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CERTIFICATE of ANALYSIS (COA)

COMMON NAME	Pepper, Black
LATIN NAME	*Piper nigrum*
COUNTRY OF ORIGIN	Madagascar
TYPE	Essential Oil
EXTRACTION METHOD	Steam Distilled
PLANT PART	Dried Fruits
USE	Aromatherapy, Natural Perfumery, Cosmetics

LOT #	8
MANUFACTURING DATE	January 2026
BEST BY DATE	January 2029

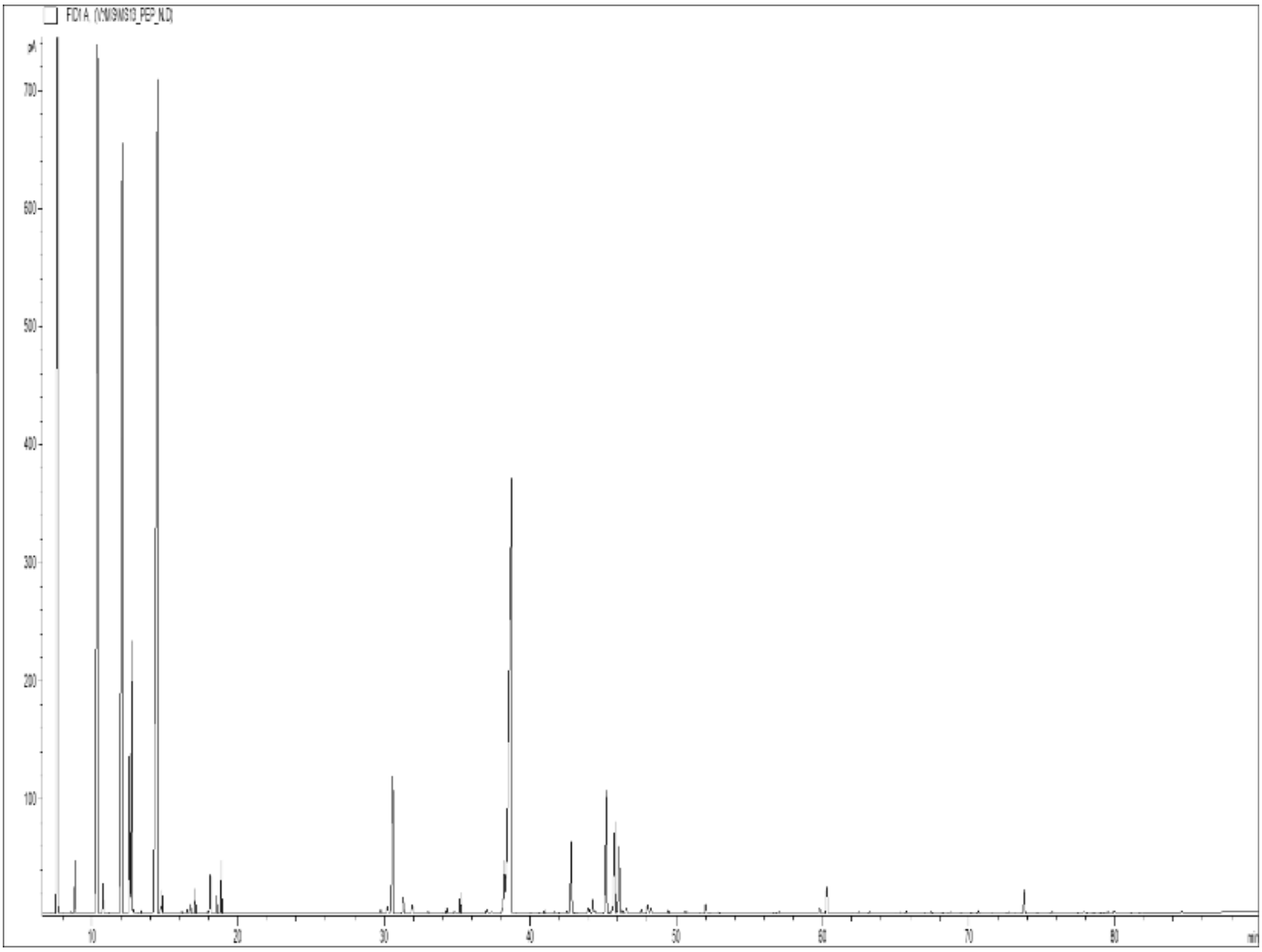
	SPECIFICATIONS (Range)	
SPECIFIC GRAVITY @20˚C	0.864 – 0.884	0.8808
REFRACTIVE INDEX @20˚C	1.475 – 1.490	1.4835
OPTICAL ROTATION @20˚C	-18° to +20°	-0.20°

