



APRC
Aromatic Plant Research Center

LABORATORY REPORT

SAMPLE NAME: Neroli

BOTANICAL NAME: *Citrus aurantium var. amara*

COMPANY NAME: ACHS

COMPANY LOT #: 35114R

Column: ZB5 (60 m length × 0.25 mm inner diameter × 0.25 μm film thickness)

Instrument: Shimadzu GCMS-QP2010 Ultra

Carrier gas: Helium 80 psi

Temperature ramp: 2 degrees Celsius per minute up to 260-degree Celsius

Split ratio: 30:1

Sample preparation: 5% w/v solution with Dichloromethane

Interpretation on sample:

This oil meets the standard profile of *Citrus aurantium var. amara*.

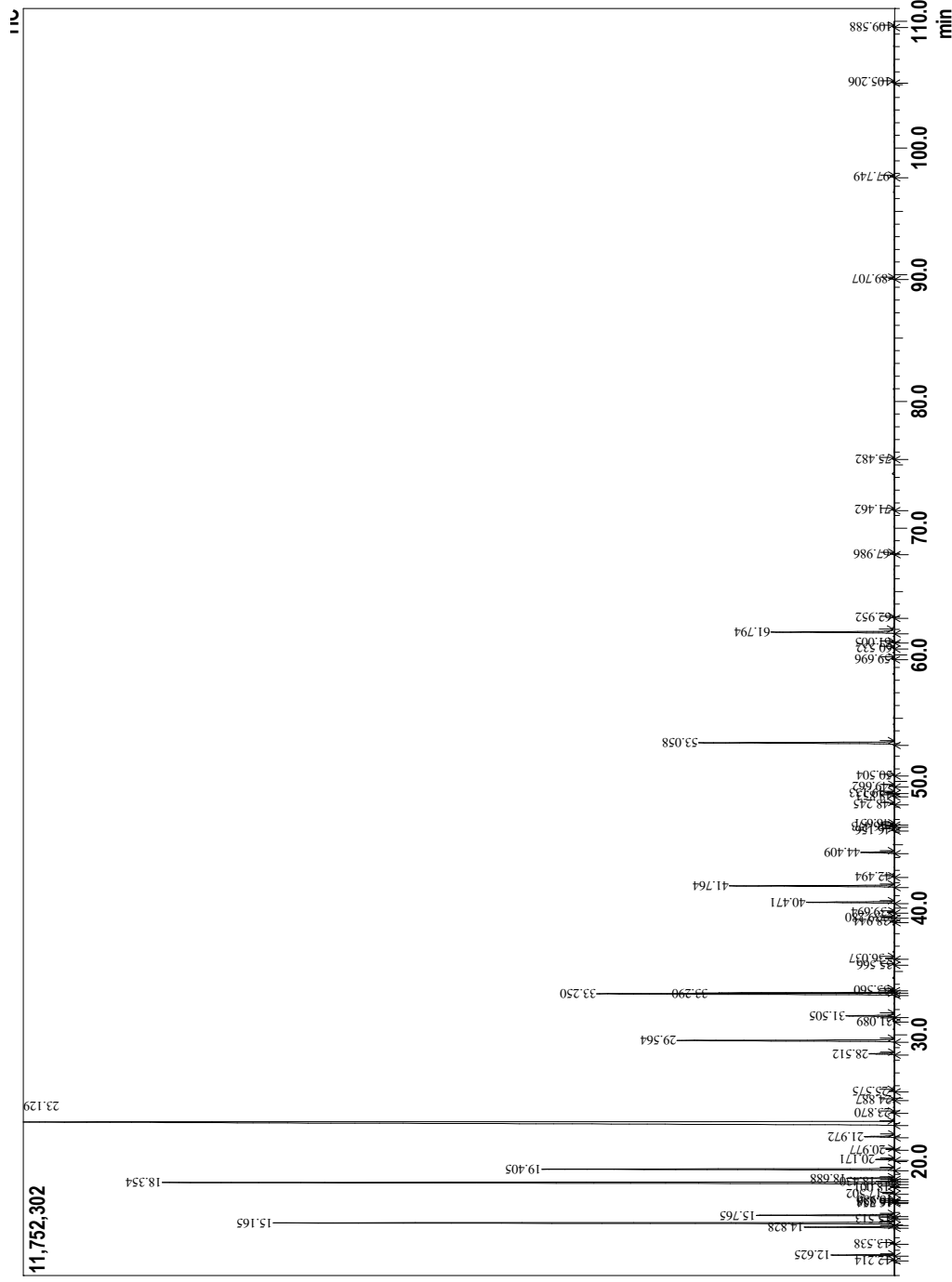
Analyzed by: Dr. Prabodh Satyal

Reviewed by: Ambika Poudel

Issued Date: 11/29/2018

Sample Information

Analyzed by : Dr. Prabodh Satyal
 Analyzed : 11/28/2018 11:45:11 PM
 Sample Type : Essential Oil
 Sample Name : Neroli
 Lot# : 35114R
 Injection Volume : 0.10



Comments:
 The analysis of this Neroli batch sample meets the expected chemical profile of authentic essential oil of Citrus aurantium var. Amara.

