

## Certificate of Analysis

Product: Cardamom Oil - Certified Organic ACO/USDA  
 Botanical Name: *Elettaria cardamomum*  
 Origin: Papua New Guinea  
 Plant part used: Pod  
 Extraction method: Steam distilled

<b>Physical data</b>	<b><u>Specification<sup>1</sup></u></b>	<b><u>Result</u></b>
Appearance:	Clear mobile flowing liquid	Complies
Colour:	Pale straw yellow to light yellow	Complies
Odour:	Characteristic: cardamom	Complies
Relative Density at 20°C:	0.9200 to 0.9490	0.9288
Refractive Index at 20°C:	1.4590 to 1.4700	1.4632
Optical Rotation:	+18.00 <sup>0</sup> to +45.00 <sup>0</sup>	+24.80 <sup>0</sup>

### Chromatographic Profile

<b>Sample</b>	<b>Component</b>	<b>Specification<sup>2</sup> Peak Area<sup>1</sup> (%)</b>	<b>Result Peak Area<sup>1</sup> (%)</b>
<i>Elettaria cardamomum</i>	a-Pinene	Trace to 5	1.07
	Sabinene	Trace to 5	2.66
	b-Pinene	Trace to 5	0.31
	d-Limonene	1 to 9	2.04
	1,8-Cineole	16 to 43	33.01
	Linalool	1 to 8	3.48
	a-Terpineol	Trace to 8	1.55
	Linalyl acetate	Trace to 10	7.56
	a-Terpinyl acetate	25 to 52	41.13