PHYSICAL APPEARANCE	Transparent liquid	*Conforms*
COLOR	Colorless to pale yellow/green	*Conforms*
ODOR	Sharp, stimulating and spicy, the aroma of freshly ground pepper.	*Conforms*
SOLUBILITY	Soluble in alcohol and fixed oils	
SPECIAL USE INSTRUCTIONS	Dilute before use. Refrigerate to preserve freshness.	

PRIMARY CONSTITUENTS	Beta-caryophyllene (10-25%), Limonene (10-25%), Alpha-pinene (8-26%).

THIRD PARTY LAB ANALYSIS (GCMS)

CHROMATOGRAPHIC PROFILE :



Peaks	RT (min)	Compound name	%	Standard (%)	Allergens (%)
1	7.65	**alpha-PINENE**	**14.37**	**8.0 - 26.0**	14.37
2	7.68	alpha-THUYENE	0.06		
3	8.58	alpha-FENCHENE	0.01		
4	8.84	CAMPHENE	0.42		
5	10.38	**beta-PINENE**	**13.47**	**7.0 - 15.0**	13.47
6	10.76	**SABINENE**	**0.24**	**≤ 4.0**	
7	11.17	TERPENIC COMPOUND	0.01		
8	12.08	**delta3-CARENE**	**14.05**	**7.0 - 16.0**	
9	12.58	beta-MYRCENE	2.26		
10	12.73	**alpha-PHELLANDRENE**	**2.66**		
11	12.79	psi-LIMONENE	0.03		
12	12.86	TERPENIC COMPOUND	0.04		
13	13.16	o-CYMENE	0.01		
14	13.34	1,4-CINEOLE	0.03		
15	14.49	**LIMONENE**	**20.52**	**10.0 - 25.0**	20.52
16	14.72	beta-PHELLANDRENE	0.26		
17		1,8-CINEOLE			
18	16.14	cis-beta-OCIMENE	0.02		
19	16.54	TERPENIC COMPOUND	0.05		
20	16.74	gamma-TERPINENE	0.10		
21	17.08	trans-beta-OCIMENE	0.25		
22	17.95	m-CYMENE	0.03		
23	18.10	p-CYMENE	0.42		
24	18.53	ISOTERPINOLENE	0.20		
25	18.86	TERPINOLENE	0.58		0.58
26	29.77	alpha-CUBEBENE	0.06		
27	29.88	4,8-TERPINOLENE EPOXIDE	0.01		
28	30.22	ELEMENE ISOMER	0.10		
29	30.58	**delta-ELEMENE**	**2.31**	**0.50 - 4.5**	
30	31.29	ISOLEDENE	0.29		
31	31.92	**alpha-COPAENE**	**0.12**	**≤ 0.50**	
32	33.00	CAMPHOR	0.03		0.03
33	34.04	SESQUITERPENE	0.02		
34	34.27	alpha-GURJUNENE	0.09		
35	34.81	beta1-CUBEBENE	0.04		
36	34.97	SESQUITERPENE	0.02		
37	35.20	LINALOOL	0.26		0.26
38	37.02	epsilon-CADINENE	0.10		
39	37.33	SESQUITERPENE	0.06		
40	38.24	beta-ELEMENE	1.08		
41		alpha-GUAIENE			
42	38.71	**beta-CARYOPHYLLENE**	**16.46**	**10.0 - 25.0**	16.46
43	38.90	SESQUITERPENE	0.01		