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Reviewed by: Ambika Poudel

AROMATIC PLANT RESEARCH CENTER PHYSICAL CONSTANTS REPORT

Oil Name: Neroli

Botanical Name: *Citrus aurantium L.*, syn. *Citrus amara Link*, syn. *Citrus bigaradia Loisel*, syn. *Citrus vulgaris Risso*

Lot #: 35114R

Organoleptic Information	
Appearance	Liquid, clear
Color	Yellow, amber
Odour	Floral, sweet, citrus, orange blossom, herbal

Physical Constants Information (at 20 °C)			
Tests	Observed	ISO 3517:2012(E)	Comments
Specific Gravity	0.86598	Tunisia and Morocco Origin: 0.863 to 0.876 Egypt origin : 0.870 to 0.880	Fits Tunisia and Morocco spec
Refractive Index	1.47051	Tunisia and Morocco Origin: 1.464 to 1.474 Egypt origin : 1.465 to 1.472	Fits both spec
Optical Rotation	9.44	Tunisia and Morocco Origin: +2° to +12° Egypt origin : +2° to +11°	Fits both spec

Comments: Fits APRC spec and ISO 3517:2012€ specifications.

Reviewed by: Sophia Wax

Date: 11/27/2018



American College Of Healthcare Sciences

5940 SW Hood Ave
Portland, OR 97239

Client Sample ID: Neroli essential oil 35114R
PAL Sample ID: P183140-01
Sample Type:

Report Number: P183140
Report Date: November 02, 2018
Client Project ID:
Sample Date: 10/22/2018
Received Date: 10/23/2018
Extraction Date: 10/25/2018

