516-927-0118
Email: info@alfa-chemistry.com

Analytical Report

Jan 08, 2024

Client: Kangelides
Email: kangelides@hellasmed.com
Quotation No.: ALRT1002
Test Requested: LCMS Testing
Test Result: Please refer to the following page(s)

Project Description: LCMS Testing	
Sample ID	Sample 1: Olive Oil sample
Sample Matrix:	Oil
Date Received:	12/18/2023
Date Completed	1/08/2024

Disclaimer & Limitation of Liability

You agree that your use of services/products listed on this Site shall be at your sole risk. The operation of this Site and the information available thereon are provided "as is". To the fullest extent permitted by law, Alfa Chemistry and its affiliations/offices/employees/agents disclaim all warranties, express or implied in connection with this Site and your use thereof. All Alfa Chemistry products/services are intended for specific use (usually it will be specified during the time reaching agreement) and Alfa Chemistry will not be liable for any professional advice it may offer in relation to the use of the report nor any claims or applications not listed in the literature or the misuse of products/services which will include using the products/services.

Alfa Chemistry only provides testing result, the test results are obtained from as-received samples. Any arbitrary judgement based on the result will not be provided. Test results released by Alfa Chemistry is for information only. The results have no legal effect and cannot be used in litigation.

Validity period of the report: 15 days of receiving
Sample retention period: 15 days of receiving
You can contact us within 15 days of receiving the report.

Alfa Chemistry Testing Lab Contact Information for this Report:

Technical Questions:	Vicky Gao	Phone: 1-631-892-6208	Email: Qin.G@alfa-chemistry.com

Reviewed By: Zach Ren

Zach Ren
Laboratory Manager
1/08/2024
Alfa Chemistry Testing Laboratory
101-5 Colin Dr. Holbrook, NY 11741

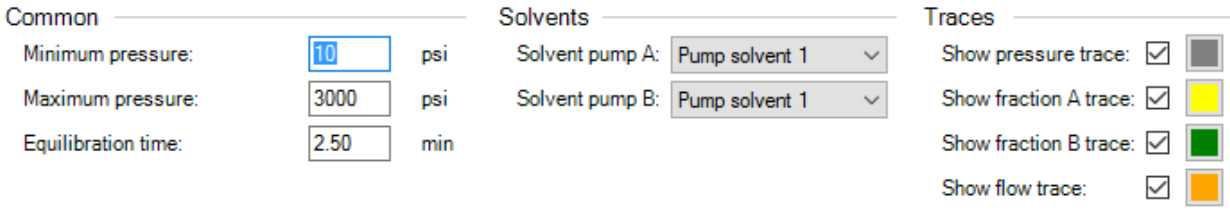
Alfa Chemistry Testing Lab is an analytical testing devision of Alfa Chemistry that provides one-stop testing, analysis and technical support services in the areas of pharmaceutical analysis, environmental analysis, consumer product analysis, food analysis, and material analysis. As a professional testing and analysis organization, Alfa Chemistry Testing Lab has an experienced technical team that uses advanced analytical equipment and technology to meet the needs of different customers.

https://www.alfachemic.com/testinglab
101-5 Colin Dr. Holbrook, NY 11741
Tel: 1-516-662-5404 Fax: 1-516-927-0118
Email: info@alfa-chemistry.com

Test Results

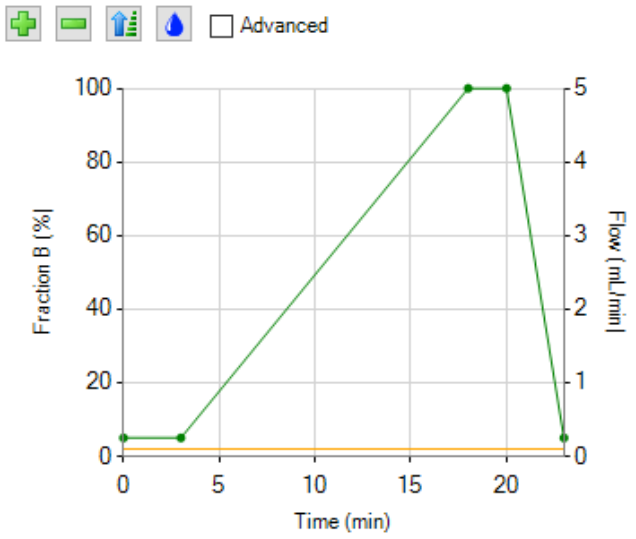
All results are reported on an AS RECEIVED basis.

一、LCMS test- parameter settings part



Time table

Line:	Time (min):	Flow (mL/min):	%A:	%B:
01	0.00	0.100	95.0	5.0
02	3.00	0.100	95.0	5.0
03	18.00	0.100	0.0	100.0
04	20.00	0.100	0.0	100.0
05	23.00	0.100	95.0	5.0

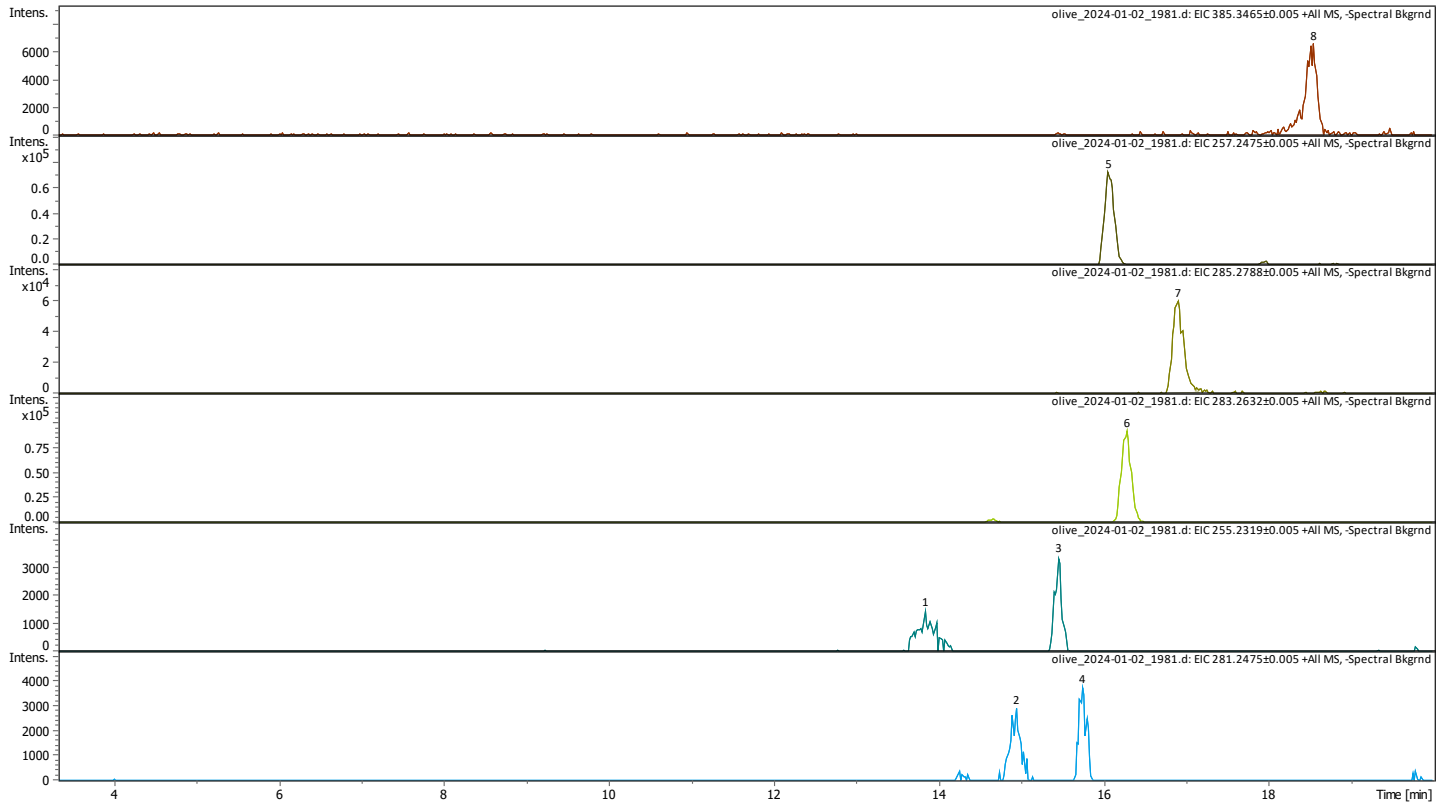


olive_LCMS test.
Column ThermoScientific – Keystone, Biobasic-4, 1-150mm, 5um, 300A.
Solvent A: water with 0.1% formic acid.
Solvent B: acetonitrile with 0.1% formic acid.
0.1 ul of sample was diluted into 100 ul of methanol and 5 ul of diluted sample was injected.

Alfa Chemistry Testing Lab is an analytical testing devision of Alfa Chemistry that provides one-stop testing, analysis and technical support services in the areas of pharmaceutical analysis, environmental analysis, consumer product analysis, food analysis, and material analysis. As a professional testing and analysis organization, Alfa Chemistry Testing Lab has an experienced technical team that uses advanced analytical equipment and technology to meet the needs of different customers.

https://www.alfachemic.com/testinglab
101-5 Colin Dr. Holbrook, NY 11741
Tel: 1-516-662-5404 Fax: 1-516-927-0118
Email: info@alfa-chemistry.com

二、Data part

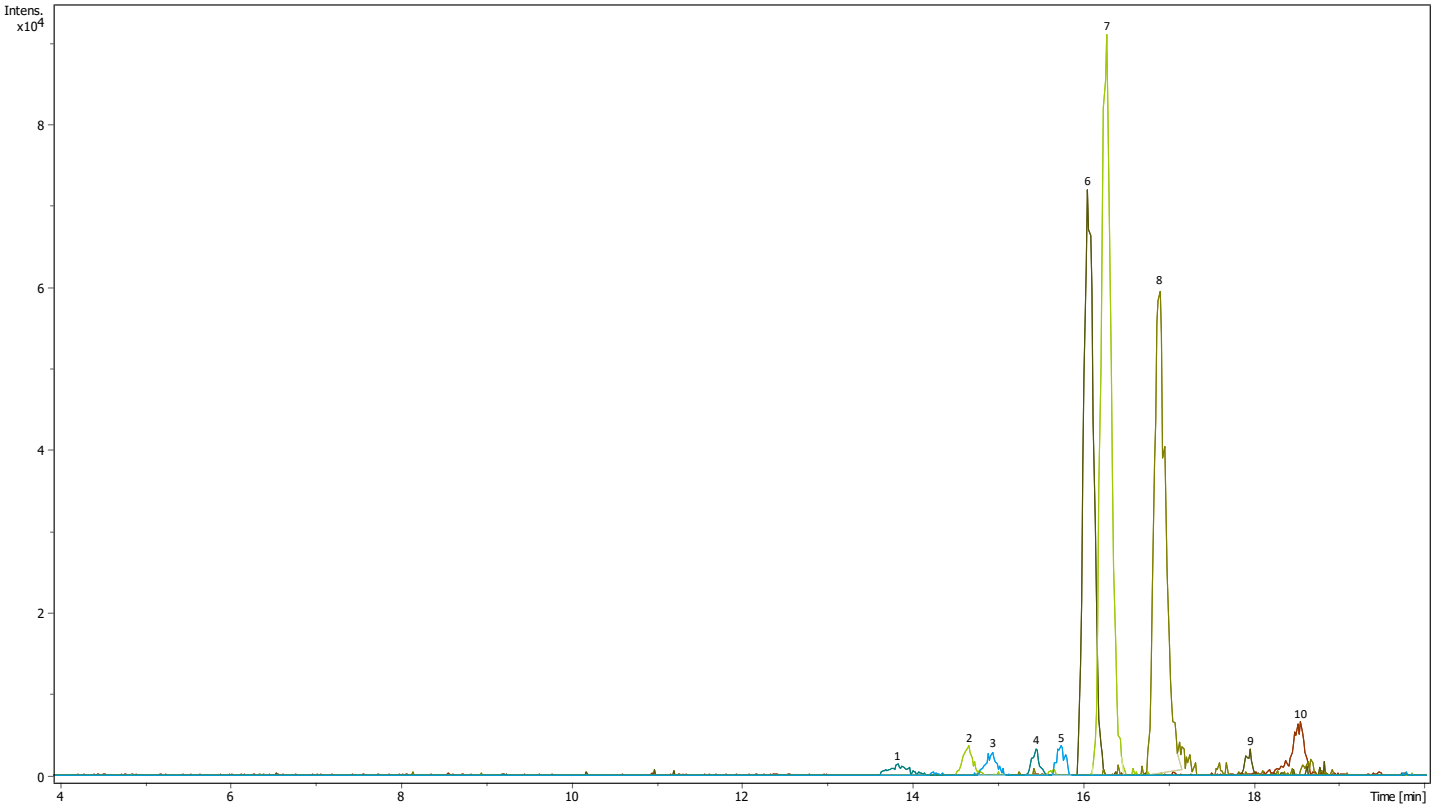


Extracted ion chromatograms (EIC).

