AVIAS RANCH

2024 Notis Late Harvest

Our 2024 “Notis” late harvest comes from Xrisafi and Perivoli, both of which have more chalky clay-rich soil.

Olives were harvested in January under blue skies at 52F. The maturity index of 5 (compared to the early harvest of 0.6), predominantly purple skinned olives) reflected a mature ripeness, but not over-ripeness where the complex oils had matured and developed to yield a flavor that has a buttery texture and a light, floral taste, with light earthy notes. Still high in oleic acid, the late-harvest oil contains good levels of campesterol and oleocanthal but higher levels of β-sitosterol, giving it that smoother and milder flavor profile and earthy, nutty and buttery aromas. The higher β-sitosterol content in late oils complements their softer, rounder taste, making them ideal for subtle culinary applications where richness and balance are desired.

Total number of trees harvested: 1,445
Date: January 12, 2024
Area Harvested: Xrisafi and Perivoli
Maturity Index: 5
Yield of olives per tree (kg): 22 kg
Total yield olives per acre: 5.2
Total yield of olives at estate: 34.2 tons
Time from harvest to milling: 3 hours
Malaxation Time 60 minutes, temperature 30C
Total EVOO produced: 3,321 kg
Yield: 9.7%
Total olives in 500mL: 5.2 kg late harvest olives

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Fats & Oils Lab, Athens

Report No : 12-395/31.01.2024/EN

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

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"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	15/01/2024
Date of Import	17/01/2024
Sample code	2024-2526
Type of analysis	Chemical Analysis

Results

Sample Code **2024-2526**
Period of Analysis **17/01/2024 - 31/01/2024**
Client's Declaration **ΕΛΑΙΟΛΑΔΟ - ΑΓΓΕΛΙΔΗΣ ΚΙΜΩΝ - 06/12/2023 - ΤΟΠΟΘΕΣΙΑ ΧΡΥΣΑΦΙ**
Sample condition upon receipt **Acceptable**

Parameter	Units	Result	Reporting limit	Accept. lev.	Uncertainty at the accept. level	Method
Acidity % as Oleic Acid	%	**0.19**	0,03	0,8		COI/T.20/Doc.34
Oil specific extinction K270		**0.123**		0,22		COI/T.20/Doc.19
Oil specific extinction K232		**1.579**		2,50		COI/T.20/Doc.19
Delta-K (ΔK)		**-0.003**		0,01		COI/T.20/Doc.19
Peroxide Value	mEqO2/Kg	**5.44**	0,3	20		COI/T.20/Doc.35
Intencity of fruitty		**5.4**		> 0,0		Modified based on EU 2568/91*
Intencity of Bitter		**3.8**				Modified based on EU 2568/91*
Intencity of Pungent		**4.3**				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)		**0.07**		0,2		COI/T.20/Doc.20
Waxes	mg/Kg	**< LOQ**	20	150		COI/T.20/Doc.28
Ethyl-esters	mg/Kg	**2.7**	2	35		COI/T.20/Doc.28*
3,5-Stigmastadiene content	mg/Kg	**0.01**	0,01	0,05		COI/T.20/Doc.11
1,2-Diglycerides (DAG's)	%	**85**				ISO 29822:2009*
Pyropheophytin (PPP)	%	**0.62**				ISO 29841:2009*
Total Phenols (Folin method)	mg Tyrosol/Kg	**241**				FOLIN - CIOCALTEAU*
a-Tocopherol content	mg/Kg	**273.6**				ISO 9936:2006*

