LABORATORY OF PHYSICAL-CHEMICAL TEST RECOGNIZED BY THE IOC FOR THE PERIOD December 1, 2019 to November 30, 2020

LABORATORIO TELLO
A Tentamus Company

ENAC ENSAYOS Nº 749/LE1295

Tests marked (*) are not included in scope of Accreditation of ENAC.
Activities marked (#) are not included in scope of Accreditation of ENAC.

COSTUMER:

CASAS DE HUALDO, S.L.
FINCA HUALDO. CAMINO DE BARCA, S/N
45533 EL CARPIO DE TAJO
TOLEDO

CERTIFICATE OF ANALYSIS

Certificate of Analysis (1): **01028104436 / M5/I**
Laboratory reference: 1/1.728
Date of receipt: 21/10/2020 **Final date of Analysis:** 28/10/2020 **Issue date:** 28/10/2020
Sample for Testing: Olive Oils

DATA PROVIDED BY CLIENT (2)

Sample reference: CASAS DE HUALDO MANZANILLA P5
Packing: BOTE PET 500 ml TAPÓN PRECINTO BLANCO + 2 BOTES PET 25 **Quantity:** 1 l

ANALYSIS RESULTS

Determination	Result	Unit	Limits	Procedure
Acidity				
Acidity	**0.13**	% (ac.oleic.)	≤ 0.8 (Nota 1)	PNT 1.08
Acidity Value				
Acidity Value	**0.26**	mg KOH/g	Max 1.6 (Nota 3)	PNT 1.08
Peroxide index				
Peroxide index	**2.7**	meq O2/kg	≤ 20 (Nota 1)	PNT 1.09
Spectrophotometric analysis				
K 270	**0.17**	-	≤ 0.22 (Nota 1)	PNT 1.10
K 232	**1.77**	-	≤ 2.50 (Nota 1)	PNT 1.10
ΔK	**<0.005**	-	≤ 0.01 (Nota 1)	PNT 1.10
Moisture				
Moisture and volatile matter	**0.07**	%	≤ 0.2 (Nota 2)	PNT 1.11
Insoluble impurities				
Impurities (Petroleum ether)	**<0.05**	%	≤ 0.10 (Nota 2)	PNT 1.12
***Iodine index**				
* Iodine Index	**81**	g iodo / 100 g	75 - 94 (Nota 2)	Norma UNE 55013
Ethyl Ester				
Ethyl ester	**<10**	mg/kg	Max 35 (Nota 1)	PNT 1.20
Content of waxes				
C40 + C42 + C44 + C46	**56**	mg/kg	No aplica (Nota 1)	PNT 1.20
C42 + C44 + C46	**26**	mg/kg	≤ 150 (Nota 1)	PNT 1.20
Total sterols and composition				
Total sterols	**1247**	mg/kg	≥ 1000 (Nota 1)	PNT 1.17
Cholesterol	**0.1**	%	≤ 0.5 (Nota 1)	PNT 1.17
Brassicasterol	**<0.1**	%	≤ 0.1 (Nota 1)	PNT 1.17

