





Certificate of Analysis

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PRODUCT NAME 10-Shogaol

PART NUMBER 00019214

STANDARD TYPE Primary (P)

LOT NUMBER 00019214-519

REPORT NUMBER CDXA-RSS-8538-01

SAMPLE NUMBER CDXP-19-00158

DATE OF SAMPLE 02/25/2019

DATE OF RE-EVALUATION 01/05/2023

DATE OF REPORT 02/01/2023

CHEMICAL NAMES 4-Tetradecen-3-one, 1-(4-hydroxy-3-methoxyphenyl)-, (4E)-; trans-[10]-Shogaol

CHEMICAL FORMULA C₂₁H₃₂O₃

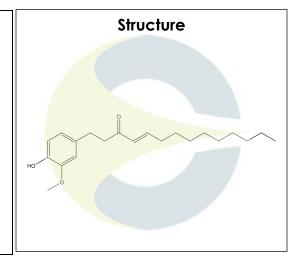
MOLECULAR WEIGHT (MW) 332.48

CHEMICAL FAMILY Gingerols

CAS NUMBER [104186-05-2]

EC#(EINECS) NA

RTECS NA



ANALYTICAL RESULTS

| TEST | METHOD | SPECIFICATION | RESULT | |
|---------------------------------|---|-------------------|-----------------------------|--|
| Adjusted Purity | NA | ≥ 85% | 98.5% | |
| HPLC | HPLC 0.700.10.2.METH22 NMR 30.1-04-1.0-000733 | | 98.7% Conforms to structure | |
| NMR | | | | |
| Mass Spectrum | 99.1-04-3.0-000126 | Conforms | Conforms | |
| Residual Solvent* | Residual Solvent* 99.1-CDXA-3.0-000621 | | MeOH 0.2% | |
| Water 0.700.12.37 Appearance NA | | NA | ND | |
| | | NA Yellow Oil/Wax | | |

*Testing performed at an ISO 17025 accredited subcontracted laboratory.

ADJUSTED PURITY: 98.5% IS BASED ON (100 - 0.2 SOLVENTS - 0.0 WATER) X 98.7% HPLC

STORAGE CONDITIONS

STORAGE +4 °C in a dry place.

EXPIRATION DATE 01/2028 under the above conditions.









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ANALYTICAL CONDITIONS

INSTRUMENT AGILENT 1260 HPLC UV-VIS (DAD);

AB-SCIEX 6600 TRIPLE TOF

COLUMN Phenomenex Luna C18(2) 150 x 2.00 mm, 5 μm particle size

MOBILE PHASE A - 0.1% Trifluoroacetic acid in Ultrapure water, B - Acetonitrile;

Isocratic 5% B for 5 minutes, then increasing to 95% B over 20 minutes. Hold at

95% B for 15 minutes, then decreasing to 5% B over 1 minute.

COLUMN TEMP. 60 °C

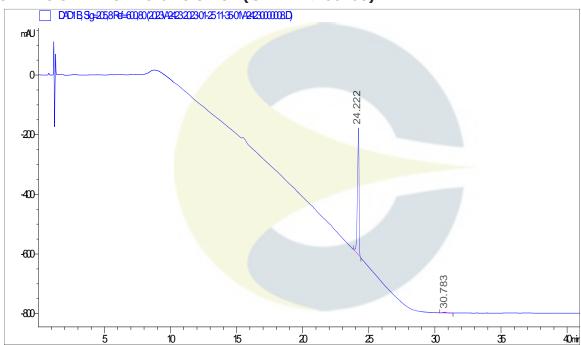
FLOW RATE 0.4 mL/minute

INJECTION VOL. 0.2 μL

INJECTION CONC. 1.0 mg/mL in Methanol

DETECTION $205 \pm 4 \text{ nm}$

HPLC CHROMATOGRAM OF 10-SHOGAOL (CDXP-19-00158)





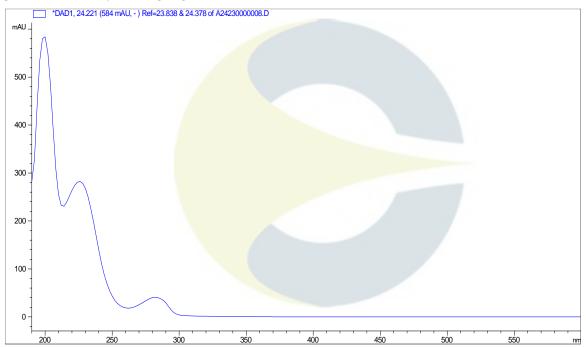




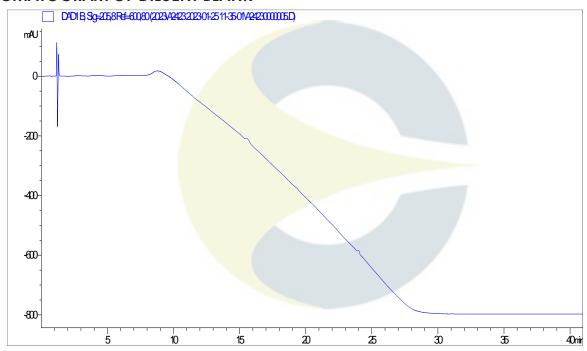
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UV SPECTRUM AT RT = 24.2 MINUTES