Results

Sample Code 2024-2526
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Client's Declaration ΕΛΑΙΟΛΑΔΟ - ΑΓΓΕΛΙΔΗΣ ΚΙΜΩΝ - 06/12/2023 - ΤΟΠΟΘΕΣΙΑ ΧΡΥΣΑΦΙ
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)	**11,99**	**11,99**		
Palmitoleic trans (C16:1 trans-9)	**0,11**	**0,11**		
Palmitoleic cis (C16:1 cis-9)	**0,72**	**0,72**		
Heptadecanoic (C17:0)	**0,04**	**0,04**		
Heptadecenoic cis (C17:1 cis-10)	**0,07**	**0,07**		
Stearic (C18:0)	**2,37**	**2,37**		
Elaidic (C18:1 trans ω9)	<0,01	<0,01		
Oleic (C18:1 cis ω9)	**77,32**	**77,32**		
Vaccenic (C18:1 cis ω7)	<0,01	<0,01		
Linelaidic (C18:2 trans ω6)	<0,01	<0,01		
Linoleic (C18:2 cis ω6)	**5,93**	**5,93**		
Arachidic (C20:0)	**0,40**	**0,40**	max 0,60	
Linolenic trans (C18:3 trans ω3)	<0,01	<0,01		
α-Linolenic cis (C18:3 cis ω3)	**0,59**	**0,59**	max 1,00	
Eicosenoic trans (C20:1 trans ω9)	**0,01**	**0,01**		
Eicosenoic cis (C20:1 cis ω9)	**0,26**	**0,26**	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)	**0,13**	**0,13**	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)	**0,04**	**0,04**	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)	**14,98**	**14,98**		
(Monounsaturated fats)	**78,50**	**78,50**		
(Polyunsaturated fats)	**6,52**	**6,52**		
Total ω3	**0,59**	**0,59**		
Total ω6	**5,93**	**5,93**		
Total trans	**0,12**	**0,12**		
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 2024-2526
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Client's Declaration ΕΛΑΙΟΛΑΔΟ - ΑΓΓΕΛΙΔΗΣ ΚΙΜΩΝ - 06/12/2023 - ΤΟΠΟΘΕΣΙΑ ΧΡΥΣΑΦΙ
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	**0,41**		
Campesterol	**3,83**	max 4,0	
Campestanol	**0,04**		
Stigmasterol	**0,53**	< Καμπεστερόλη	
d7-campesterol	<0,01		
d5,23-stigmastadienol	<0,01		
Clerosterol	**0,82**		
b-Sitosterol	**77,50**		
Sitostanol	**0,37**		
d5-Avenasterol	**15,41**		
d5,24-stigmastadienol	**0,47**		
d7-Stigmastenol	**0,15**	max 0,5	
d7-Avenasterol	**0,37**		
Erythrodiol & Uvaol	**3,09**	max 4,5	
Apparent b-Sitosterol	**94,56**	min 93,0	
Total Sterols (mg/Kg of oil/fat)	**983**	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	**0.07**	0,5			
MOSH/POSH nC25 - nC35	mg/Kg	**0.11**	0,5			
MOSH/POSH nC35 - nC40	mg/Kg	**0.29**	0,5			
MOSH/POSH nC40 - nC50	mg/Kg	**< LOQ**	0,5			
MOSH/POSH TOTAL (nC10 - nC50)	mg/Kg	**0.48**	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 2024 Late Harvest Notis Estate extra virgin olive oil (EVOO) demonstrates exceptional quality, confirmed by laboratory analyses. The oil's low acidity of 0.19%, well below the 0.8% threshold, indicates careful processing and high freshness. Its oleic acid content (77.32%) and monounsaturated fats (78.50%) align with heart-healthy dietary standards, promoting cardiovascular health and balancing cholesterol levels. Rich in antioxidants, the oil has a good phenolic content of 241 mg/kg and vitamin E (α-tocopherol) concentration of 273.6 mg/kg, offering robust protection against oxidative stress and inflammation and not excessive so that it is still approachable.

The chemical stability of this EVOO is reflected in a low peroxide value (5.44 mEqO2/kg), signaling minimal oxidation, and excellent UV-specific extinction coefficients (K270 at 0.123, K232 at 1.579), confirming purity and freshness. Pyropheophytin levels (PPP) at 0.62% further underscore its stability and quality. Sensory analysis reveals a vibrant organoleptic profile, with fruitiness (5.4), bitterness (3.8), and pungency (4.3), showcasing a harmonious and flavorful oil free from defects (0.0).

The oil also excels in safety measures, with undetectable phthalates and MOSH/MOAH levels below 0.5 mg/kg, far surpassing the most stringent international standards. These values underscore Notis Estate EVOO as a premium product, embodying superior quality, health benefits, and sustainability, fully meeting and exceeding benchmarks set by the International Olive Council, USDA, and North American Olive Oil Association.