Certificate of Analysis

Analysis Date	Analyte	Amount Detected	LOQ (mg/kg)	Notes	Analysis Date	Analyte	Amount Detected	LOQ (mg/kg)	Notes
Modified EPA 8270D (GC-MS/MS)									
10/26/2018	2,6-Dichlorobenzamide	ND	0.50		10/26/2018	a-BHC	ND	0.50	
10/26/2018	Acetochlor	ND	0.50		10/26/2018	Alachlor	ND	0.50	
10/26/2018	Aldrin	ND	0.50		10/26/2018	Ametryn	ND	0.50	
10/26/2018	b-BHC	ND	0.50		10/26/2018	Benfluralin	ND	0.50	
10/26/2018	Bifenthrin	ND	0.50		10/26/2018	Bromopropylate	ND	0.50	
10/26/2018	Buprofezin	ND	0.50		10/26/2018	Captan	ND	10	
10/26/2018	Chlordane	ND	0.50		10/26/2018	Chloroneb	ND	0.50	
10/26/2018	Chlorothalonil	ND	0.50		10/26/2018	Chlorpropham	ND	0.50	
10/26/2018	Chlorpyrifos	ND	0.50		10/26/2018	Chlorpyrifos-methyl	ND	0.50	
10/26/2018	cis-Nonachlor	ND	0.50		10/26/2018	Cyfluthrin	ND	2.5	
10/26/2018	Cypermethrin	ND	2.5		10/26/2018	Dacthal	ND	0.50	
10/26/2018	d-BHC	ND	0.50		10/26/2018	Deltamethrin	ND	2.5	
10/26/2018	Diazinon	ND	0.50		10/26/2018	Dichlobenil	ND	0.50	
10/26/2018	Dichlorofenthion	ND	0.50		10/26/2018	Dichlorvos	ND	0.50	
10/26/2018	Diclofop-methyl	ND	0.50		10/26/2018	Dicloran	ND	2.5	
10/26/2018	Dicofol	ND	0.50		10/26/2018	Dieldrin	ND	0.50	
10/26/2018	Dimethenamid	ND	0.50		10/26/2018	Diphenamid	ND	0.50	
10/26/2018	Diphenylamine	ND	0.50		10/26/2018	Disulfoton	ND	0.50	
10/26/2018	Dithiopyr	ND	0.50		10/26/2018	Endosulfan I	ND	1.0	
10/26/2018	Endosulfan II	ND	1.0		10/26/2018	Endosulfan sulfate	ND	1.0	
10/26/2018	Endrin	ND	0.50		10/26/2018	Endrin aldehyde	ND	0.50	
10/26/2018	Endrin ketone	ND	0.50		10/26/2018	Esfenvalerate	ND	0.50	
10/26/2018	Ethalfuralin	ND	0.50		10/26/2018	Ethofumesate	ND	0.50	
10/26/2018	Ethoprop	ND	0.50		10/26/2018	Ethoxyquin	ND	0.50	
10/26/2018	Etoxazole	ND	0.50		10/26/2018	Etridiazole	ND	0.50	
10/26/2018	Fenarimol	ND	0.50		10/26/2018	Fenoxaprop-ethyl	ND	0.50	
10/26/2018	Fenvalerate	ND	0.50		10/26/2018	Fipronil	ND	0.50	
10/26/2018	Fluazifop-p-butyl	ND	0.50		10/26/2018	Fludioxonil	ND	0.50	
10/26/2018	Fluroxypyr-meptyl	ND	0.50		10/26/2018	Flutolanil	ND	0.50	
10/26/2018	g-BHC	ND	0.50		10/26/2018	Heptachlor	ND	0.50	
10/26/2018	Heptachlor epoxide	ND	0.50		10/26/2018	Hexachlorobenzene	ND	0.50	
10/26/2018	Kresoxim-methyl	ND	0.50		10/26/2018	lambda-Cyhalothrin	ND	1.0	
10/26/2018	Malathion	ND	0.50		10/26/2018	Mefenoxam	ND	0.50	
10/26/2018	Methoxychlor	ND	0.50		10/26/2018	Metolachlor	ND	0.50	
10/26/2018	MGK-264	ND	0.50		10/26/2018	Myclobutanil	ND	0.50	
10/26/2018	Napropamide	ND	0.50		10/26/2018	o-Phenylphenol	ND	0.50	
10/26/2018	Oxadiazon	ND	0.50		10/26/2018	Oxyfluorfen	ND	0.50	
10/26/2018	p,p'-DDD	ND	0.50		10/26/2018	p,p'-DDE	ND	0.50	
10/26/2018	p,p'-DDT	ND	0.50		10/26/2018	Parathion-methyl	ND	0.50	
10/26/2018	PCA	ND	0.50		10/26/2018	PCB	ND	0.50	



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Certificate of Analysis
(Continued)