HPLC CHROMATOGRAM OF DILUENT BLANK





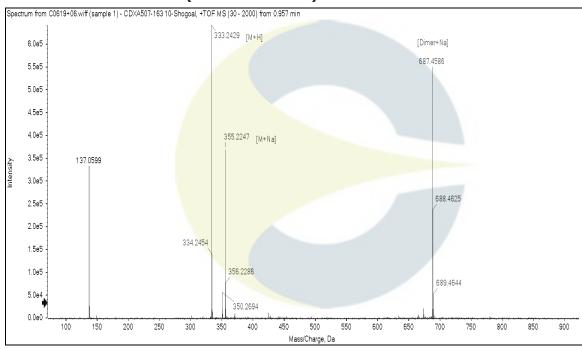




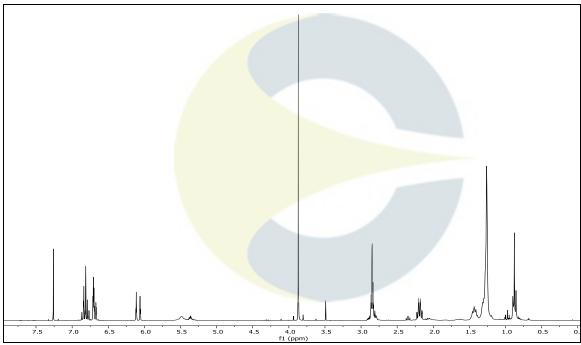
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MASS SPECTRUM OF 10-SHOGAOL (CDXP-19-00158)



¹H-NMR SPECTRUM OF 10-SHOGAOL (CDXP-19-00158) IN CDCl₃





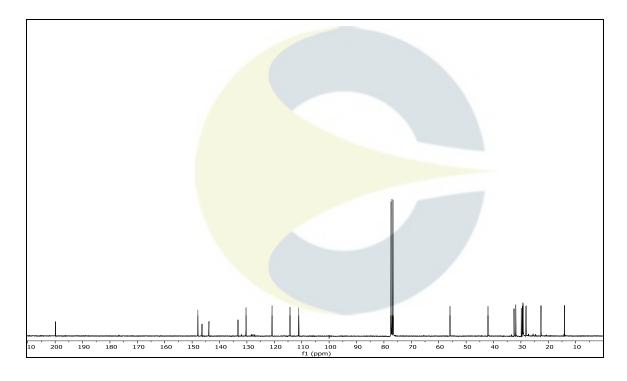




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¹³C-NMR SPECTRUM OF 10-SHOGAOL (CDXP-19-00158) IN CDCl₃





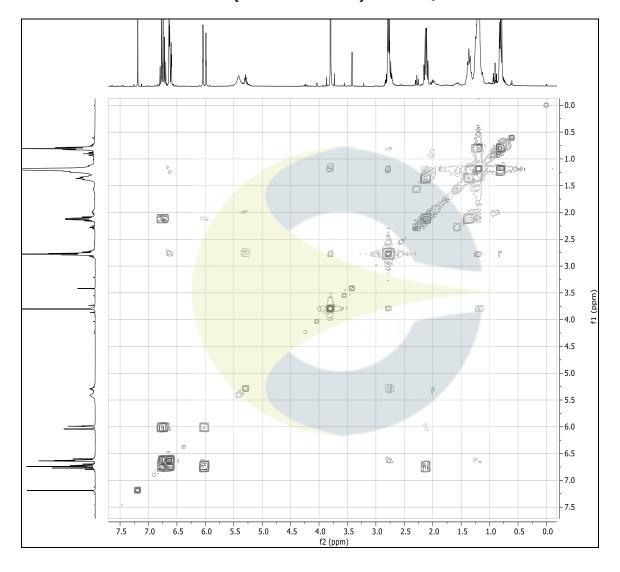




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COSY-NMR SPECTRUM OF 10-SHOGAOL (CDXP-19-00158) IN CDCI₃









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REVISION HISTORY

| <u>Revision History</u> | <u>Date of Revision</u> | <u>Document/Changes</u> |
|-------------------------|-------------------------|---|
| 00 | 03/19/2019 | New report |
| 01 | 02/01/2023 | Passed re-evaluation by HPLC, KF. Updated expiration date, analytical conditions, chromatograms, and results. |