The ion is listed in the top right of each window. Top is olecanthal ($C_{27}H_{44}O$), followed by Palmitic acid ($C_{16}H_{32}O_2$), Stearic acid ($C_{18}H_{36}O_2$), Oleic acid ($C_{18}H_{34}O_2$), Palmitoleic acid ($C_{16}H_{30}O_2$), and last is Linoleic acid ($C_{18}H_{32}O_2$). The ion is within 0.005 m/z units of theoretical. The last two EIC traces are the only ones that have two possible canidates for the compounds of interest.

Alfa Chemistry Testing Lab is an analytical testing devision of Alfa Chemistry that provides one-stop testing, analysis and technical support services in the areas of pharmaceutical analysis, environmental analysis, consumer product analysis, food analysis, and material analysis. As a professional testing and analysis organization, Alfa Chemistry Testing Lab has an experienced technical team that uses advanced analytical equipment and technology to meet the needs of different customers.

https://www.alfachemic.com/testinglab
101-5 Colin Dr. Holbrook, NY 11741
Tel: 1-516-662-5404 Fax: 1-516-927-0118
Email: info@alfa-chemistry.com

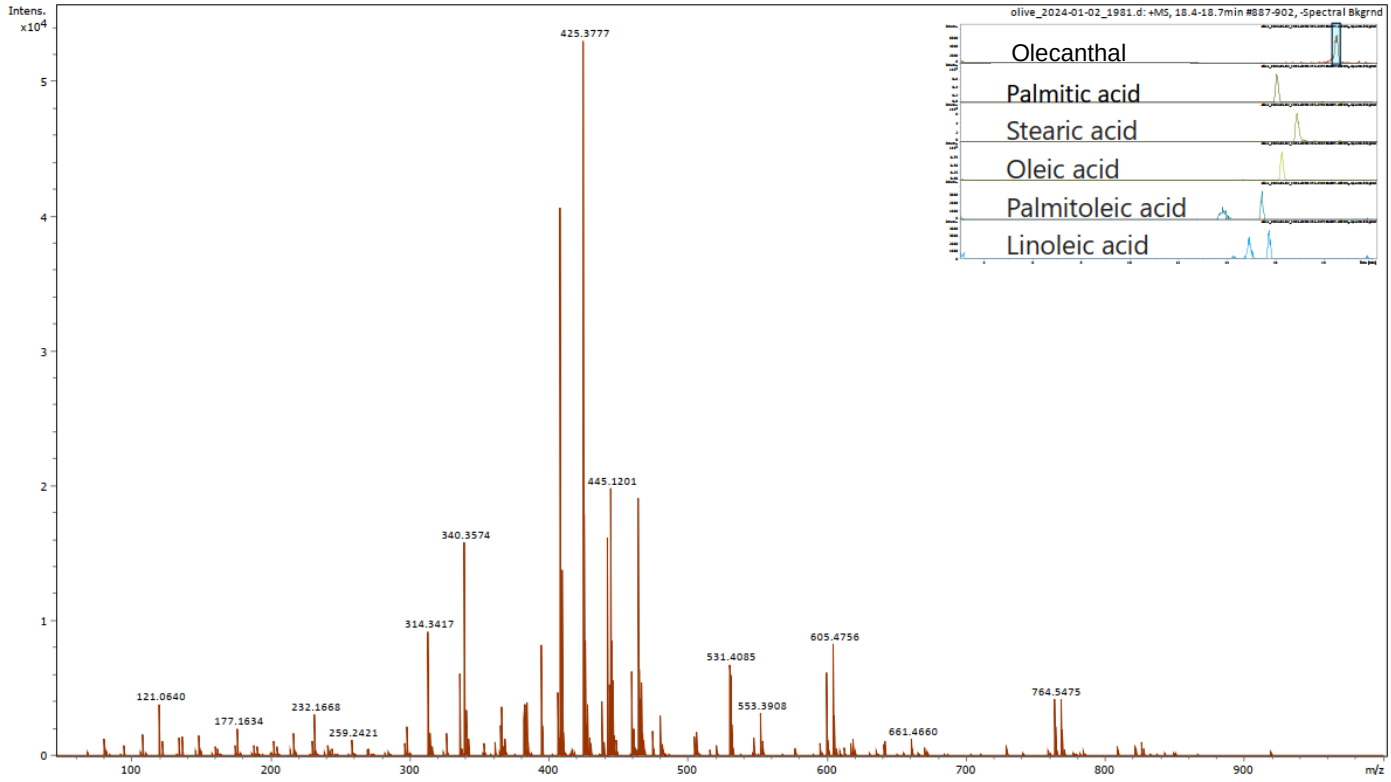


LC-MS chromatogram

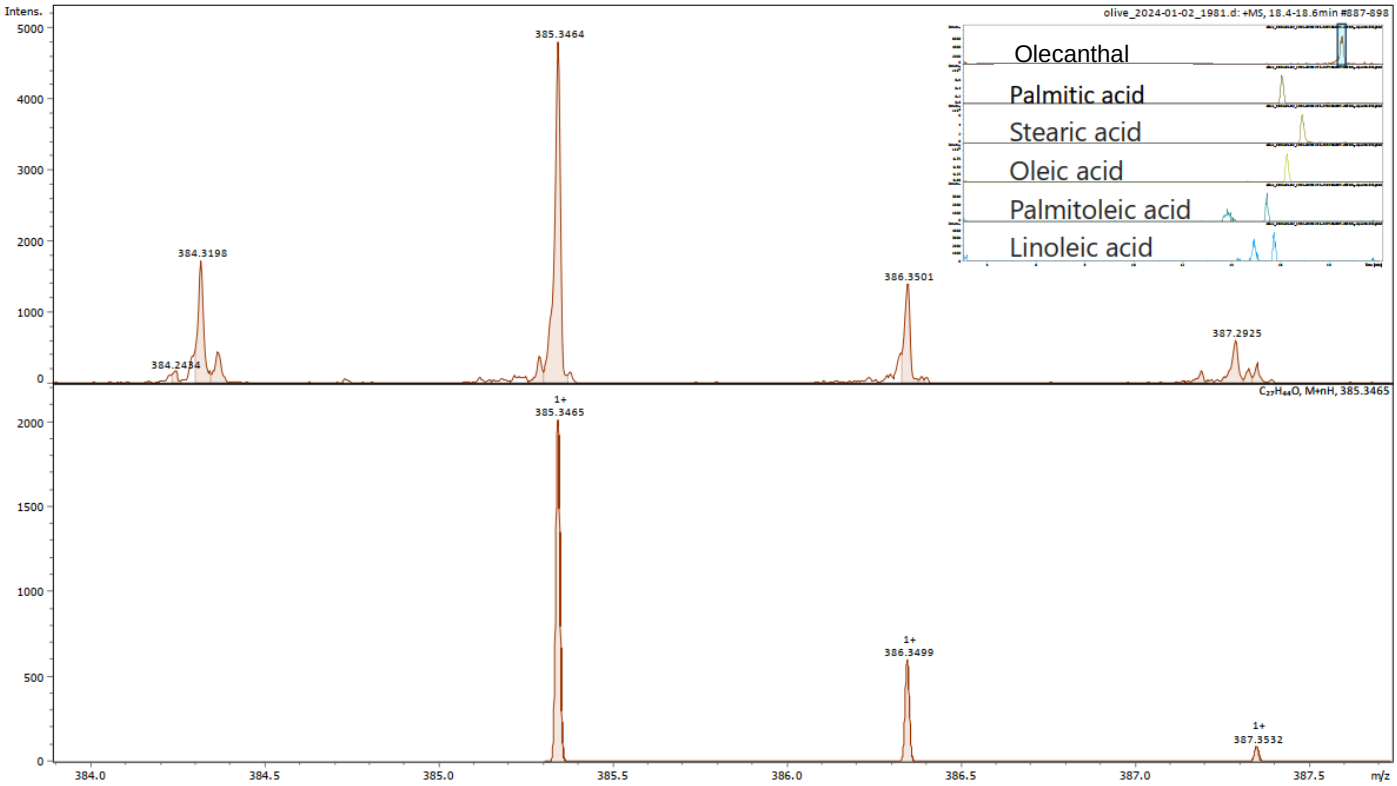
#	RT [min]	Area	Int. Type	I	S/N	Trace
1	13.8	19888	Manual	1461	2.2	EIC 255.2319±0.005 +All MS, -Spectral Bkgrnd
2	14.7	29956	Manual	3660	2.1	EIC 283.2632±0.005 +All MS, -Spectral Bkgrnd
3	14.9	24817	Chromatogram	2889	4.1	EIC 281.2475±0.005 +All MS, -Spectral Bkgrnd
4	15.5	19766	Chromatogram	3374	4.9	EIC 255.2319±0.005 +All MS, -Spectral Bkgrnd
5	15.8	25208	Chromatogram	3705	5.3	EIC 281.2475±0.005 +All MS, -Spectral Bkgrnd
6	16.1	600633	Chromatogram	72061	19.5	EIC 257.2475±0.005 +All MS, -Spectral Bkgrnd
7	16.3	765597	Chromatogram	91124	51.3	EIC 283.2632±0.005 +All MS, -Spectral Bkgrnd
8	16.9	565416	Chromatogram	59819	21.4	EIC 285.2788±0.005 +All MS, -Spectral Bkgrnd
9	18	15419	Manual	3190	0.9	EIC 257.2475±0.005 +All MS, -Spectral Bkgrnd
10	18.6	70225	Manual	6556	35.5	EIC 385.3465±0.005 +All MS, -Spectral Bkgrnd

Alfa Chemistry Testing Lab is an analytical testing devision of Alfa Chemistry that provides one-stop testing, analysis and technical support services in the areas of pharmaceutical analysis, environmental analysis, consumer product analysis, food analysis, and material analysis. As a professional testing and analysis organization, Alfa Chemistry Testing Lab has an experienced technical team that uses advanced analytical equipment and technology to meet the needs of different customers.

https://www.alfachemic.com/testinglab
101-5 Colin Dr. Holbrook, NY 11741
Tel: 1-516-662-5404 Fax: 1-516-927-0118
Email: info@alfa-chemistry.com



