



Certificate of Analysis

ZINGIBER CASSUMUNAR (PLAI) ROOT OIL

Product code	: BLPEO1195
Sample designation	: Plai Essential Oil
Botanical name	: Zingiber cassumunar
CAS#	: 8007-08-7 ; 84696-15-1
FEMA#	: 2657
EINECS#	: 283-634-2
Lot number	: 11952112
Geographic origin	: Thailand
Type of culture	: Organic
Part of the plant used	: Roots/Rhizomes
Extraction method	: Steam distillation
Manufacturing date	: December 2021
Re-test date	: November 2024



ORG/SC/2202/001041

Sensory Check

Feature	Reference	Result
Appearance:	Colorless to pale yellow amber liquid	meets
Fragrance:	Refreshing, earthy, slightly medicinal, peppery-ginger eucalyptus aroma	meets
Color:	Colorless to pale yellow amber	meets
Note classification:	Middel to Top Note	

Analytical Check

Properties	Specifications	Results
Refractive index	1.465 - 1.505 @ 20°C	1.494
Specific gravity (g/mL)	0.880 - 0.925 @ 20°C	0.897
Optical Rotation (°)	+63° to +78°	Conforms
Solubility	Soluble in alcohols and fixed oils Insoluble in water	Conforms
Allergens	Linalool CAS No. 5989-27-5 Limonene CAS No. 78-70-6	<1.0% <1.0%

Microbial Analyses	Specifications	Standard	Results
Aerobic Mesophilic Bacterial Count	< 100 CFU/g	ISO 21149	Conforms
Yeast and Mould	< 10 CFU/g	ISO 16212	Conforms
Candida albicans	ABSENT / 1g	ISO 18416	Conforms
Escherichia coli	ABSENT / 1g	ISO 21150	Conforms
Pseudomonas aeruginosa	ABSENT / 1g	ISO 22717	Conforms
Staphylococcus aureus	ABSENT / 1g	ISO 12718	Conforms

Heavy Metal Test	Specifications	Standards	Results
Lead: Pb (mg/kg or ppm)	< 10 ppm	n/a	Conforms
Arsenic: As (mg/kg or ppm)	< 2 ppm	n/a	Conforms
Mercury: Hg (mg/kg or ppm)	< 1 ppm	n/a	Conforms

Stability and Storage

Keep in tightly closed containers in a cool and dry place, protected from sunlight. When stored for more than 36 months, quality should be checked before use.

As this is electronically generated document, hence no signature required.

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