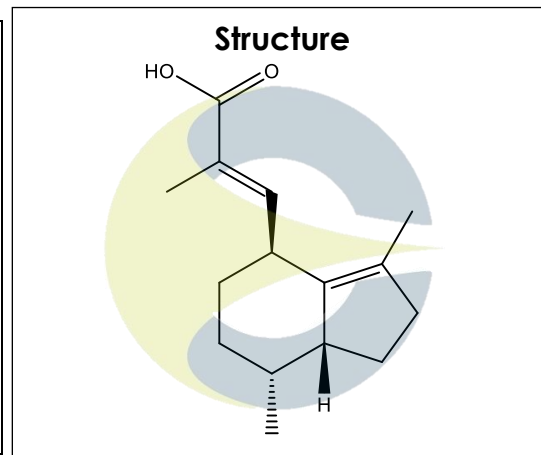


Certificate of Analysis
For Laboratory Use Only

PRODUCT NAME	Valerenic acid
PART NUMBER	00022150
STANDARD TYPE	Primary (P)
LOT NUMBER	00022150-302
REPORT NUMBER	CDXA-RSS-9723-00
SAMPLE NUMBER	CDXP-22-00191
DATE OF SAMPLE	03/07/2022
DATE OF REPORT	03/30/2022



CHEMICAL NAMES	(2E)-3-[(4S,7R,7aR)-2,4,5,6,7,7a-Hexahydro-3,7-dimethyl-1H-inden-4-yl]-2-methyl-2-propenoic acid; (-)-Valerenic acid
CHEMICAL FORMULA	C ₁₅ H ₂₂ O ₂
MOLECULAR WEIGHT (MW)	234.33
CHEMICAL FAMILY	Sesquiterpenes
CAS NUMBER	[3569-10-6]
EC#(EINECS)	609-163-8
RTECS	UD3357700

ANALYTICAL RESULTS

TEST	METHOD	SPECIFICATION	RESULT
Adjusted Purity	NA	≥ 85%	99.4%
HPLC	0.700.10.2.METH22	≥ 90%	99.9%
NMR	0.700.12.4	Conforms to structure	Conforms to structure
Mass Spectrum	0.700.12.27	Conforms	Conforms
Residual Solvent*	USP <467>	NA	Acetone: 4850 ppm
Water	0.700.12.37	NA	ND
Appearance	NA	NA	White powder

*Testing performed at an ISO 17025 accredited subcontracted laboratory.
 ADJUSTED PURITY: 99.4% IS BASED ON (100 - 0.5 SOLVENTS - 0.0 WATER) X 99.9% HPLC

STORAGE CONDITIONS

STORAGE	-20 °C in a dry place.
EXPIRATION DATE	03/2027 under the above conditions.

This document is the property of ChromaDex, Inc. and/or its relevant affiliates and contains confidential and proprietary material for the sole use of the intended recipient(s). Any review, use, distribution or disclosure by or to others is strictly prohibited.

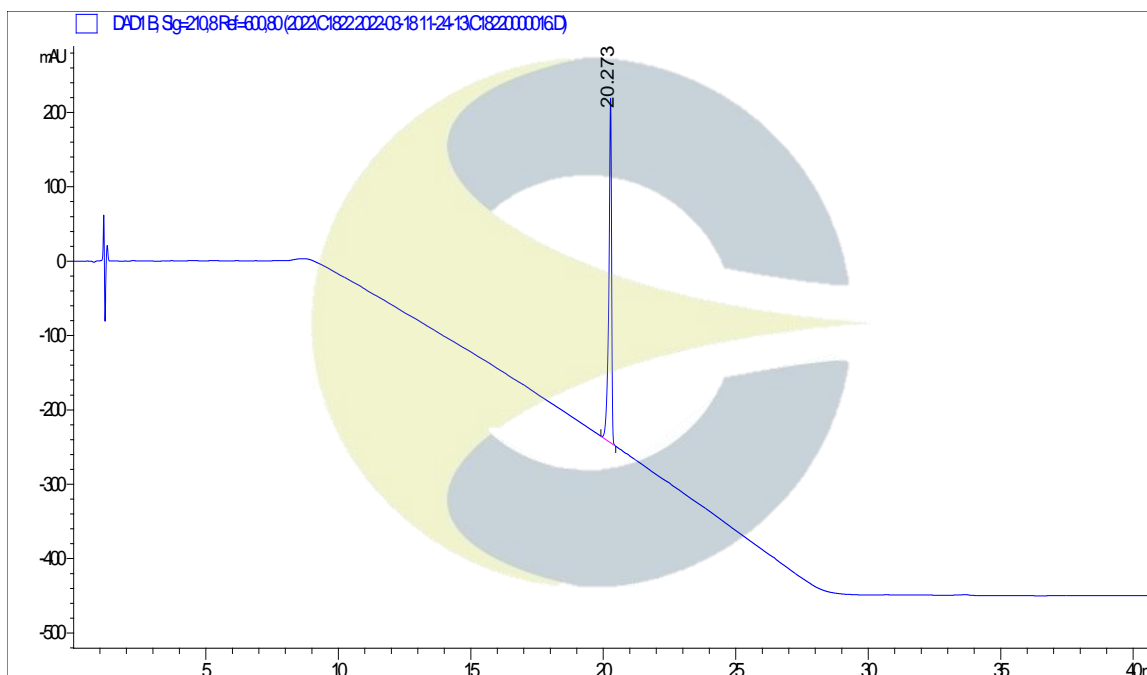
Certificate of Analysis

For Laboratory Use Only

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.	0.4 µL
INJECTION CONC.	1.0 mg/mL in Methanol
DETECTION	210 ± 4 nm