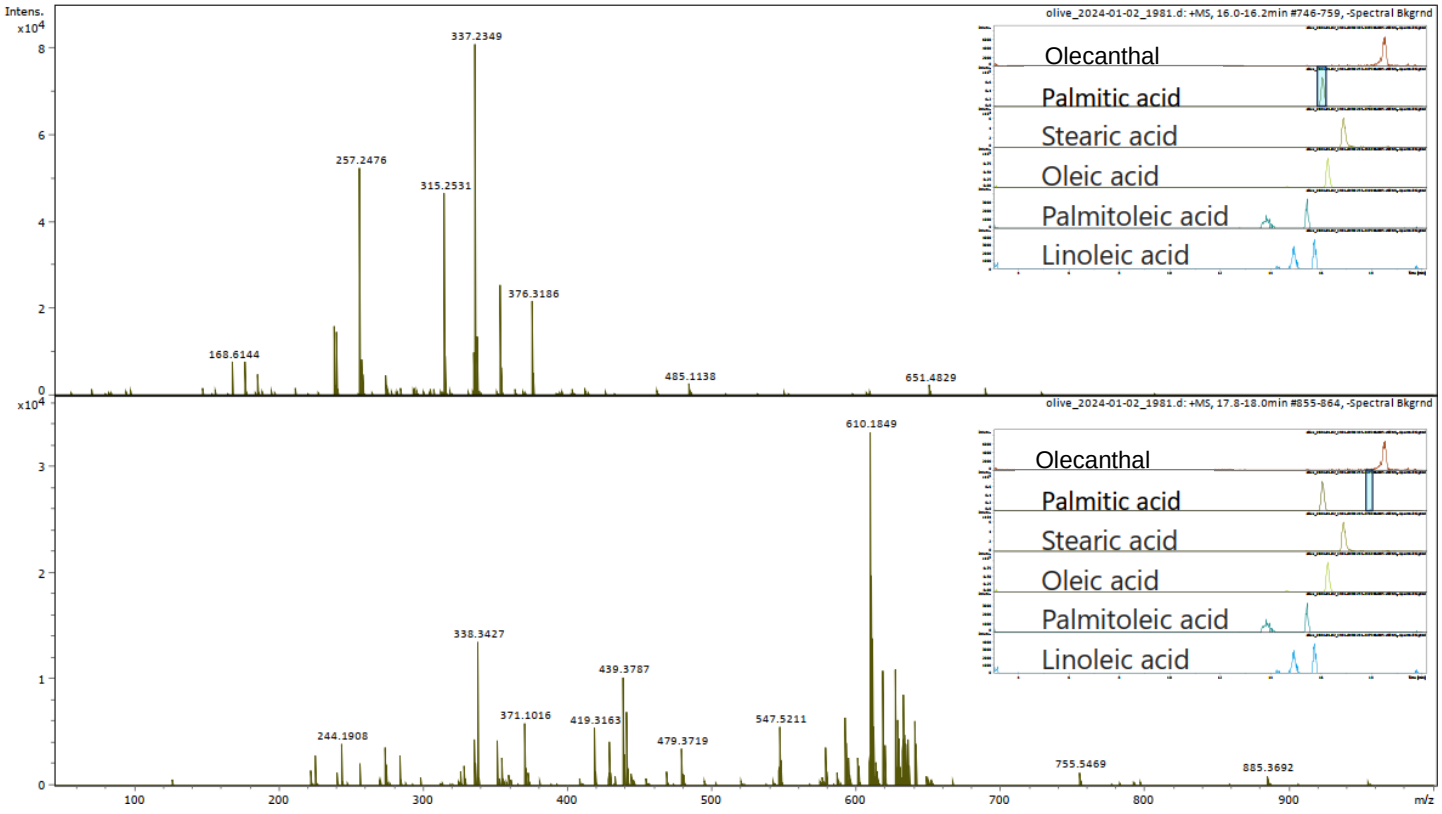
Spectrum of with spectral background subtract



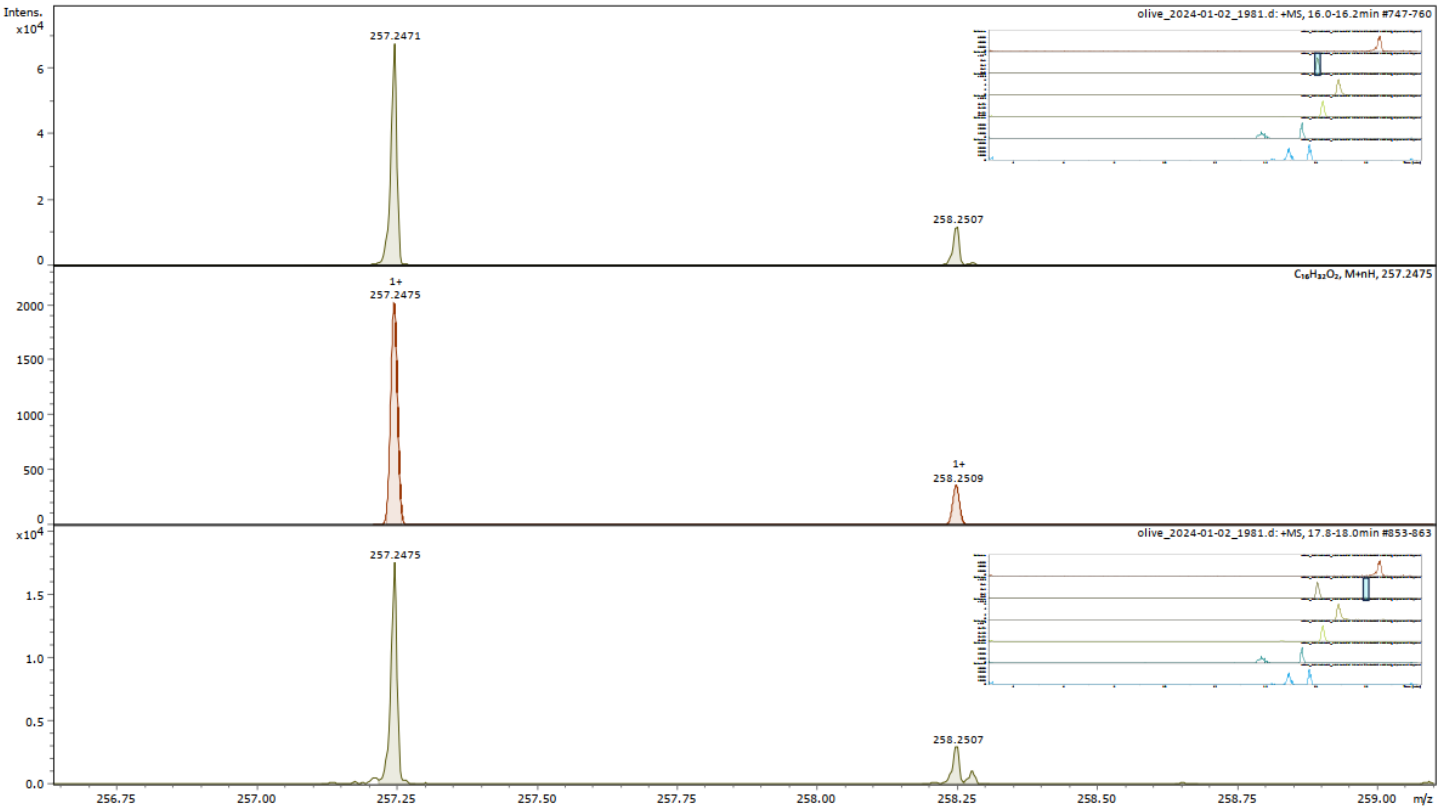
Top is data with no spectral background subtraction and bottom is simulation of ion, formula located in top right of simulated spectrum.

Alfa Chemistry Testing Lab is an analytical testing devision of Alfa Chemistry that provides one-stop testing, analysis and technical support services in the areas of pharmaceutical analysis, environmental analysis, consumer product analysis, food analysis, and material analysis. As a professional testing and analysis organization, Alfa Chemistry Testing Lab has an experienced technical team that uses advanced analytical equipment and technology to meet the needs of different customers.

https://www.alfachemic.com/testinglab
101-5 Colin Dr. Holbrook, NY 11741
Tel: 1-516-662-5404 Fax: 1-516-927-0118
Email: info@alfa-chemistry.com



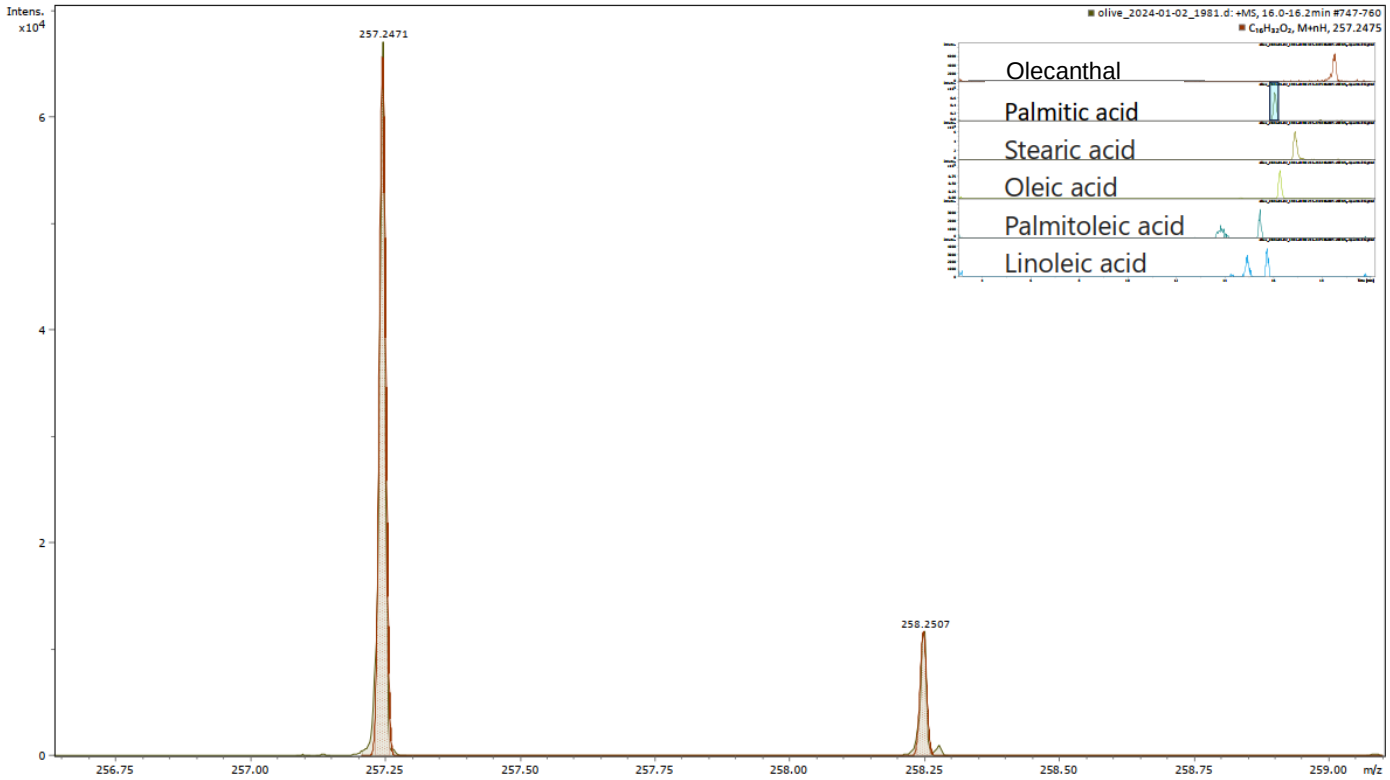
Spectrum of with spectral background subtract



