

NIR-report Olive oil Screening



Date/ Datum
Your sign/ Ihr Zeichen
Packing/ Verpackung
Our sign/ Unser Zeichen
Origin/ Ursprungsangabe
Date of analysis/ Tag der Untersuchung

23.04.2018
XX
20ml Probengefäß
2018-XXX
Italien
23.04.2018

Flavor profile/ Aroma-Profil (measured by NIRS)	
Fruitiness/ Fruchtigkeit (Range 0-10)	5,6
Bitterness/ Bitternote (Range 0-10)	3,7
Pungency/ Schärfe (Range 0-10)	4,0
Harmony/ Harmonie (Range 0-10)	7,1
Green (Scale: Green = 100/ Ripe = 0)	100
Probability of sensory defects (Auftreten sensorischer Defekte) (0 - 100 %)	0
Kind of main defects	NO SENSORY DEFECTS
Thermal Stress Index indicating the presence of heat treated oil (>70°C) or active filtration	0
Can it be an adulterated extra virgin olive oil (evaluation based on traditional parameters)? (max 90°C)	No

Green
Zero

Should be 0!

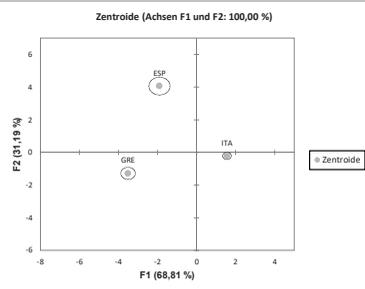
Quality/ Qualität (measured by NIRS)	
Free Fatty Acids/ freie Fettsäuren (FFA) (%)	0,38
Peroxide Value/ Peroxidzahl (meq O2/kg)	19,0 !
Spectrometry K232-Value/ K232	2,03
Spectrometry K270-Value/ K270	0,22 !
Pyropheophytins (%)	2,8
1,2-Diglycerides (%)	73,1
Monomeric oxidized TAGs, MonoXTG (%)	1,2
Anisidine Value	3,1

Legal Limit: 0,8 %
Legal Limit: 20 meq O2/kg
Legal Limit: 2,5
Legal Limit: 0,22
Should be lower than 12 %
Should be higher than 50 %
Should be lower than 3,0 %

Fatty acid composition/ Fettsäureverteilung, % (NIRS); extracted	
Mono-unsaturated fatty acids	79,8
Poly-unsaturated fatty acids	6,0
Saturated fatty acids	14,2
Identification	Olive Oil, extra virgin

Statistical Evaluation of the fatty acid and TAG patterns using four different non-parametric tests (KNN, DA (diagram below), SVM, LR)

Pre-Selected countries: ITALY GREECE SPAIN (Portugal) Notes:



Abbreviations:
ITA = Italy
ESP = Spain (Portugal)
GRE = Greece
POR = Portugal (Spain)
TUR = Turkey
TUN-M = Tunisia (Lebanon; Maroc, Syria)
IST = Istria (Croatia)
ISR = Israel (Palestine)
France
AUS, China
SAM = (Chile, Argentina; Uruguay)
Egypt = (Egypt, SA)

Geographical origin (main country):	ITALY
Biological age [months]	7
Remaining storage life at 20°C [months]	9
Overall quality (chem. analysis) - Range 1 (=very bad) to 8 (=Premium):	High quality-Excellent (7)

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 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.
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. (Software Version 2018-V1-05-03)

Dr. Christian Gertz (Maxfry GmbH)

Range of quality:
Very bad quality
Low quality
Low standard quality
Standard quality
Good quality
Very good quality
High quality (excellent)
Premium quality

The report header contains all the administrative information to identify this olive oil sample.

The flavour profile includes the sensory assessment points according to the legal standard as well as the “harmony” score. This calculated value consolidates all the sensory assessment scores and is used at the end of the report for the final quality classification. The cell background is coloured using the traffic light system. The “greener” the bars, the better the assessment.

In this range, the quality is evaluated using various analytical parameters. The key shows both the statutory limits (EU regulation) and the recommended range. A traffic light system is also used here for the colour of the bars. In conjunction with the flavour profile, the possibility of a fermentational or oxidative flaw is excluded. This is presented in the “flavour profile”.

The three types of fatty acids can be used for the nutritional information table details for the olive oil.

In summary, the results of the sensory testing and the analysis can be used to establish whether an olive oil is of “extra virgin” quality or not.

The origin of the olive oil is determined using two different statistical methods. Firstly, the data is preselected using the KNN method based on the previously determined analysis data. The reduced number of data sets is then evaluated by logistic regression and discriminant analysis. The calculated probabilities are used to predict the country of origin or the composition of a blend.

The age in months is defined by the biological age. The age is calculated based on storage at 20°C and darkness. Deviating storage conditions at temperatures lower or higher than 20°C can slow down or accelerate the natural ageing process.

The remaining best before date is calculated from the previously established age and the FFA value. Once again, under the above-mentioned standard storage conditions.

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