



## Certificate of Analysis

### Ginger CO2-to extract (organic)



Art. No. CO2-GING-10

batch no. : 602.118, lab no. 29903  
 production : August 2020 - Retest: August 2023  
 raw material : *Zingiber officinale* Roscoe - Rhizome, dried, from organic farming  
 country of origin of raw material : Nigeria  
 country of origin of product : Germany  
 D/E - ratio : 17 - 22 kg raw material yield 1 kg product.

#### Sensory Check

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feature	reference	result
Appearance:	clear brown, liquid oil	meets
Smell/Taste:	with pungent taste and characteristic smell	meets

#### Analytical Check

feature	method	limits	value	unit
Content of essential oil	21.006.01, Distillation gravimetric	30-50	39,5	% (g/100g)
Zingerone	21.027.05, HLPC	< 1	0,03	%
6-Gingerol	21.027.05, HLPC	14-20	15,6	%
8-Gingerol	21.027.05, HLPC	n.s.	3,6	%
6-Shogaol	21.027.05, HLPC	n.s.	1,5	%
10-Gingerol	21.027.05, HLPC	n.s.	5,2	%
8-Shogaol	21.027.05, HLPC	n.s.	0,26	%
10-Shogaol	21.027.05, HLPC	n.s.	0,16	%
Sum of Gingerols	21.027.05, HLPC	n.s.	24,5	%
Sum of Shogaols	21.027.05, HLPC	< 5	1,9	%
Sum of pungent compounds	21.027.05, HLPC	24-35	26,4	%
Relative composition of the essential oil	GCMS, 100% method			
Neral/Geranial	GCMS, 21.225.01	n.s.	5,2(1,8+3,4)	%
ar-Curcumene	GCMS, 21.225.01	n.s.	5,9	%
alpha Zingiberene	GCMS, 21.225.01	n.s.	34,4	%
alpha Farnesene	GCMS, 21.225.01	n.s.	9,1	%
beta Bisabolene	GCMS, 21.225.01	n.s.	6,6	%
Sesquiphellandrene	GCMS, 21.225.01	n.s.	13,5	%
Refractive index (20°C)	21.080.03 Abbe Refractometer	1,500-1,520	1,5066	
Density index (20°C)	21.024.03, Pycnometer	0,950-0,990	0,9711	g/m3
Content of water	21.220.01, Karl Fisher method	n.s.	0,97	%
Aflatoxin B1	21.193.02, HPLC	EC no. 1881/2006	meets (1,3)	ppb
Total aflatoxines B1, B2, G1, G2	21.193.02, HPLC	EC no. 1881/2006	meets (2,7)	ppb
Ochratoxin A	21.193.02, HPLC	EC no. 1881/2006	meets (0,36)	ppb
Pesticides		EC 396/2005+BNN	meets	
Monitoring of the substances*:				
Methyleugenol	GCMS	n.s.	n.d. (<0,01)	%

n.s. = not specified n.d. = not detected



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The product meets specification no. 014.018\_06\_AS and 66.219.05 specification.

Date of analysis: 2020.08.14

This computerized CoA has digital signature validated by MANUFACTURER QC.

The data in this report of analysis have been determined carefully and to the best of our knowledge. Depending on transport and storage conditions the indicated data can be subject to certain changes which are outside of our influence. Hence the report has not the meaning of a guaranty in the legal sense and does not dispense the customer from making his own quality control before using the product.