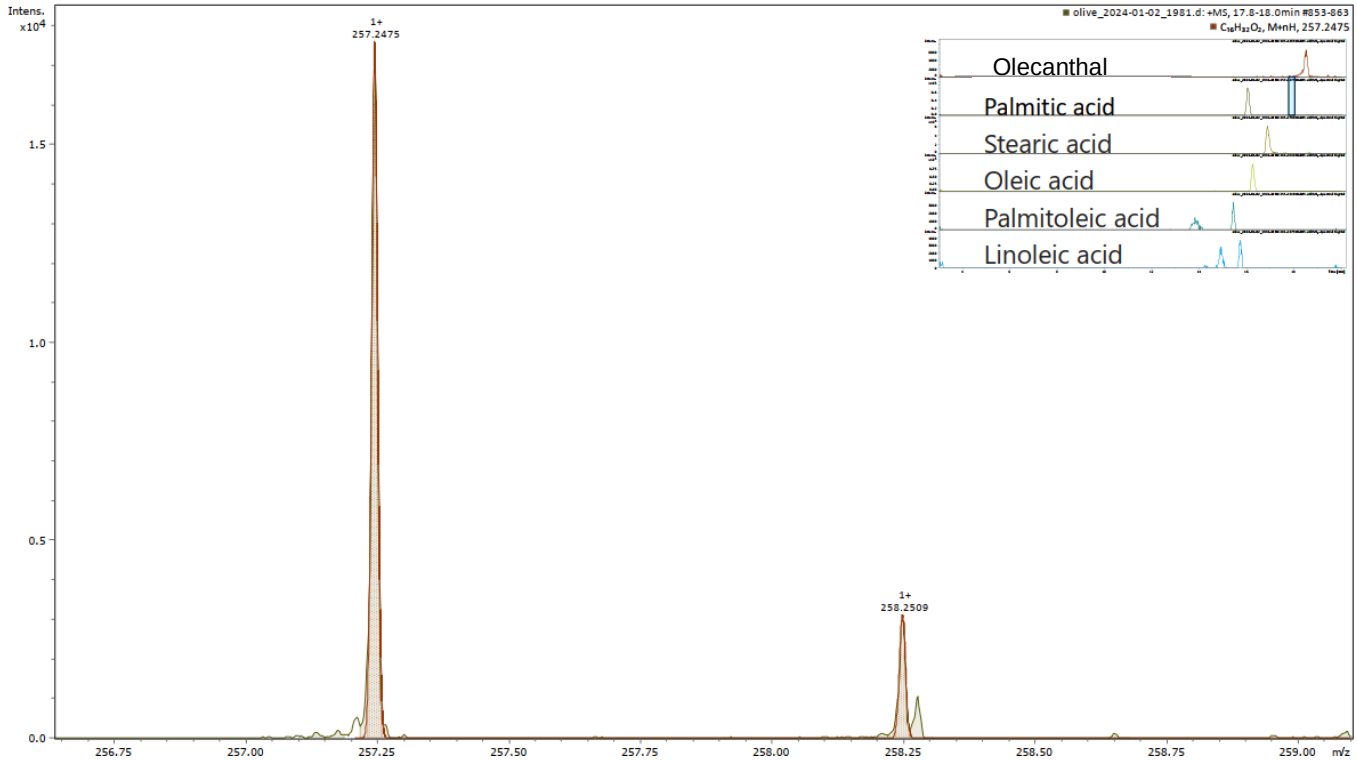
Top and bottom are data with no spectral background subtraction and middle is simulation of ion, formula located in top right of simulated spectrum.

Alfa Chemistry Testing Lab is an analytical testing devision of Alfa Chemistry that provides one-stop testing, analysis and technical support services in the areas of pharmaceutical analysis, environmental analysis, consumer product analysis, food analysis, and material analysis. As a professional testing and analysis organization, Alfa Chemistry Testing Lab has an experienced technical team that uses advanced analytical equipment and technology to meet the needs of different customers.

https://www.alfachemic.com/testinglab
101-5 Colin Dr. Holbrook, NY 11741
Tel: 1-516-662-5404 Fax: 1-516-927-0118
Email: info@alfa-chemistry.com



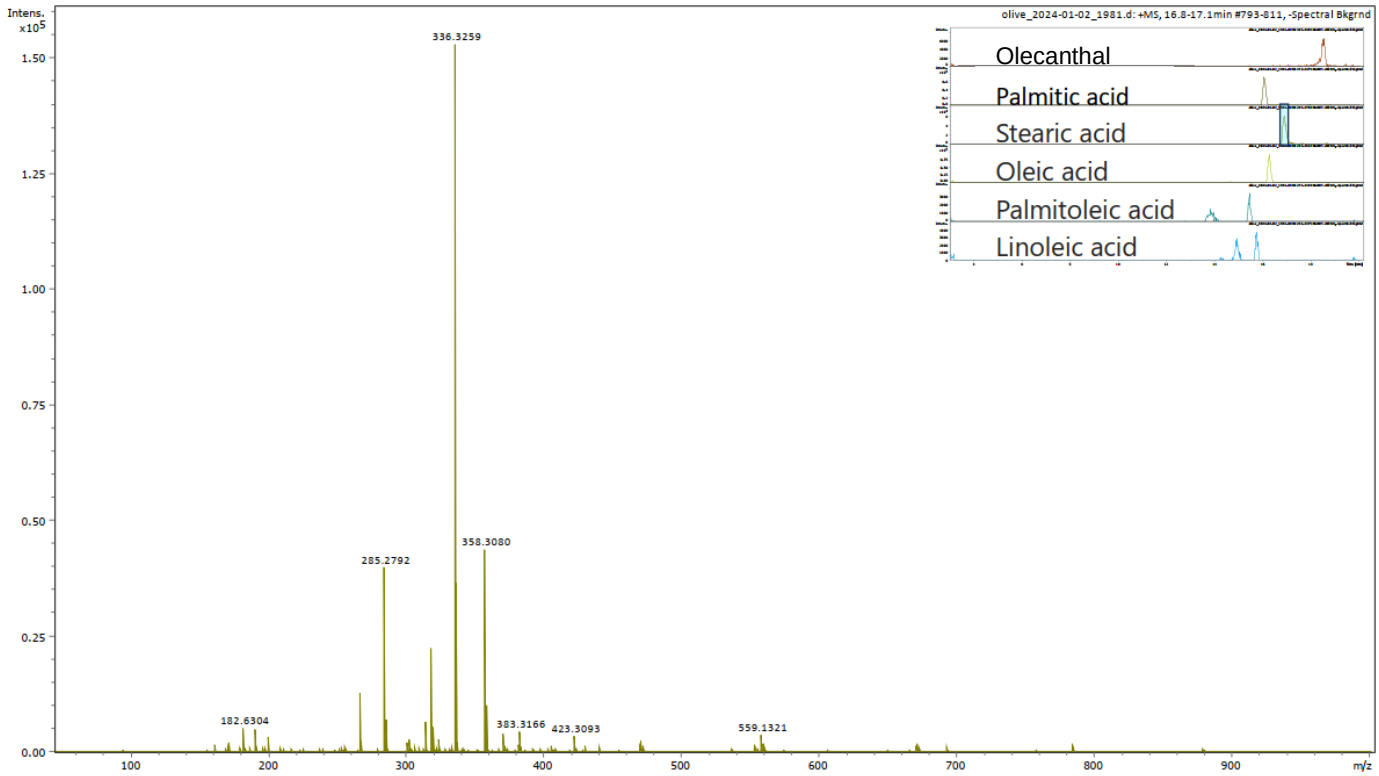
Overlay of calculated (brown) and data (blue). Can see that first and second isotope heights match.



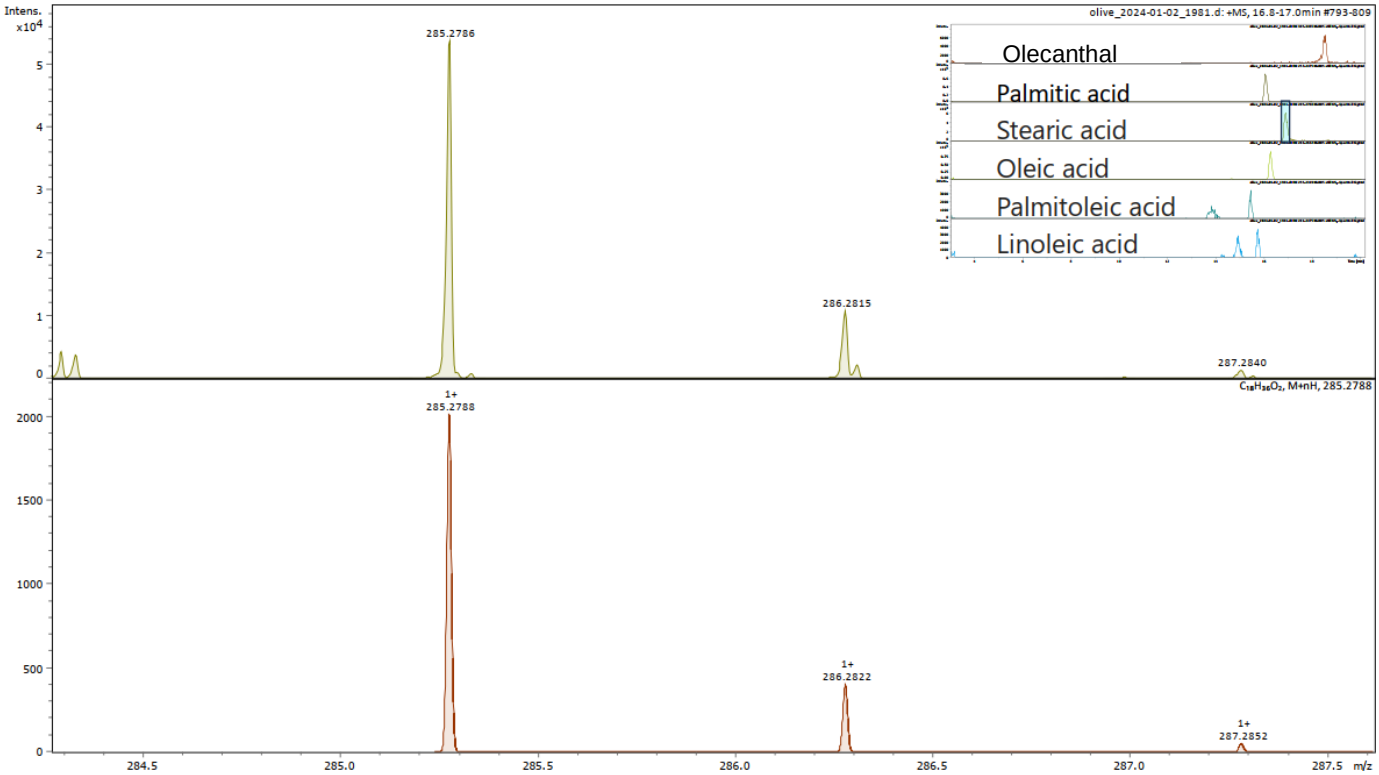
Overlay of calculated (brown) and data (blue). Can see that first and second isotope heights match. Need standard to know which peak is compound of interest.