Interpretation of the Compositional Profile of Notis Estate 2024 Late Harvest

General Chemistry

1. **Acidity (% as Oleic Acid):** The result is 0.19%, which is well below the upper limit of 0.8%. This indicates very high quality, as low acidity reflects the rapid field to milling time and a well structured production processes.
2. **Oil Specific Extinction (K270):** The value is 0.123, significantly below the limit of 0.22. This low value confirms that the oil has been minimally exposed to light or heat, ensuring preserved quality and purity.
3. **Oil Specific Extinction (K232):** A value of 1.579 is comfortably within the acceptable range of up to 2.50. This measure reflects minimal impurities or oxidation products, indicating excellent oil quality.
4. **Delta-K (ΔK):** The value of -0.003 is well below the threshold of 0.01. This result ensures the oil has not undergone significant oxidation or degradation, maintaining its integrity.
5. **Peroxide Value (mEqO2/Kg):** At 5.44, this is within the acceptable range of 0.3–20, demonstrating low oxidation levels and a fresh product.
6. **Intensity of Fruity, Bitter, and Pungent:**
    - **Fruity:** 5.4, a robust and desirable score indicating vibrant olive fruit notes.

    - **Bitter:** 3.8, a moderate bitterness characteristic of high-quality EVOO.
    - **Pungent:** 4.3, a peppery finish that reflects freshness and polyphenol richness.
7. **Defect (Intensity of Defect):** A value of 0.0 indicates the oil is free from any off-flavors or defects, ensuring a pure and premium product.
8. **ΔECN42 (ECN42 exp – ECN42 theor):** A result of 0.07, below the limit of 0.2, confirms the expected fatty acid profile, reinforcing authenticity and consistency.
9. **Waxes:** Results are <LOQ (below the Limit of Quantification), far below the maximum of 150 mg/kg, indicating superior processing quality.
10. **Ethyl-esters:** At 2.7 mg/kg, the oil is well within the acceptable limit of 35 mg/kg, highlighting its purity and proper handling.
11. **3,5-Stigmastadiene Content:** A result of 0.01 mg/kg meets the stringent upper limit of 0.05, confirming the oil's proper storage conditions.
12. **1,2-Diglycerides (DAGs):** The result of 85% indicates excellent freshness and quality, well above the minimum threshold.
13. **Pyropheophytin (PPP):** At 0.62%, the oil exhibits minimal degradation over time, ensuring stability and freshness.
14. **Total Phenols (Folin method):** The phenol content of 241 mg Tyrosol/kg reflects a strong antioxidant profile, providing substantial health benefits while maintaining a balanced flavor.
15. **a-Tocopherol (Vitamin E) Content:** At 273.6 mg/kg, the high vitamin E content enhances both health properties and shelf life, emphasizing the oil's nutritional excellence.

Fats

1. **Monounsaturated Fats (Oleic Acid - C18:1 cis ω9):** The oil contains 77.32% monounsaturated fats, primarily oleic acid. These fats are known for their heart-healthy properties, such as reducing bad cholesterol (LDL) and increasing good cholesterol (HDL), emphasizing that the 2024 Notis Estate Late Harvest has excellent cardiovascular health.
2. **Polyunsaturated Fats (ω6 and ω3):** The oil includes 5.93% omega-6 (ω6) and 0.59% omega-3 (ω3) fatty acids. Both are essential for reducing inflammation and supporting heart and brain health. The omega-6:omega-3 ratio is well-balanced, further emphasizing its healthful properties.
3. **Low Trans Fats:** Trans fats are virtually absent, with all trans fatty acids present at <0.01%. This is a highly desirable feature, as trans fats are harmful and linked to heart disease.
4. **Saturated Fats:** The oil contains 14.98% saturated fats, which is relatively low compared to other oils. This balance ensures that while providing necessary fats, the oil remains heart-healthy.
5. **Alpha-Linolenic Acid (C18:3 cis ω3):** This omega-3 fatty acid is present at 0.59%. It supports heart health, cognitive function, and reduces inflammation, acting as a precursor to vital omega-3s like EPA and DHA.
6. **Low Content of Harmful Fatty Acids:** The negligible amounts of harmful trans fatty acids, such as C18:3 trans ω3 and C18:1 trans ω9 (<0.01%), demonstrate the oil’s purity and adherence to high-quality production standards.