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Campesterol		**3.2**	%	≤ 4.0 (Nota 1)	PNT 1.17
Stigmasterol		**1.1**	%	< Camp (Nota 1)	PNT 1.17
β-sitosterol (apparent)		**94.5**	%	≥ 93.0 (Nota 1)	PNT 1.17
Δ-7-Stigmastenol		**0.3**	%	≤ 0.5 (Nota 1)	PNT 1.17
Erythrodiol and Uvaol					
Erythrodiol and uvaol		**1.8**	%	≤ 4.5 (Nota 1)	PNT 1.17
Stigmastadienes					
Stigmastadiene	**<0.02**		mg/kg	≤ 0.05 (Nota 1)	PNT 1.16
Fatty acid Content					
Lauric (C12:0)	**<0.02**		%	No aplica	PNT 1.14
Myristic (C14:0)		**0.01**	%	≤ 0.03 (Nota 1)	PNT 1.14
Palmitic (C16:0)		**14.14**	%	7.50 -20.00 (Nota 1)	PNT 1.14
Palmitoleic (C16:1)		**1.31**	%	0.30 -3.50 (Nota 1)	PNT 1.14
Margaric (C17:0)		**0.19**	%	≤ 0.40 (Nota 1)	PNT 1.14
Margaroleic (C17:1)		**0.34**	%	≤ 0.60 (Nota 1)	PNT 1.14
Stearic (C18:0)		**3.34**	%	0.50 -5.00 (Nota 1)	PNT 1.14
Oleic (C18:1)		**72.29**	%	55.00 -83.00 (Nota 1)	PNT 1.14
Linoleic (C18:2)		**6.77**	%	2.50 -21.00 (Nota 1)	PNT 1.14
Linolenic (C18:3)		**0.70**	%	≤ 1.00 (Nota 1)	PNT 1.14
Arachidic (C20:0)		**0.48**	%	≤ 0.60 (Nota 1)	PNT 1.14
Eicosenoic (C20:1)		**0.25**	%	≤ 0.50 (Nota 1)	PNT 1.14
Behenic (C22:0)		**0.12**	%	≤ 0.20 (Nota 1)	PNT 1.14
Erucic (C22:1)	**<0.10**		%	No aplica	PNT 1.14
Lignoceric (C24:0)		**0.07**	%	≤ 0.20 (Nota 1)	PNT 1.14
Sum of trans Isomers					
Tr Oleic (C18:1T)	**<0.03**		%	≤ 0.05 (Nota 1)	PNT 1.14
Tr L (C18:2T) + Tr Ln (C18:3T)	**<0.03**		%	≤ 0.05 (Nota 1)	PNT 1.14
Difference: ECN42 (HPLC) and ECN42 theoretical					
Difference ECN42	**<0.05**			≤ 0.2 (Nota 1)	PNT 1.19
***Total Polyphenols**					
* Poliphenols		**656**	mg Ac.cafeico/Kg		PNT 1.56 (Folin -Ciocalteu)

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Determination	Result	Unit	Limits	Procedure
***Metals**				
* Iron	**<1.0**	mg/kg	Max 3 (Nota 2)	ICP/MS
* Copper	**<0.10**	mg/kg	≤ 0.1 (Nota 2)	ICP/MS
* Lead	**<0.020**	mg/kg	Max 0.10 (Nota 4)	ICP/MS
* Total Arsenic	**<0.020**	mg/kg	Max 0.1 (Nota 2)	ICP/MS
Polycyclic aromatic hydrocarbons				
Benzo(a)pyrene	**<0.5**	ug/kg	Max 2.0	PNT 1.23
Crysene	**<0.5**	ug/kg		PNT 1.23
Benzo(a)anthracene	**<0.5**	ug/kg		PNT 1.23
Benzo(b)Fluoranthene	**<0.5**	ug/kg		PNT 1.23
PAH4 (sum B(a)A+Cr+B(b)F+B(a)P)	**<2.0**	ug/kg	max 10.0	PNT 1.23

Multiresidue (GC-MS/MS)

Procedure: PNT 1.13 **Unit:** mg/kg

Determination	Result	Determination	Result	Determination	Result
* 2,4-Methoxychlor	<0.010	2-Phenylphenol(OPP)	<0.010	Acetochlor	<0.010
Acrinathrin	<0.010	Alachlor	<0.010	* Aldrin	<0.010
* Ametryn	<0.010	Anthraquinone	<0.010	Atrazine	<0.010
* Azinphos-ethyl	<0.010	* Azinphos-methyl	<0.010	Azoxystrobin	<0.010
Benalaxyl	<0.010	Benfluralin	<0.010	* Bifenox	<0.010
Bifenthrin	<0.010	* Biphenyl	<0.010	Boscalid	<0.010
* Bromacil	<0.010	Bromfenvinphos-ethyl	<0.010	Bromfenvinphos-methyl	<0.010
Bromophos-ethyl	<0.010	Bromophos-methyl	<0.010	Bromopropylate	<0.010