Alfa Chemistry Testing Lab is an analytical testing devision of Alfa Chemistry that provides one-stop testing, analysis and technical support services in the areas of pharmaceutical analysis, environmental analysis, consumer product analysis, food analysis, and material analysis. As a professional testing and analysis organization, Alfa Chemistry Testing Lab has an experienced technical team that uses advanced analytical equipment and technology to meet the needs of different customers.

https://www.alfachemic.com/testinglab
101-5 Colin Dr. Holbrook, NY 11741
Tel: 1-516-662-5404 Fax: 1-516-927-0118
Email: info@alfa-chemistry.com



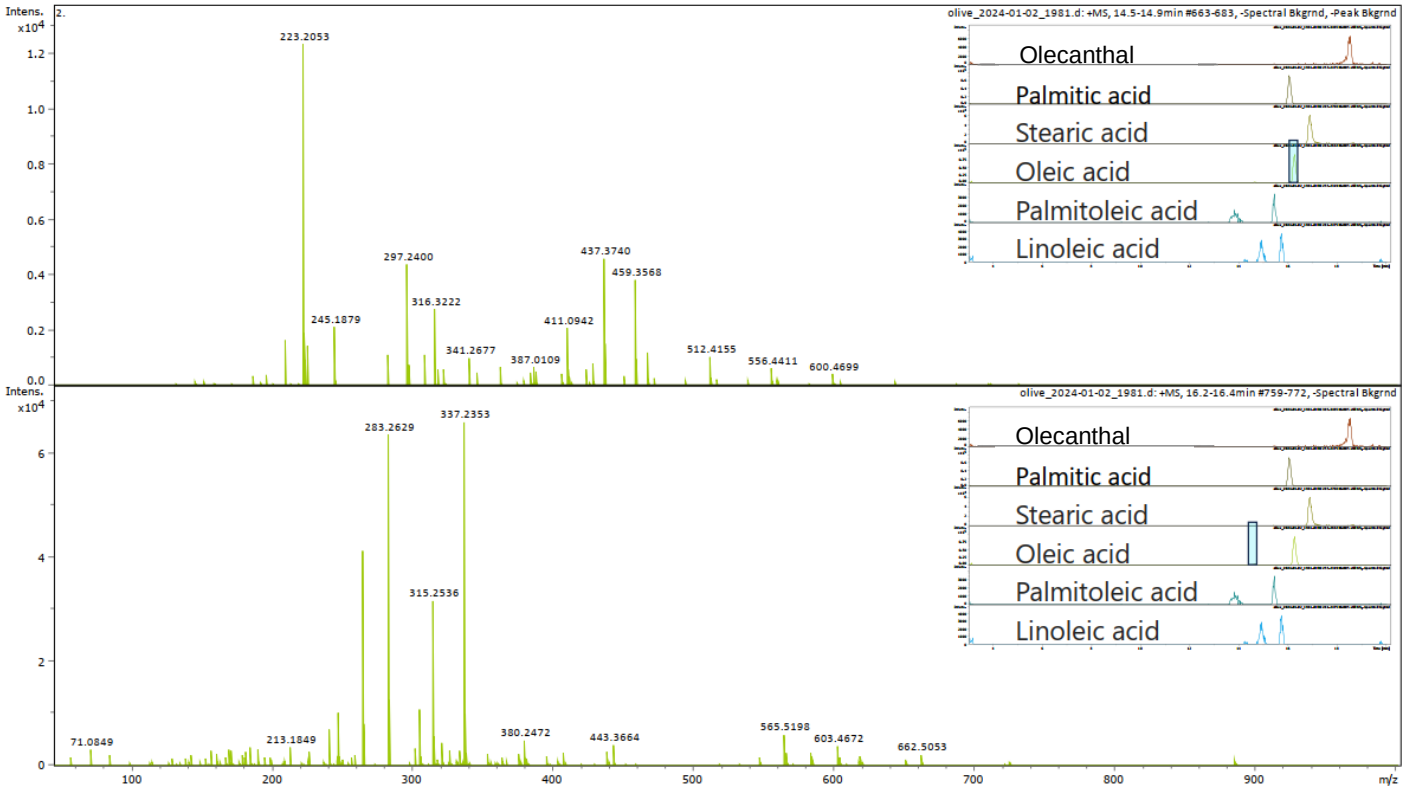
Spectrum of with spectral background subtract



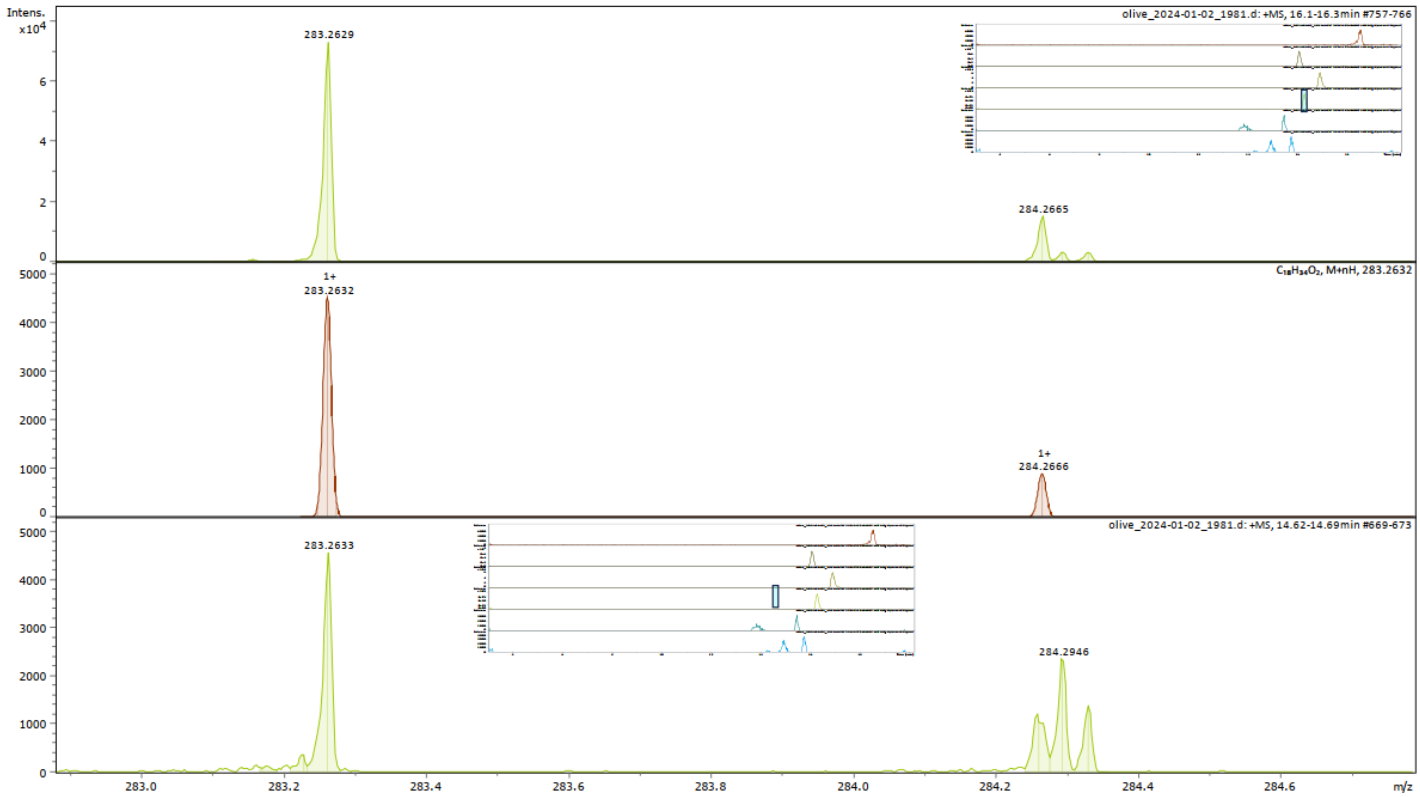
Top is data with no spectral background subtraction and bottom is simulation of ion, formula located in top right of simulated spectrum.

Alfa Chemistry Testing Lab is an analytical testing devision of Alfa Chemistry that provides one-stop testing, analysis and technical support services in the areas of pharmaceutical analysis, environmental analysis, consumer product analysis, food analysis, and material analysis. As a professional testing and analysis organization, Alfa Chemistry Testing Lab has an experienced technical team that uses advanced analytical equipment and technology to meet the needs of different customers.

https://www.alfachemic.com/testinglab
101-5 Colin Dr. Holbrook, NY 11741
Tel: 1-516-662-5404 Fax: 1-516-927-0118
Email: info@alfa-chemistry.com



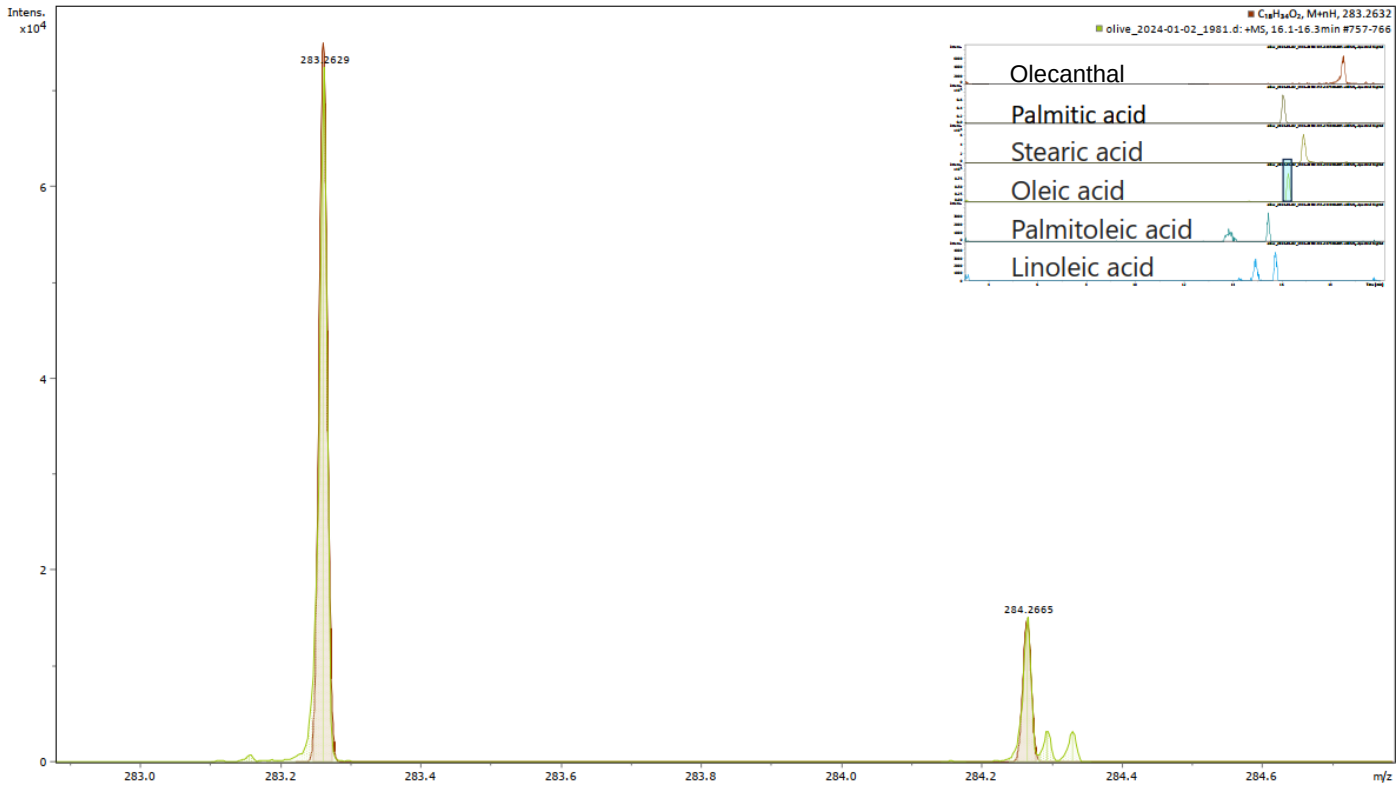
Spectrum of with spectral background subtract



