







Date	11.03.2022
Your sign	XXXXXX
Packaging	50ml bottle
Geographical origin (declared)	no information
Our sign	2022-5814
Date of analysis	11.03.2022

**Report NIR Olive Oil Screening - Page 1 of 2, sample no. 2022-5814**

Sensory Profile (if it is not adulterated)		U (Uncertainty)
Fruitiness [Range 0-10]	 <b>3,3</b>	+/- 0.4 Medium: 3,0-6,0; Intense: >6,0
Bitterness [Range 0-10]	 <b>3,0</b>	+/- 0.2
Pungency [Range 0-10]	 <b>3,5</b>	+/- 0.2
Harmony [Range 0-10]	<b>&lt; 4,5</b>	+/- 0.5
Flavor Green [Intensity]		<b>= Ripe</b>
Flavor Ripe [Intensity]		
<b>Probability of occurring sensory defects HIGH; P=99</b>		
Probability [%] of fermentative defects		
Probability [%] of oxidative defects		
<b>Detection of Adulterated Olive Oil</b>		
Probability of detecting adulterated olive oil <i>(unpermitted thermal treatment (70-130 degrees celsius) or blending of olive oil with other refined foreign vegetable oils)</i>	<b>LOW</b>	
Verification of the adulteration		
<b>Quality</b>		
Free Fatty Acids (FFA) [%]	<b>0,30</b>	+/- 0,05 Legal Limit: 0,8%
Peroxide Value [meq O2/ kg]	<b>11,3</b>	+/- 2,2 Legal Limit: 20 meq O2/kg
Spectrometry K232-Value	<b>2,246</b>	+/- 0,14 Legal Limit: 2,5
Spectrometry K270-Value	<b>0,207</b>	+/- 0,03 Legal Limit: 0,22
Pyropheophytins [%]	<b>11,1</b>	+/- 0,3 Should be lower than 12%
1,2-Diglycerides [%]	<b>55,0</b>	+/- 1,2 Should be higher than 40%
Anisidine Value	<b>7,3</b>	+/- 0,2
Alkyl Esters [mg/kg]	<b>149,0</b>	+/- 4,5 Legal Limit: 150 mg/ kg
Total Sterol Content [mg/kg]	<b>1050</b>	+/- 76 Legal Limit - Minimum: 1000 mg/kg
Phenolics (as Tyrosol and Hydroxy-Tyrosol) [mg/kg]	<b>360</b>	+/- 19 Health Claim:>250 mg/kg see EU 2017/2373 (14.12.2017)

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Identity		
<b>Fatty acid composition [g/ 100g of fatty acids]</b>		
Mono-unsaturated fatty acids	<b>77,4</b>	± 0,5
Poly-unsaturated fatty acids	<b>7,3</b>	± 0,6
Saturated fatty acids	<b>15,3</b>	± 0,7
<b>IOC 1998</b>		
Palmitic Acid (C16:0)	<b>11,80</b>	± 0,4 7,5-20,0
Palmitoleic Acid (C16:1 (9c)) incl. Heptadecanoic Acid (C17:0)	<b>0,57</b>	± 0,1 0,3-3,5
Stearic Acid (C18:0)	<b>3,01</b>	± 0,1 0,5-5,0
Oleic Acid (C18:1 (9c))	<b>75,00</b>	± 0,6 55-83,0
Vaccenic Acid (C18:1 (11c))	<b>2,13</b>	± 0,1
Linoleic Acid (C18:2)	<b>7,14</b>	± 0,2 3,5-21,0
Linolenic Acid (C18:3) incl. isomers	<b>0,52</b>	± 0,2 0-1,0
Iodine Value	<b>81,3</b>	± 0,2 (77-92)

<b>Classification</b>  (Please note: A sample cannot be marketed as "extra virgin" if it does not meet the analytical or sensory requirements of Regulation (EEC) 2568/91.)	<b>Cannot be classified as 'Extra Virgin'</b>
<b>Overall quality: Range 1 (=very bad) to 8 (=Premium)</b>	<b>No Evaluation - Sensory defects possible</b>
<b>Geographical origin (country; statistically determined)</b>	<b>Spain</b>
<b>Region of origin and variety (statistically determined)</b>	<b>Andalusia; Hojiblanca</b>
<b>Age [months]</b> (estimated biological age - storage at dark, 15-18 degrees Celsius)	<b>10,6 (± 0,6)</b>
<b>Remaining storage life at 20 degrees Celsius [months] (If no defects!!!)</b>	<b>Over - sensory defect</b>

Remarks: All results of this report are based on the statistical evaluation of the NIRS measurements. In general these results correlate well with the corresponding laboratory values. It may happen that they are not identical or equal.

\*The identification of the origin and the quality are done also statistically comparing the compositional and sensorial properties of an oil with analytical data obtained by traditional laboratory methods. So it can happen that the origin of an olive oil is identified as an Spanish one, although it is from Portugal because the fatty acid and TAG patterns of this blend may be very similar to the pattern of Spanish oils. But it can also be a blend of two or three countries producing a pattern which is similar to Portugisian oils. Another example if an Italian olive oil from Tuscany is identified as an oil from Croatia as the geographical conditions are very similar. A wrong identification cannot be excluded. The probability of the statistical evaluation concerning country is 95%, of the region: 85% and the variety about 85%. A different identified origin than the labeled origin only means that the labeled origin could not be confirmed. The results are only representative for the analyzed sample. This report has been automatically generated.. All NIR methods were validated using the corresponding international standards in accordance to ISO 17025, All statistical evaluations have been executed on a P=95% level.

(Software Version 2022-10)

References

- I.Willenberg, B.-Matthäus, C.Gertz: A New Statistical Approach to Describe the Quality of Extra Virgin Olive Oils Using Near Infrared Spectroscopy (NIR) and Traditional Analytical Parameters, Eur. J. Lipid Sci. Technol. 2018, 1800361  
 C.Gertz, A.Gertz, B.Matthäus, I.Willenberg: A Systematic Chemometric Approach to Identify the Geographical Origin of Olive Oils, Eur. J. Lipid Sci. Technol. 2019, Eur. J. Lipid Sci. Technol. 2019, 1900281  
 C.Gertz, B.Matthäus, I.Willenberg: Detection of Adulterated Extra Virgin Olive Oil Using Near Infrared Spectroscopy (NIR) and Traditional Analytical Parameters, Eur. J. Lipid Sci. Technol. 2020  
 C.Gertz, B.Matthäus, I.Willenberg: Detection of Soft-Deodorized Olive Oil and Refined Vegetable Oils in Virgin Olive Oils using near Infrared Spectroscopy and traditional parameters, Eur. J. Lipid Sci. Technol. 2020, 1900385

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