Peaks	RT (min)	Compound name	%	Standard (%)	Allergens (%)
44	39.04	SESQUITERPENE	0.03		
45	39.33	SESQUITERPENE	0.01		
46	40.00	SESQUITERPENE	0.03		
47	40.54	CADINA-3,5-DIENE	0.02		
48	40.97	GERMACRENE A	0.05		
49	41.64	trans-PINOCARVEOL	0.02		
50	41.95	SESQUITERPENE	0.02		
51	42.53	SESQUITERPENE	0.05		
52	42.80	alpha-HUMULENE	1.13		
53	43.05	SESQUITERPENE	0.02		
54	43.18	gamma-SELINENE	0.03		
55	43.99	SESQUITERPENE	0.14		
56	44.26	alpha-TERPINEOL	0.20		0.20
57	44.40	LEDENE	0.05		
58	44.73	SESQUITERPENE	0.01		
59	45.21	**GERMACRENE D**	**2.12**	**1.0 - 6.5**	
60	45.34	SESQUITERPENE	0.02		
61	45.47	SESQUITERPENE	0.02		
62	45.58	SESQUITERPENE	0.04		
63	45.78	**beta-SELINENE**	**1.50**	**1.0 - 4.5**	
64	46.08	**alpha-SELINENE**	**1.03**	**0.50 - 3.0**	
65	46.29	beta-BISABOLENE	0.06		
66	46.57	BICYCLOGERMACRENE	0.07		
67	47.17	SESQUITERPENE	0.01		
68	47.61	E,E-alpha-FARNESENE	0.07		
69	48.01	delta-CADINENE	0.16		
70	48.24	alpha-PANASINSEN	0.11		
71	49.02	SESQUITERPENE	0.01		
72	49.43	SESQUITERPENE	0.05		
73	49.73	MYRTENOL	0.01		
74	50.00	SESQUITERPENE	0.02		
75	50.56	trans-SABINOL	0.03		
76	50.69	SESQUITERPENE Mw=202	0.03		
77	51.57	COMPOUND Mw=126	0.02		
78	51.99	GERMACRENE B	0.14		
79	52.24	CALAMENENE	0.02		
80	52.93	p-CYMENE-8-OL	0.02		
81	56.63	PIPERITENONE	0.02		
82	56.78	alpha-CALACORENE	0.01		
83	57.01	HUMULENE EPOXIDE	0.03		
84	58.03	CUBEBOL	0.01		
85	59.78	ISOCARYOPHYLLENE OXIDE	0.09		
86	60.29	**CARYOPHYLLENE OXIDE**	**0.40**	**≤ 1.0**	

Peaks	RT (min)	Compound name	%	Standard (%)	Allergens (%)
87	62.04	OXIDE COMPOUND	0.02		
88	62.45	SESQUITERPENOL	0.02		
89	63.22	EPOXY-6,7-HUMULENE	0.02		
90	65.04	SESQUITERPENOL	0.01		
91	65.29	ELEMOL	0.02		
92	65.75	SESQUITERPENOL	0.04		
93	67.00	SESQUITERPENIC COMPOUND	0.01		
94	67.45	SPATHULENOL	0.03		
95	68.18	SESQUITERPENIC COMPOUND	0.02		
96	68.56	SESQUITERPENIC COMPOUND	0.02		
97	68.73	SESQUITERPENIC COMPOUND	0.02		
98	69.44	EUGENOL	0.01		0.01
99	70.70	2-ACETYLCYCLOPENTANONE	0.05		
100	72.59	SESQUITERPENIC COMPOUND	0.02		
101	72.72	SESQUITERPENIC COMPOUND	0.02		
102	73.65	SESQUITERPENIC COMPOUND	0.02		
103	73.81	beta-NOOTKATOL	0.35		
104	75.58	CARYOPHYLLA-2,6-DIEN-5-alpha-OL ISOMER	0.02		
105	75.72	CARYOPHYLLA-2,6-DIEN-5-alpha-OL	0.02		
106	77.89	SESQUITERPENIC COMPOUND	0.02		
107	79.53	AROMATIC COMPOUND	0.02		
108	79.99	AROMATIC COMPOUND	0.04		
109	84.56	COMPOUND Mw=220	0.02		
		TOTAL	**99.96**		**65.90**

This Essential Oil is a 100% pure and natural product. It does not contain any artificial ingredients or adulteration of any kind to the best of our knowledge.