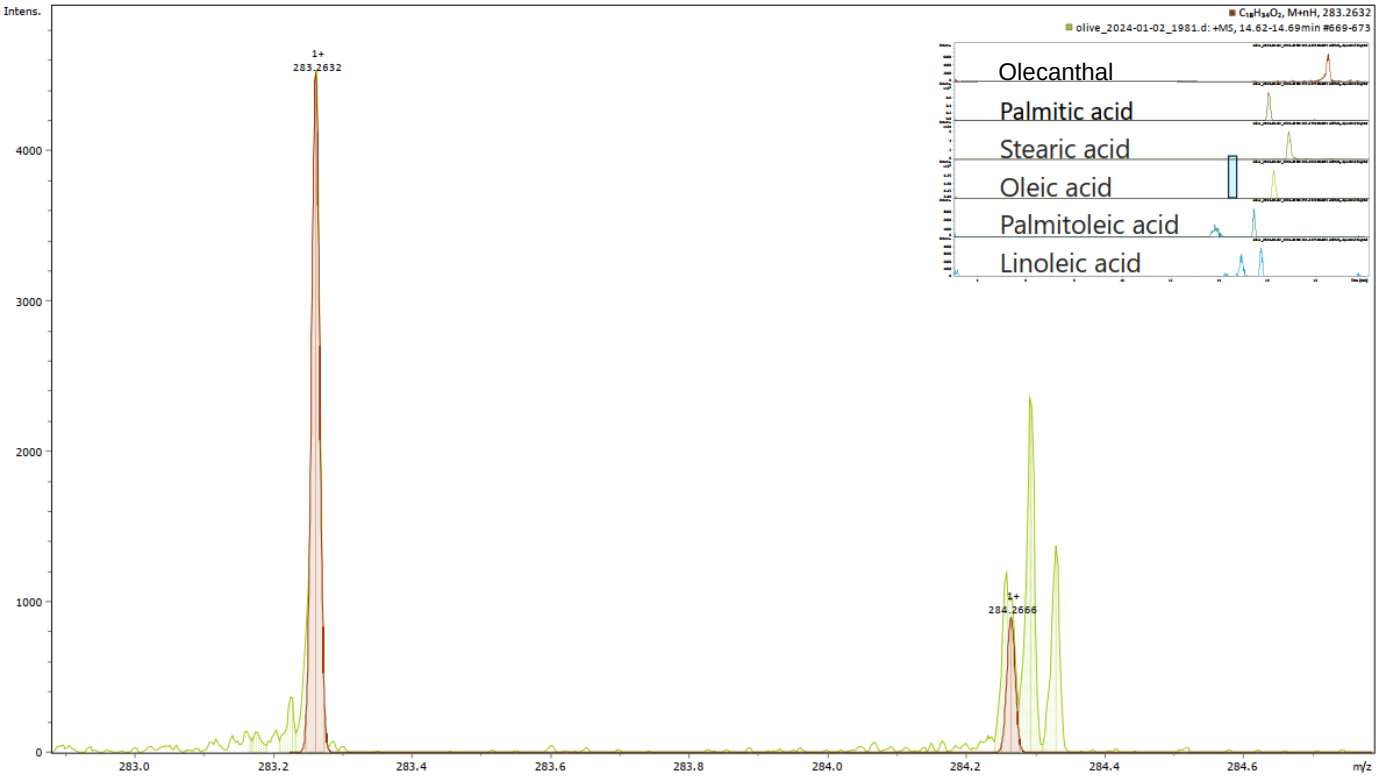
Top and bottom are data with no spectral background subtraction and middle is simulation of ion, formula located in top right of simulated spectrum.

Alfa Chemistry Testing Lab is an analytical testing devision of Alfa Chemistry that provides one-stop testing, analysis and technical support services in the areas of pharmaceutical analysis, environmental analysis, consumer product analysis, food analysis, and material analysis. As a professional testing and analysis organization, Alfa Chemistry Testing Lab has an experienced technical team that uses advanced analytical equipment and technology to meet the needs of different customers.

https://www.alfachemic.com/testinglab
101-5 Colin Dr. Holbrook, NY 11741
Tel: 1-516-662-5404 Fax: 1-516-927-0118
Email: info@alfa-chemistry.com



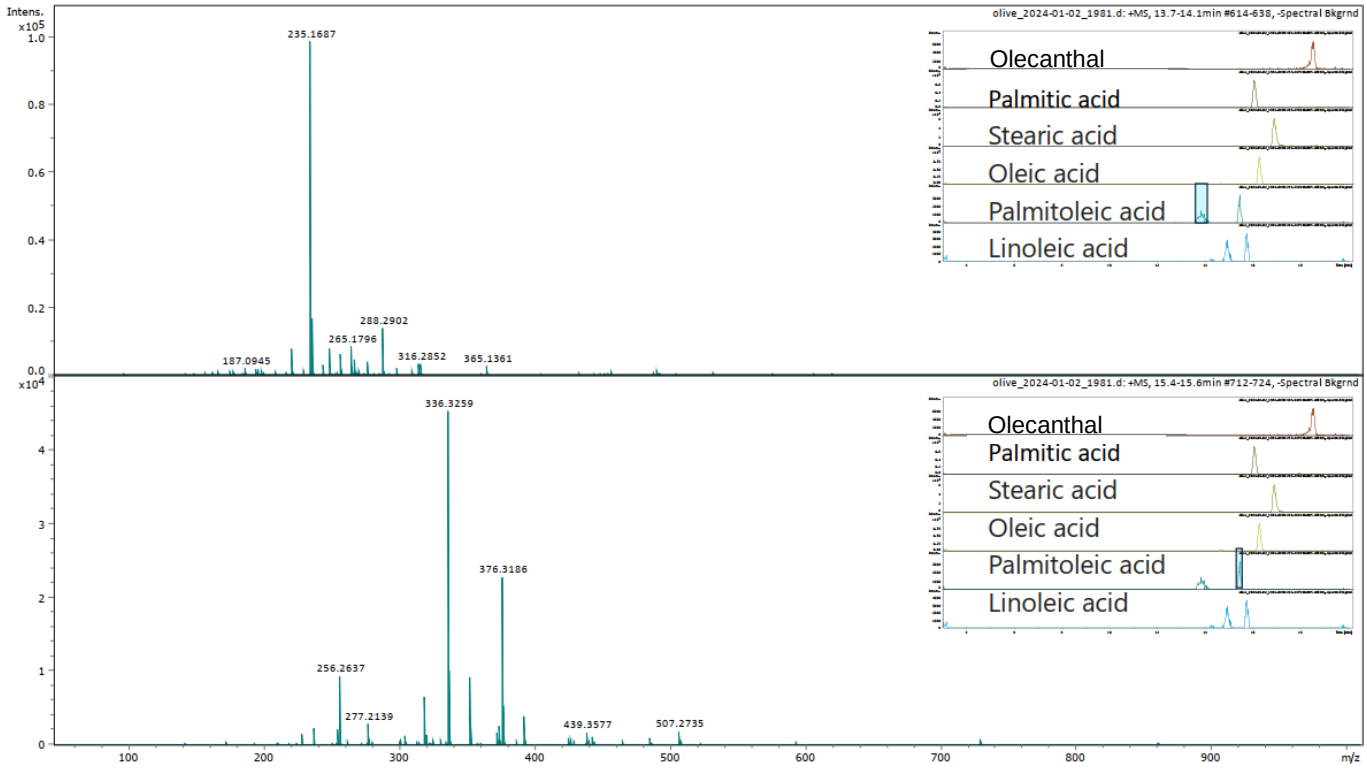
Overlay of calculated (brown) and data (blue). Can see that first and second isotope heights match.



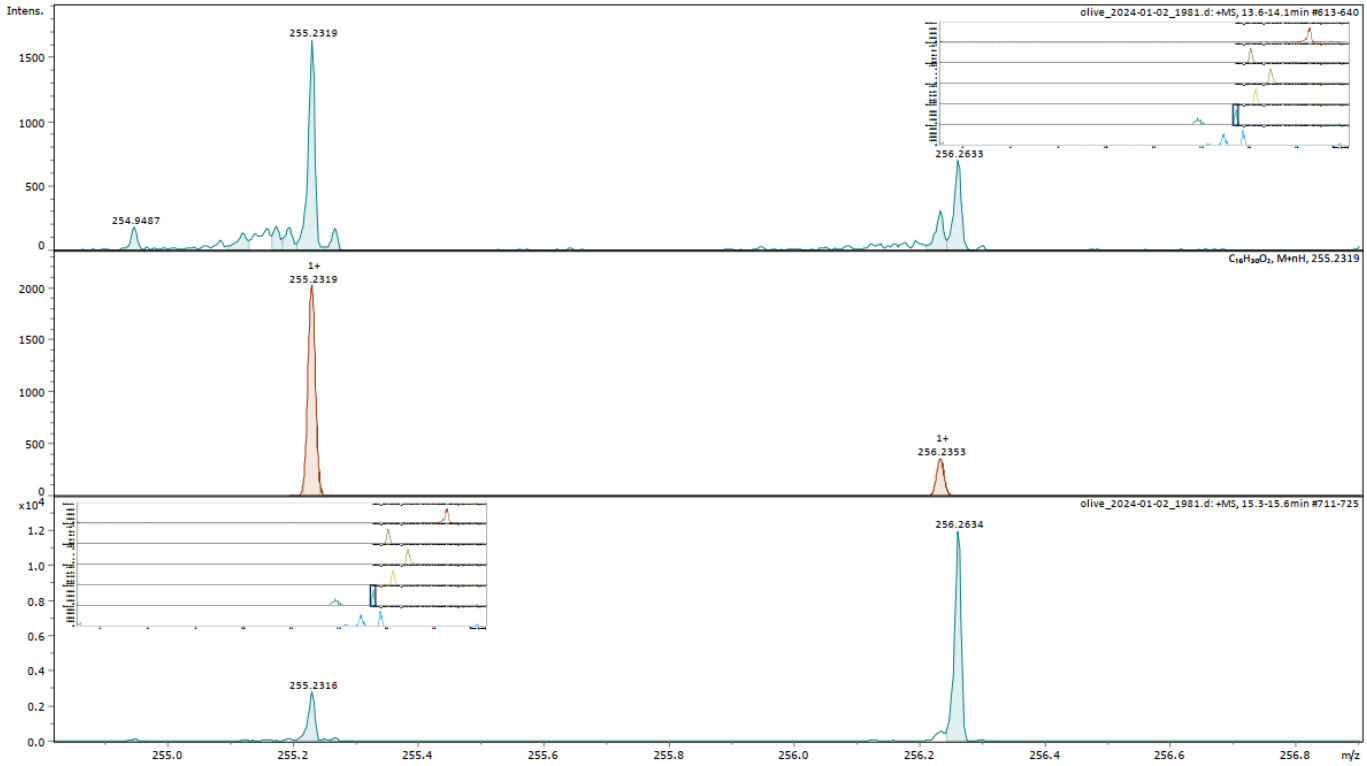
Overlay of calculated (brown) and data (blue). Can see that first isotope height matches but not second isotope. Second isotope has an interfering peak but appears from shoulder that is higher than expected. Running a standard would remove all doubt.

Alfa Chemistry Testing Lab is an analytical testing devision of Alfa Chemistry that provides one-stop testing, analysis and technical support services in the areas of pharmaceutical analysis, environmental analysis, consumer product analysis, food analysis, and material analysis. As a professional testing and analysis organization, Alfa Chemistry Testing Lab has an experienced technical team that uses advanced analytical equipment and technology to meet the needs of different customers.

https://www.alfachemic.com/testinglab
101-5 Colin Dr. Holbrook, NY 11741
Tel: 1-516-662-5404 Fax: 1-516-927-0118
Email: info@alfa-chemistry.com



