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**TROPICAL BIOESSENCE SDN. BHD.**

## CERTIFICATE OF ANALYSIS

Product : Sweet Marjoram Essential oil  
Botanical name : Origanum majorana leaves (Origin Egypt)  
Product Code : GREO 01  
Mfg Date : May 2025 Exp Date : May 2028 Batch no: 052547B  
Method : Steam Distillation

TEST	RESULT	STANDARD
Appearance	Light Yellow Liquid	Confirm
Odour	Herbaceous	Confirm
Refractive index (25°C)	1.463	1.460 - 1.475
Specific gravity (25°C)	0.898	0.890 - 0.920
Optical Rotation	-6.0°	-6.0° - -4.0°
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>		
terpinen-1-ol-4	23.00%	20.00 - 35.00%
sabinene hydrate(e)+linalol	14.50%	10.00 - 20.00%
α-terpinene	8.90%	10.00 - 20.00%
sabinene	7.50%	5.00 - 10.00%
α-terpineol	3.50%	2.00 - 8.00%

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