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**TROPICAL BIOESSENCE SDN. BHD.**

## CERTIFICATE OF ANALYSIS

Product : Cinnamon Leaf Essential oil  
Botanical name : Cinnamomum zeylanicum Leaf Oil (Origin Malaysia)  
Product Code : CNEO 01  
Mfg Date : May 2025      Exp Date : May 2028      Batch no: 052521B  
Method : Steam Distillation

TEST	RESULT	STANDARD
Appearance	Clear, Light Yellow Coloured Fluid Liquid	Confirm
Odour	Odour of cinnamon	Confirm
Refractive index (25°C)	1.585	1.572 - 1.591
Specific gravity (25°C)	0.914	1.000 - 1.030
Optical Rotation	2.10°	- 2.0° - +1.0°
Solubility	Complies	Soluble in Alcohol
<b>Heavy Metals Content</b>		
Arsenic (mg/kg)	N.D (<0.1ppm)	BP 2013, Appendix IID, ICP-AES
Lead (mg/kg)	N.D (<0.5ppm)	BP 2013, Appendix IID, ICP-AES
Cadmium (mg/kg)	N.D (<0.1ppm)	BP 2013, Appendix IID, ICP-AES
Mercury (mg/kg)	N.D (<0.1ppm)	BP 2013, Appendix IID, ICP-AES
<b>Microbial Content</b>		
<i>Pseudomonas aeruginosa</i>	Absent in 1g	BP 2013, Appendix XVIB, 1
<i>Staphylococcus aureus</i>	Absent in 1g	BP 2013, Appendix XVIB, 1
<i>Total Combined Yeast and Mould</i>	ND(<10) CFU/g	BP 2013, Appendix XVIB, 2
<i>Total Aerobic Microbial Count</i>	ND(<10) CFU/g	BP 2013, Appendix XVIB, 2
<b>Assay by GC</b>		
Cineol	1.30%	Max 3.0 %
Linalol	2.50%	1.0 - 6.0%
Beta Caryophyllene	1.90%	1.0 - 4.0%
Safrole	0.01%	Max 0.5%
Trans Cinnamic Aldehyd	71.70%	55.0 - 71.7%
Eugenol	1.80%	Max 7.0%

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