Southern Cross University

Southern Cross Plant Science
ANALYTICAL RESEARCH LABORATORY

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CERTIFICATE OF ANALYSIS

SAMPLE NAME	Anise Oil China Star		
FORM	Oil		
CUSTOMER NAME	Buckley & Phillips Aromatics		
CERTIFICATION DATE	08 May 2019		
CUSTOMER REFERENCE	Lot: BY201903071 ref:18637		
ARL JOB #	A190965	**LAB REF. #**	ARL1902495
ANALYSIS	GCFID - Area%	**METHOD**	ARL-TM101-3

TEST	ISO 11016** SPECIFICATION	RESULTS	TEST METHOD
	Area %		
α-pinene	0.1 - 1.5	0.57	ARL-TM101-3*
α-phellandrene	<0.7	0.35	
limonene	0.2 - 6.0	0.36	
linalool	0.2 - 2.5	1.15	
α-terpineol	<0.3	0.10	
methyl chavicol	0.6 - 6	3.28	
cis-anethole	0.1 - 1.0	0.22	
p-anisaldehyde	0.1 - 0.5	0.44	
trans-anethole	86.0 - 93.0	89.34	
β-caryophyllene	<0.8	0.44	
trans-α-bergamotene	0.06 - 0.6	0.47	
cis-α-bergamotene	0.04 - 0.09	0.08	
foeniculin	0.1 - 3.0	0.89	

*** Assay by GC (FID detection –area percent report)**

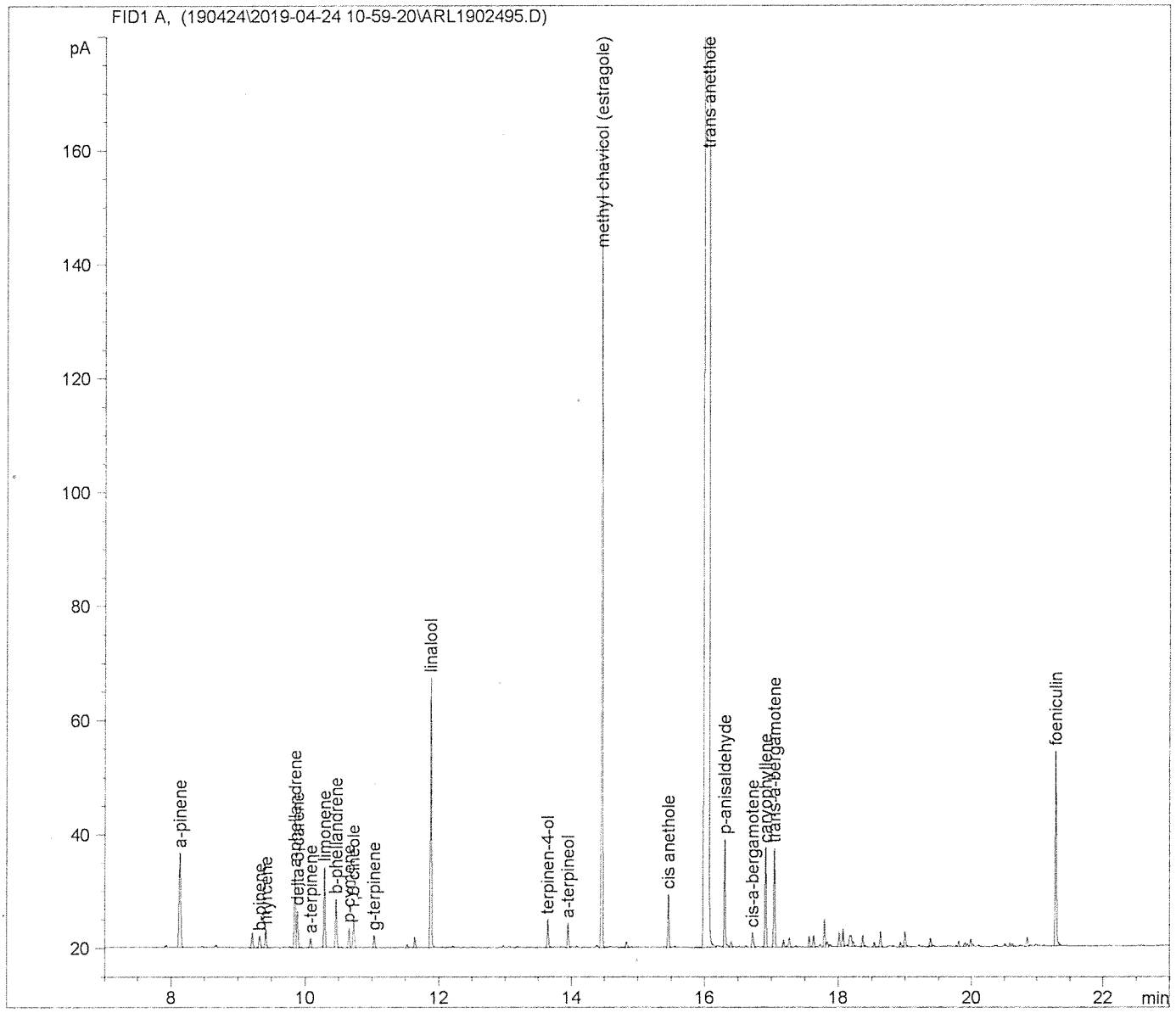
**** ISO 11016 - Oil of star anise (Illicium verum Hook. f.)**