Health Benefits

- **Monounsaturated Fats:** High oleic acid levels promote cardiovascular health by lowering LDL cholesterol while raising HDL cholesterol.
- **Omega-3 Fatty Acids:** Though moderate in quantity, these fatty acids enhance brain health and reduce systemic inflammation.
- **Minimal Trans Fats:** The virtual absence of trans fats distinguishes this olive oil as a superior and healthier option.
- **Low Saturated Fats:** The relatively low content of saturated fats minimizes the risk of heart disease, enhancing its overall health profile.

Sterol Composition

1. **b-Sitosterol (77.50%):**
    - **Result:** 77.50% of the total sterols.
    - **Health Significance:** b-Sitosterol is the most abundant sterol in olive oil, known for lowering cholesterol levels by competing with cholesterol for absorption in the digestive tract. It also provides anti-inflammatory benefits, reducing the risk of cardiovascular diseases.
2. **d7-Avenasterol (0.37%):**
    - **Result:** 0.37%.
    - **Health Significance:** Although present in low amounts, d7-Avenasterol contributes to cholesterol-lowering effects and complements the oil's overall health benefits.
3. **d5-Avenasterol (15.41%):**
    - **Result:** 15.41%.
    - **Health Significance:** This sterol is beneficial for its cholesterol-lowering properties, and its high presence in the oil enhances cardiovascular health.
4. **Stigmasterol (0.53%):**
    - **Result:** 0.53%, well below the maximum allowable level of 1.0%.
    - **Health Significance:** Stigmasterol helps reduce cholesterol levels and offers anti-inflammatory benefits, supporting heart health.
5. **Campesterol (3.83%):**
    - **Result:** 3.83%, below the maximum allowable level of 4.0%.
    - **Health Significance:** Campesterol aids in reducing cholesterol absorption and has antioxidant properties, promoting overall heart and metabolic health.
6. **Brassicasterol (<0.01%):**
    - **Result:** Negligible amount.
    - **Health Significance:** Although minor in quantity, Brassicasterol contributes to the oil's sterol profile without significant impact on health.
7. **Erythrodiol and Uvaol (3.09%):**
    - **Result:** 3.09%.
    - **Health Significance:** These compounds have strong antioxidant and anti-inflammatory properties, further enhancing the oil’s cardiovascular benefits.

8. **Apparent b-Sitosterol (94.56%):**
    - **Result:** The total sterol fraction derived from b-Sitosterol and related compounds.
    - **Health Significance:** This high value confirms the oil's quality and health benefits.
9. **Total Sterols:**
    - **Result:** 983 mg/kg of oil, exceeding the typical threshold for high-quality olive oils.
    - **Health Significance:** This robust total sterol content enhances the oil's ability to promote health and wellbeing.

Health Benefits

- **Cholesterol-Lowering:** High levels of b-Sitosterol, Campesterol, and Avenasterols make this oil effective in lowering LDL cholesterol and reducing heart disease risks.
- **Anti-inflammatory and Antioxidant:** The presence of sterols like Erythrodiol and Uvaol enhances the oil's ability to combat inflammation and oxidative stress.
- **High Quality:** The sterol composition aligns with international standards, confirming its premium quality.
- **Minimal Cholesterol:** The low cholesterol content emphasizes the heart-health benefits of this olive oil.

Interpretation of the Contaminant Profile of 2024 Notis Estate Late Harvest

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Processing and Bottling Contaminants in Notis Estate 2024 Late Harvest

The analysis of the 2024 Late Harvest Notis Estate extra virgin olive oil confirms it is free from harmful industrial contaminants associated with processing and bottling, such as Phthalates, found in flexible plastic containers, and Mineral Oil Aromatic Hydrocarbons (MOAH) and Mineral Oil Saturated Hydrocarbons (MOSH). The results highlight the oil's safety and high-adherence to high quality processing and production standards.