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Bupirimate	<0.010	Buprofezin	<0.010	* Carbaryl	<0.010
* Carbofuran	<0.010	Carbophenothion	<0.010	Carfentrazone-ethyl	<0.010
Chlorantraniliprole	<0.010	Chlorbenside	<0.010	Chlordane (cis+trans)	<0.010
Chlorfenapyr	<0.010	Chlorfenson	<0.010	Chlorfenvinphos	<0.010
Chlorobenzilate	<0.010	Chloroneb	<0.010	* Chlorothalonil	<0.010
Chlorpropham	<0.010	Chlorpyrifos	<0.010	Chlorpyrifos-methyl	<0.010
Chlorthal-dimethyl	<0.010	Chlorthiophos	<0.010	Chlozolinate	<0.010
Clomazone	<0.010	Coumaphos	<0.010	Cyfluthrin (sum of isomers)	<0.010
* Cyhalofop-butyl	<0.010	Cypermethrin (sum of isomers)	<0.010	* Cyproconazole	<0.010
Cyprodinil	<0.010	Deltamethrin	<0.010	Di-allate	<0.010
Diazinon	<0.010	* Dichlobenil	<0.010	Dichlofluanid	<0.010
* Dichlorvos	<0.010	Dicloran	<0.010	* Dicofol p,p	<0.010
Dieldrin	<0.010	Difenoconazole	<0.010	Diflufenican	<0.010
Dimethachlor	<0.010	* Dimethenamid	<0.010	* Dimethoate	<0.010
Diphenamid	<0.010	Diphenylamine	<0.010	* Disulfoton	<0.010
* Diuron	<0.010	Edifenphos	<0.010	Endosulfan (alpha+beta+sulphate)	<0.010
Endosulfan alpha	<0.010	Endosulfan beta	<0.010	Endosulfan sulfate	<0.010
Endrin	<0.010	* Endrin aldehyde	<0.010	* Endrin ketone	<0.010
EPN	<0.010	Ethalfluralin	<0.010	Ethion	<0.010
* Ethofumesate	<0.010	Ethylan 1,1-dichloro-2,2-bis(4-ethylphenyl)ethane	<0.010	* Etofenprox	<0.010
* Etoxazole	<0.010	* Etridiazole	<0.010	* Etrimfos	<0.010
* Fenamidone	<0.010	* Fenamiphos	<0.010	Fenarimol	<0.010

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* Fenazaquin	<0.010	Fenchlorphos	<0.010	Fenitrothion	<0.010
Fenpropathrin	<0.010	Fenson	<0.010	Fenthion	<0.010
Fenvalerate	<0.010	Fipronil	<0.010	Fluazifop-butyl	<0.010
Fluchloralin	<0.010	Flucythrinate	<0.010	Fludioxonil	<0.010
Flumioxazin	<0.010	Fluquinconazole	<0.010	Fluridone	<0.010
Flusilazole	<0.010	* Fluvalinate-Tau	<0.010	* Folpet (+Folpet deg.)	<0.010
Fonofos	<0.010	* Formothion	<0.010	Haloxifop-methyl (incl.H.p-methyl)	<0.010
Haloxyfop-etotyl	<0.010	* HCH (alpha+beta+delta)	<0.010	HCH alpha	<0.010
* HCH beta	<0.010	HCH delta	<0.010	Heptachlor	<0.010
Heptachlor (+heptachlor epoxide)	<0.010	Heptachlor epoxide	<0.010	* Heptenophos	<0.010
* Hexachlorobenzene	<0.010	* Hexazinone	<0.010	Iodofenphos	<0.010
* Iprodione	<0.010	Isazofos	<0.010	* Isodrin	<0.010
* Isofenphos	<0.010	* Isofenphos-methyl	<0.010	Isopropalin	<0.010
Kresoxim-methyl	<0.010	Lambda-Cyhalothrin	<0.010	* Lenacil	<0.010
Leptophos	<0.010	* Lindane (HCH-g)	<0.010	* Linuron	<0.010
Malathion	<0.010	* Mefenpyr-diethyl	<0.010	Metazachlor	<0.010
Methacrifos	<0.010	Methidathion	<0.010	* Methoxychlor	<0.010
Metolachlor	<0.010	* Metribuzin	<0.010	* Mevinphos	<0.010
Myclobutanil	<0.010	* Nitralin	<0.010	Nitrofen	<0.010
* Nonachlor (cis+trans)	<0.010	Norflurazon	<0.010	* Nuarimol	<0.010
o,p´-DDD	<0.010	o,p´-DDE	<0.010	* o,p´-DDT	<0.010
Oxadiazon	<0.010	* Oxadixyl	<0.010	Oxyfluorfen	<0.010
* p,p´-DDD	<0.010	* p,p´-DDE	<0.010	* p,p´-DDT	<0.010
Paclobutrazol	<0.010	Parathion-ethyl	<0.010	Parathion-methyl	<0.010