Analysis Date	Analyte	Amount Detected	LOQ (mg/kg)	Notes	Analysis Date	Analyte	Amount Detected	LOQ (mg/kg)	Notes
Modified EPA 8270D (GC-MS/MS) (Continued)									
10/26/2018	PCNB	ND	0.50		10/26/2018	Pendimethalin	ND	0.50	
10/26/2018	Pentachlorophenyl methyl sulfide	ND	0.50		10/26/2018	Permethrin	ND	2.5	
10/26/2018	Procymidone	ND	0.50		10/26/2018	Prodiamine	ND	0.50	
10/26/2018	Pronamide	ND	0.50		10/26/2018	Propachlor	ND	0.50	
10/26/2018	Pyriproxyfen	ND	0.50		10/26/2018	Quinoxifen	ND	0.50	
10/26/2018	Spirodiclofen	ND	0.50		10/26/2018	Tetraconazole	ND	0.50	
10/26/2018	Tetradifon	ND	0.50		10/26/2018	trans-Nonachlor	ND	0.50	
10/26/2018	Trifluralin	ND	0.50		10/26/2018	Vinclozalin	ND	0.50	
Modified EPA 8321B (HPLC MS-MS)									
10/28/2018	3-Hydroxycarbofuran	ND	0.50		10/26/2018	Abamectin	ND	0.50	
10/28/2018	Acephate	ND	0.50		10/26/2018	Acetamiprid	ND	0.50	
10/26/2018	Acibenzolar-S-methyl	ND	1.0		10/28/2018	Aldicarb	ND	0.50	
10/28/2018	Aldicarb Sulfone	ND	0.50		10/28/2018	Aldicarb Sulfoxide	ND	0.50	
10/28/2018	Allethrin	ND	0.50		10/28/2018	Ametoctradin	ND	0.50	
10/26/2018	Atrazine	ND	0.50		10/28/2018	Azinphos-ethyl	ND	0.50	
10/26/2018	Azinphos-methyl	ND	1.0		10/26/2018	Azoxystrobin	ND	0.50	
10/28/2018	Bendiocarb	ND	0.50		10/28/2018	Bensulide	ND	0.50	
10/26/2018	Bifenazate	ND	0.50		10/28/2018	Bitertanol	ND	0.50	
10/26/2018	Boscalid	ND	0.50		10/28/2018	Bromacil	ND	0.50	
10/26/2018	Carbaryl	ND	0.50		10/26/2018	Carbendazim	ND	0.50	
10/28/2018	Carbofuran	ND	0.50		10/26/2018	Carfentrazone-ethyl	ND	0.50	
10/26/2018	Chlorantraniliprole	ND	0.50		10/28/2018	Clethodim	ND	1.0	
10/26/2018	Clofentezine	ND	0.50		10/26/2018	Clothianidin	ND	0.50	
10/28/2018	Cyanazine	ND	0.50		10/26/2018	Cyantraniliprole	ND	0.50	
10/28/2018	Cyazofamid	ND	0.50		10/28/2018	Cycloate	ND	1.0	
10/26/2018	Cyflufenamid	ND	0.50		10/26/2018	Cyflumetofen	ND	0.50	
10/26/2018	Cymoxanil	ND	0.50		10/26/2018	Cyprodinil	ND	0.50	
10/28/2018	Cyromazine	ND	0.50		10/26/2018	DCPMU	ND	0.50	
10/26/2018	Diazoxon	ND	0.50		10/26/2018	Difenoconazole	ND	0.50	
10/26/2018	Diiflubenzuron	ND	0.50		10/26/2018	Dimethoate	ND	0.50	
10/28/2018	Dimethomorph	ND	0.50		10/26/2018	Dinotefuran	ND	0.50	
10/28/2018	Disulfoton sulfone	ND	0.50		10/26/2018	Diuron	ND	0.50	
10/26/2018	Dodine	ND	0.50		10/28/2018	d-Phenothrin	ND	0.50	
10/26/2018	Emamectin Benzoate	ND	0.50		10/28/2018	Ethion	ND	0.50	
10/26/2018	Famoxadone	ND	0.50		10/28/2018	Famphur	ND	0.50	
10/28/2018	Fenamidone	ND	0.50		10/28/2018	Fenamiphos sulfone	ND	0.50	
10/28/2018	Fenamiphos sulfoxide	ND	0.50		10/28/2018	Fenazaquin	ND	0.50	
10/26/2018	Fenbuconazole	ND	0.50		10/26/2018	Fenbutatin oxide	ND	0.50	



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Certificate of Analysis
(Continued)

Table with 10 columns: Analysis Date, Analyte, Amount Detected, LOQ (mg/kg), Notes, Analysis Date, Analyte, Amount Detected, LOQ (mg/kg), Notes. Contains two columns of pesticide analysis data.

Handwritten signature of Rick Jordan



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Analysis Date	Analyte	Amount Detected	LOQ (mg/kg)	Notes	Analysis Date	Analyte	Amount Detected	LOQ (mg/kg)	Notes
Modified EPA 8321B (HPLC MS-MS) (Continued)									
10/26/2018	Sulfentrazone	ND	0.50		10/26/2018	Sulfoxaflor	ND	0.50	
10/26/2018	Tebuconazole	ND	0.50		10/26/2018	Tebuconazole	ND	0.50	
10/28/2018	Tebuthiuron	ND	0.50		10/26/2018	Terbacil	ND	0.50	
10/28/2018	Terbutylazine	ND	0.50		10/28/2018	Terbutryn	ND	0.50	
10/26/2018	Thiabendazole	ND	0.50		10/26/2018	Thiacloprid	ND	0.50	
10/26/2018	Thiamethoxam	ND	0.50		10/28/2018	Thiobencarb	ND	0.50	
10/28/2018	Thiodicarb	ND	0.50		10/26/2018	Thiophanate methyl	ND	0.50	
10/26/2018	Tolfenpyrad	ND	0.50		10/26/2018	Triadimefon	ND	0.50	
10/26/2018	Triadimenol	ND	1.0		10/26/2018	Trifloxystrobin	ND	0.50	
10/26/2018	Triflumizole	ND	0.50						

Notes and Definitions

Notes	Definition
LOQ	Limit of Quantitation
ND	Not Detected
*	Not included under current scope of accreditation

The results contained in this report relate only to the items tested.
The results reflect the condition of the samples as received by PAL.
Samples will be stored for a minimum of 60 days after the final report is issued, as described in our Quality Manual.
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PAL is accredited to ISO/IEC 17025:2005 Standard, by PJLA, Accreditation #64422, Testing.