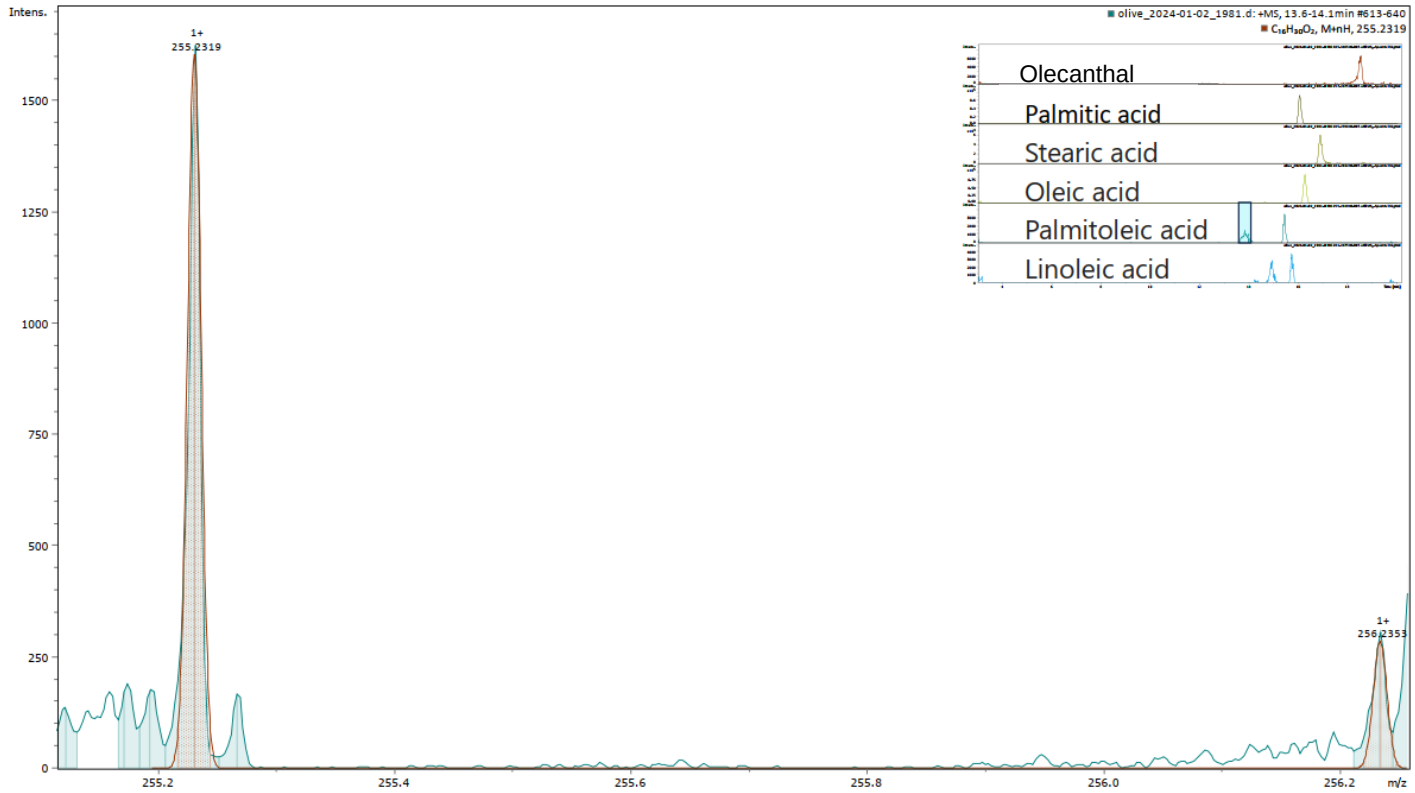
Spectrum of with spectral background subtract of first peak and second peak. Elution times can also be seen in each window top right.



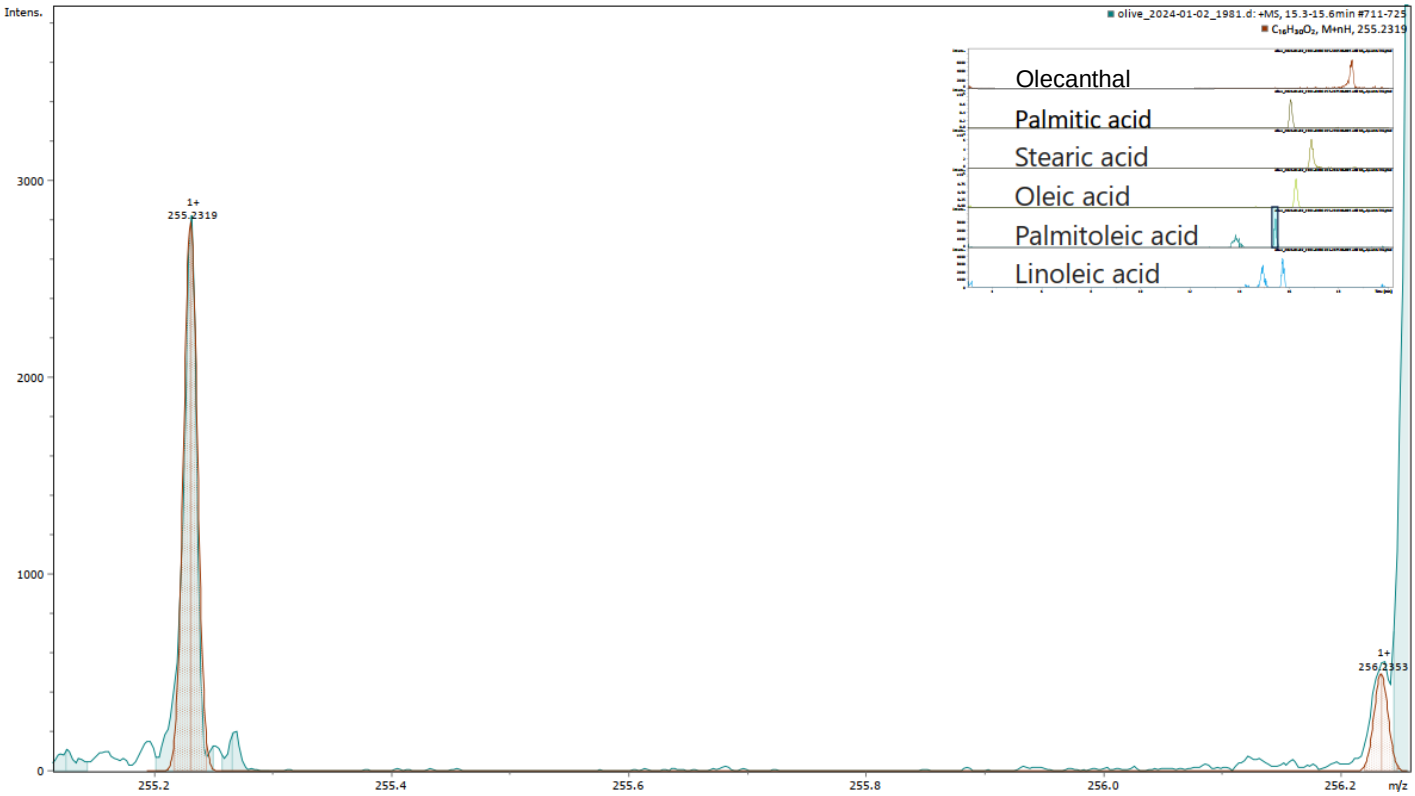
Top and bottom are data with no spectral background subtraction and middle is simulation of ion, formula located in top right of simulated spectrum. The top spectrum appears to be a better match but running a standard would confirm this.

Alfa Chemistry Testing Lab is an analytical testing devision of Alfa Chemistry that provides one-stop testing, analysis and technical support services in the areas of pharmaceutical analysis, environmental analysis, consumer product analysis, food analysis, and material analysis. As a professional testing and analysis organization, Alfa Chemistry Testing Lab has an experienced technical team that uses advanced analytical equipment and technology to meet the needs of different customers.

https://www.alfachemic.com/testinglab
101-5 Colin Dr. Holbrook, NY 11741
Tel: 1-516-662-5404 Fax: 1-516-927-0118
Email: info@alfa-chemistry.com



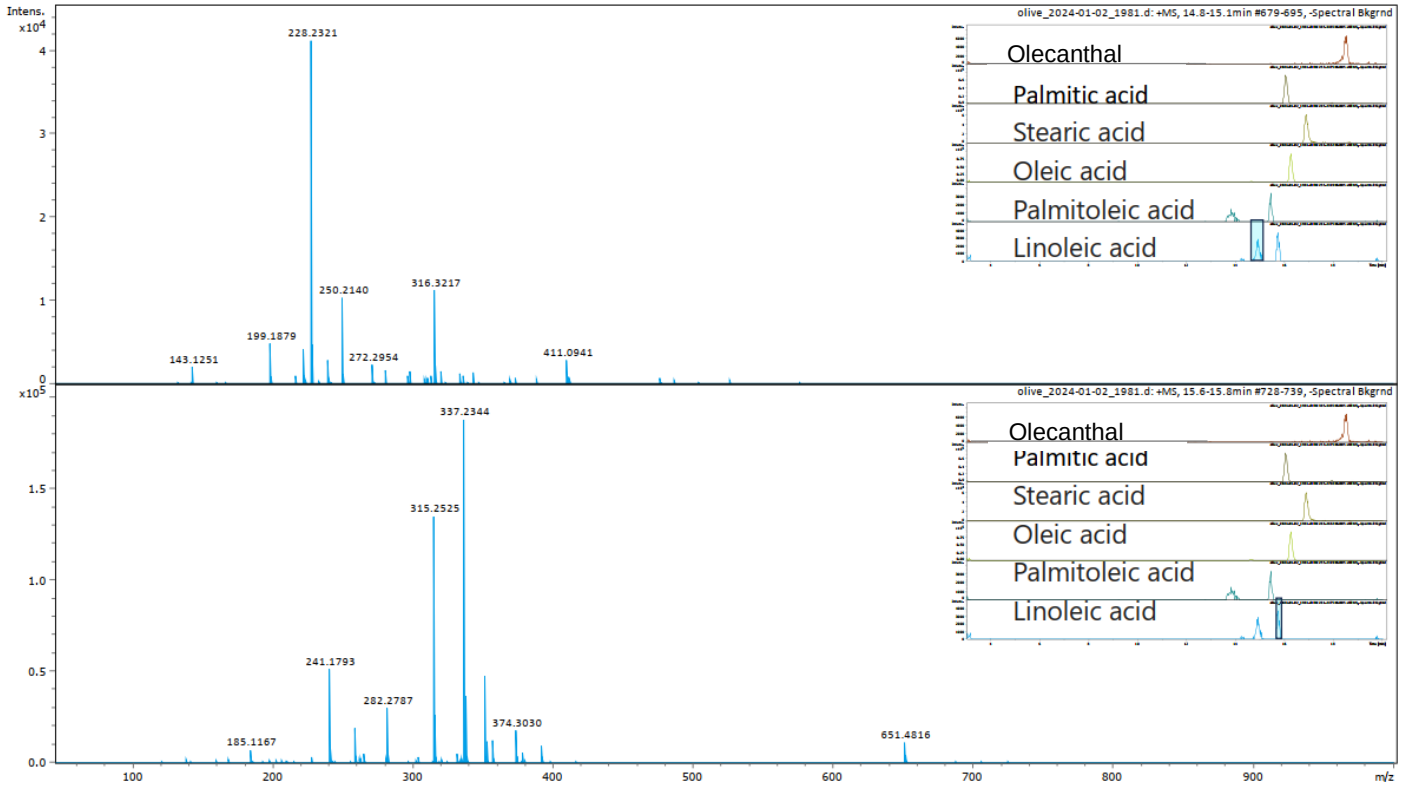
Overlay of calculated (brown) and data (blue). Can see that first and second isotope heights match.