Samantha Morrow
ANALYTICAL OFFICER

Ashley Dowell
MANAGER - ARL

Data File C:\DATA\GC-3\DATA\190424\2019-04-24 10-59-20\ARL1902495.D
Sample Name: Anise China Star BY201903071 ref 18637

Acq. Operator	: Ana & Regan	Seq. Line	: 5
Acq. Instrument	: GC-3	Location	: Vial 6
Injection Date	: 4/24/2019 2:06:27 PM	Inj	: 1
		Inj Volume	: 1 µl
Acq. Method	: C:\DATA\GC-3\DATA\190424\2019-04-24 10-59-20\ANISEED (ISO).M		
Last changed	: 4/1/2019 11:25:15 AM by Jeanette Balindong		
Analysis Method	: C:\DATA\GC-3\METHODS\ANISEED (ISO).M		
Last changed	: 4/1/2019 11:25:15 AM by Jeanette Balindong		
Method Info	: Method to analyse essential oils		



02/05/19

Data File C:\DATA\GC-3\DATA\190424\2019-04-24 10-59-20\ARL1902495.D
Sample Name: Anise China Star BY201903071 ref 18637

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 4/1/2019 11:24:48 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	8.132	BB	0.0279	29.82931	0.56616	a-pinene
2	9.324	BV	0.0254	3.27992	0.06225	b-pinene
3	9.415	VB	0.0212	4.23535	0.08039	myrcene
4	9.848	VV	0.0215	18.20790	0.34559	a-phellandrene
5	9.886	VB	0.0216	9.02796	0.17135	delta-3-carene
6	10.080	BB	0.0208	2.20033	0.04176	a-terpinene
7	10.288	VB	0.0209	18.71653	0.35524	limonene
8	10.459	BB	0.0221	12.16131	0.23082	b-phellandrene
9	10.647	BV	0.0209	4.55077	0.08637	p-cymene
10	10.721	VV	0.0235	8.48873	0.16112	1,8-cineole
11	11.030	VB	0.0208	2.86783	0.05443	g-terpinene
12	11.875	BB	0.0205	60.79581	1.15391	linalool
13	13.638	VV	0.0212	7.00017	0.13286	terpinen-4-ol
14	13.947	VV	0.0198	5.51136	0.10461	a-terpineol
15	14.456	VB	0.0193	172.87701	3.28122	methyl chavicol (estragole)
16	15.454	VV	0.0195	11.69540	0.22198	cis anethole
17	16.057	BV	0.0396	4706.87109	89.33678	trans anethole
18	16.299	BV	0.0194	23.37022	0.44357	p-anisaldehyde
19	16.715	BV	0.0237	4.10863	0.07798	cis-a-bergamotene
20	16.910	VV	0.0211	23.33735	0.44294	caryophyllene
21	17.041	VV	0.0224	24.62413	0.46737	trans-a-bergamotene
22	21.283	BB	0.0215	46.84888	0.88920	foeniculin
Totals :				5200.60598	98.7079	

*** End of Report ***

02/05/19.