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Determination	Result	Determination	Result	Determination	Result
Pebulate	<0.010	Penconazole	<0.010	Pendimethalin	<0.010
* Pentachloroanisole	<0.010	* Pentachlorobenzene	<0.010	Pentachlorobenzonitrile	<0.010
* Pentachlorothioanisole	<0.010	Permethrin (cis+trans)	<0.010	Phenothrin	<0.010
Phenthoate	<0.010	Phorate	<0.010	Phosalone	<0.010
Phosmet	<0.010	Piperonylbutoxide	<0.010	Pirimicarb	<0.010
Pirimiphos-ethyl	<0.010	Pirimiphos-methyl	<0.010	Pretilachlor	<0.010
* Prochloraz	<0.010	Procymidone	<0.010	* Prodiamine	<0.010
Profenofos	<0.010	* Profluralin	<0.010	* Prometryn	<0.010
Propachlor	<0.010	Propanil	<0.010	Propargite	<0.010
Propiconazole	<0.010	Propisochlor	<0.010	Propyzamide	<0.010
Prothiofos	<0.010	Pyraclofos	<0.010	Pyraflufen-ethyl	<0.010
Pyrazophos	<0.010	Pyridaben	<0.010	Pyridaphenthion	<0.010
Pyrifenox	<0.010	Pyrimethanil	<0.010	Pyriproxyfen	<0.010
Quinalphos	<0.010	* Quinoxyfen	<0.010	Quintozene	<0.010
* Resmethrin	<0.010	Simazine	<0.010	Sulfotep	<0.010
Sulprofos	<0.010	* Tebuconazole	<0.010	Tebufenpyrad	<0.010
Tecnazene	<0.010	Tefluthrin	<0.010	* Terbacil	<0.010
Terbufos	<0.010	* Terbumeton	<0.010	Terbuthylazine	<0.010
Terbutryn	<0.010	Tetrachloroaniline, 2	<0.010	Tetrachlorvinphos	<0.010
Tetraconazole	<0.010	Tetradifon	<0.010	* Tetramethrin	<0.010
Tolclofos-methyl	<0.010	Tolylfluanid	<0.010	Transfluthrin	<0.010
Triadimefon	<0.010	* Triadimenol	<0.010	Tri-allate	<0.010
Triazophos	<0.010	Trietazine	<0.010	Trifloxystrobin	<0.010
Trifluralin	<0.010	Vinclozolin	<0.010		

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ANALYSIS RESULTS

NOTES:
 # Results that are expressed as a sum have been calculated prior to the rounding of decimals of each of the individually reported results.
 # LC: limit of quantification. PNT: Normalized Work Procedure.
 # The calculated uncertainty (U), in physicochemical parameters, is for a confidence level of 95% (k = 2), expressed in absolute value.

 # The values of indicated limits are for the category: Extra Virgin Olive Oil

 # Comments:

Note 1: Limits of Reg.CE 2568/91 and later mod.
Note 2: Limits of CODEX Stan 33-1981. Last rev.
Note 4: Limits specified in the Reglamento (CE) Nº 1881/2006.
T# The Maximum Residue Limits for Olives for oil are indicated (Reg.UE 396/2005 and post mod). According to Reg. Execution (UE) 2020/585, to calculate the MRL in olive oil, it will be multiplied by the transformation factor of the oil established in each Member State.
The indicated limits for polycyclic aromatic hydrocarbons are those indicated in Reg. (EC) No. 835. The results obtained in the determination of PHAS have not been corrected because the recovery factors are between 96-105%.

Vº Bº Jefe de Laboratorio

Mª Luisa Cuenca
QUÍMICO
Jefe de Laboratorio

Fdo: Mª Luisa Cuenca de los Cobos

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Documento firmado y certificado electrónicamente por: Laboratorio Juan Antonio Tello SL. CIF:B23603988