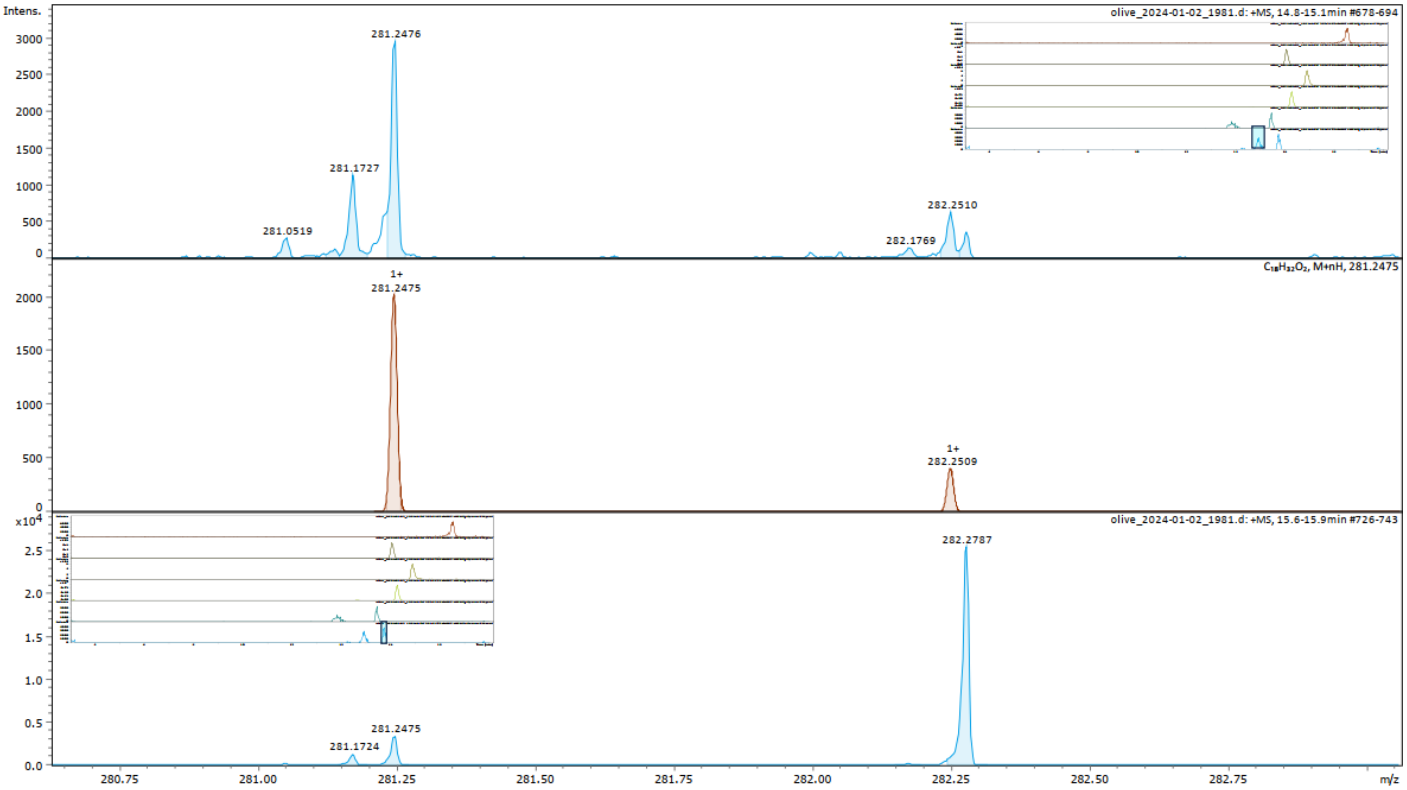
Overlay of calculated (brown) and data (blue). Can see that first and isotope heights match but not second isotope lending to believe the first peak is the ion of interest but the second isotope is not fully resolved from neighboring peak so confirmation by a standard would be best.

Alfa Chemistry Testing Lab is an analytical testing devision of Alfa Chemistry that provides one-stop testing, analysis and technical support services in the areas of pharmaceutical analysis, environmental analysis, consumer product analysis, food analysis, and material analysis. As a professional testing and analysis organization, Alfa Chemistry Testing Lab has an experienced technical team that uses advanced analytical equipment and technology to meet the needs of different customers.

https://www.alfachemic.com/testinglab
101-5 Colin Dr. Holbrook, NY 11741
Tel: 1-516-662-5404 Fax: 1-516-927-0118
Email: info@alfa-chemistry.com



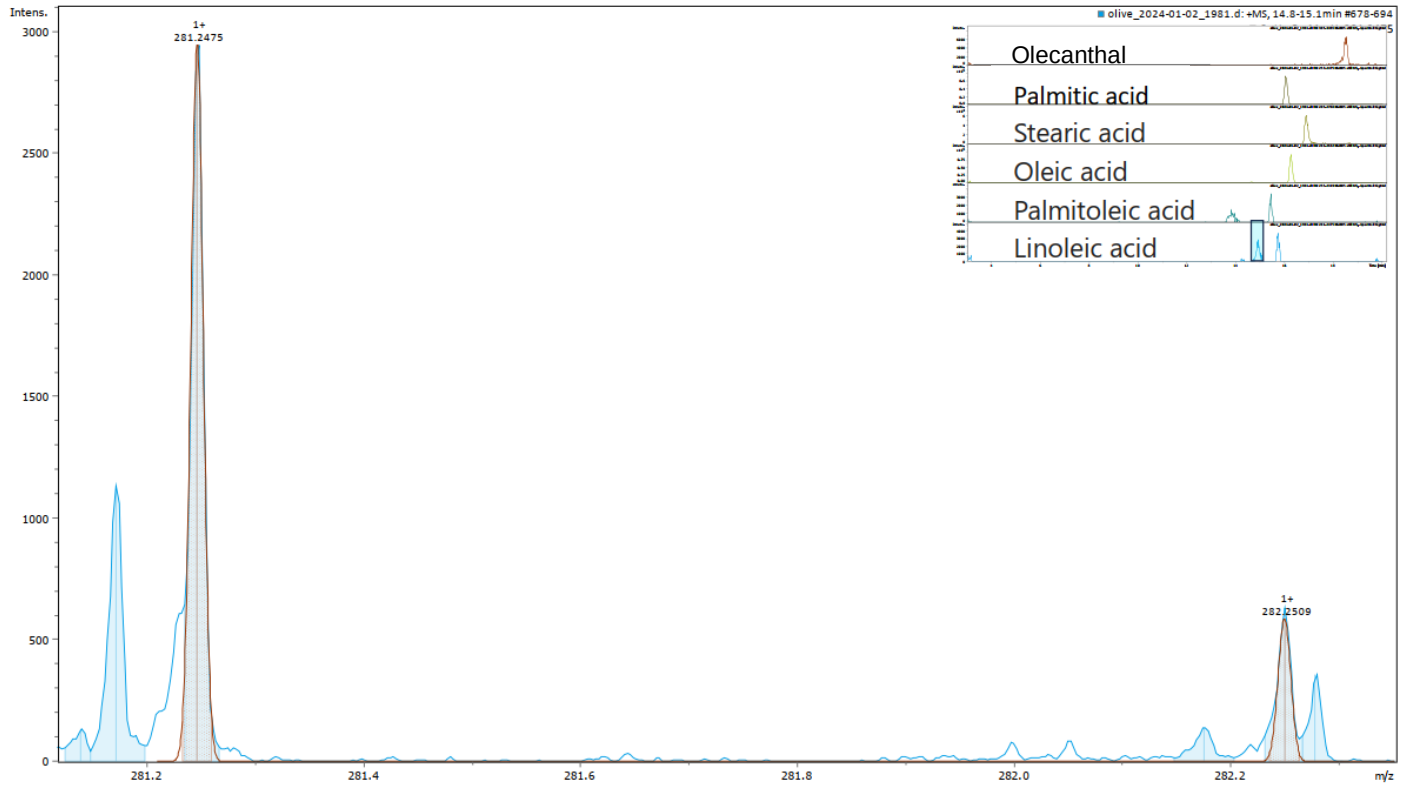
Spectrum of with spectral background subtract of first peak and second peak. Elution times can also be seen in each window top right.



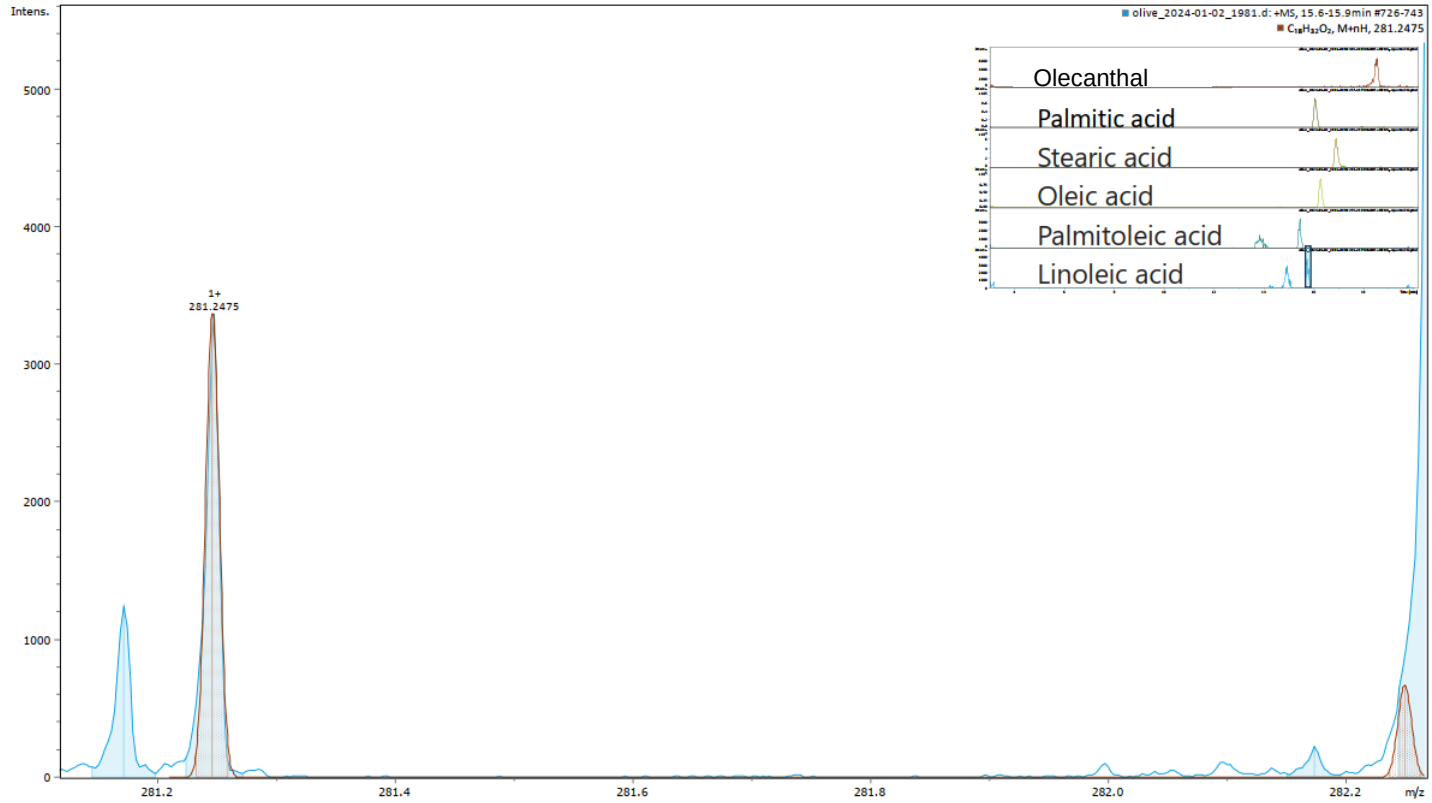
Top and bottom are data with no spectral background subtraction and middle is simulation of ion, formula located in top right of simulated spectrum.

Alfa Chemistry Testing Lab is an analytical testing devision of Alfa Chemistry that provides one-stop testing, analysis and technical support services in the areas of pharmaceutical analysis, environmental analysis, consumer product analysis, food analysis, and material analysis. As a professional testing and analysis organization, Alfa Chemistry Testing Lab has an experienced technical team that uses advanced analytical equipment and technology to meet the needs of different customers.

https://www.alfachemic.com/testinglab
101-5 Colin Dr. Holbrook, NY 11741
Tel: 1-516-662-5404 Fax: 1-516-927-0118
Email: info@alfa-chemistry.com



Overlay of calculated (brown) and data (blue). Can see that first and second isotope heights match.



Overlay of calculated (brown) and data (blue). Can see that first height match but second isotope is buried under the neighboring peak. Need to run standard to distinguish ion of interest.

Alfa Chemistry Testing Lab is an analytical testing devision of Alfa Chemistry that provides one-stop testing, analysis and technical support services in the areas of pharmaceutical analysis, environmental analysis, consumer product analysis, food analysis, and material analysis. As a professional testing and analysis organization, Alfa Chemistry Testing Lab has an experienced technical team that uses advanced analytical equipment and technology to meet the needs of different customers.

https://www.alfachemic.com/testinglab
101-5 Colin Dr. Holbrook, NY 11741
Tel: 1-516-662-5404 Fax: 1-516-927-0118
Email: info@alfa-chemistry.com

Sample Photo:

ALRT1002

Alfa Chemistry authenticate the photo on original report only

End of Report

Alfa Chemistry Testing Lab is an analytical testing devision of Alfa Chemistry that provides one-stop testing, analysis and technical support services in the areas of pharmaceutical analysis, environmental analysis, consumer product analysis, food analysis, and material analysis. As a professional testing and analysis organization, Alfa Chemistry Testing Lab has an experienced technical team that uses advanced analytical equipment and technology to meet the needs of different customers.