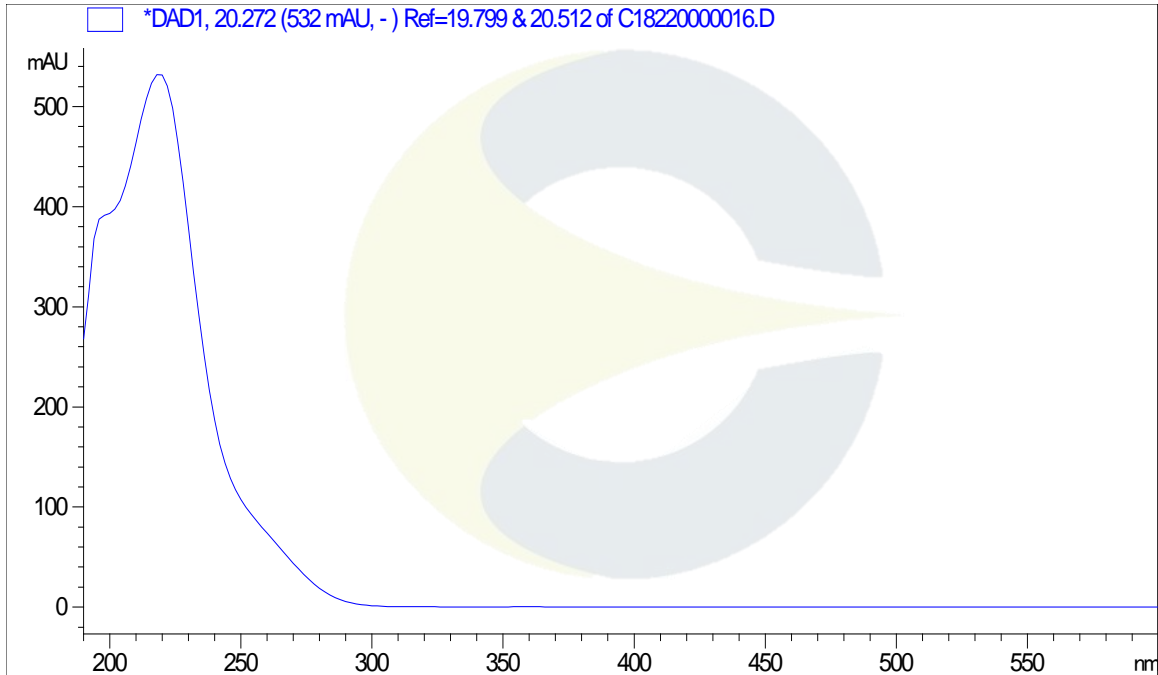
HPLC CHROMATOGRAM OF VALERENIC ACID (CDXP-22-00191)



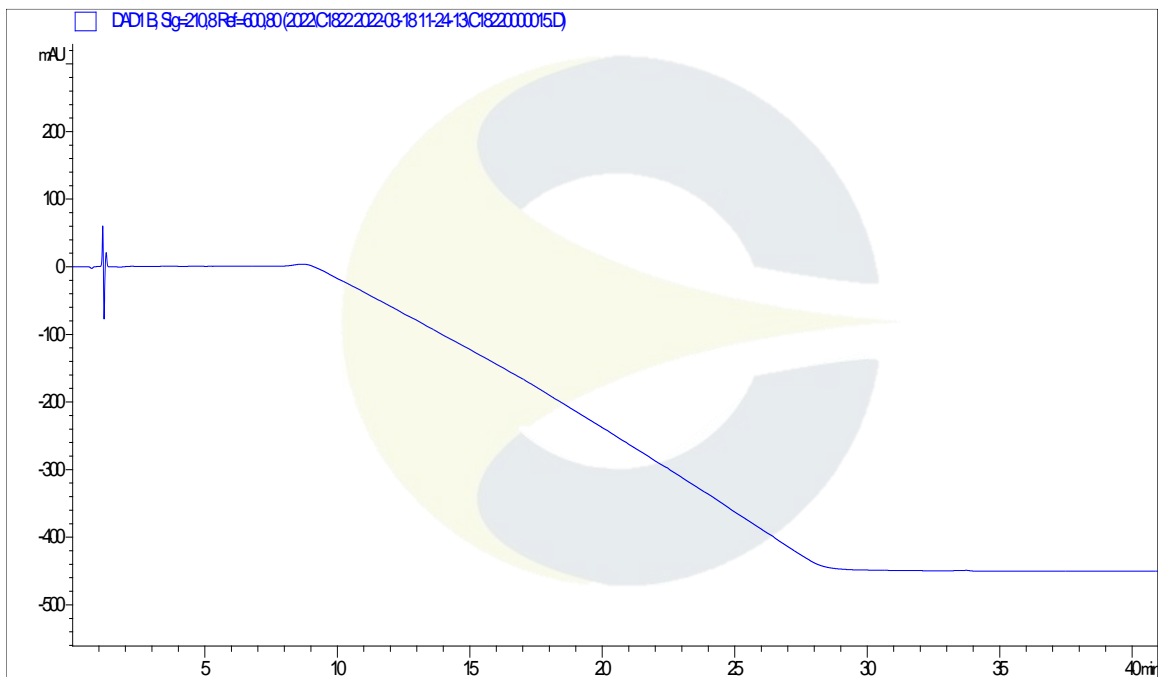
This document is the property of ChromaDex, Inc. and/or its relevant affiliates and contains confidential and proprietary material for the sole use of the intended recipient(s). Any review, use, distribution or disclosure by or to others is strictly prohibited.

Certificate of Analysis For Laboratory Use Only

UV SPECTRUM AT RT = 20.3 MINUTES



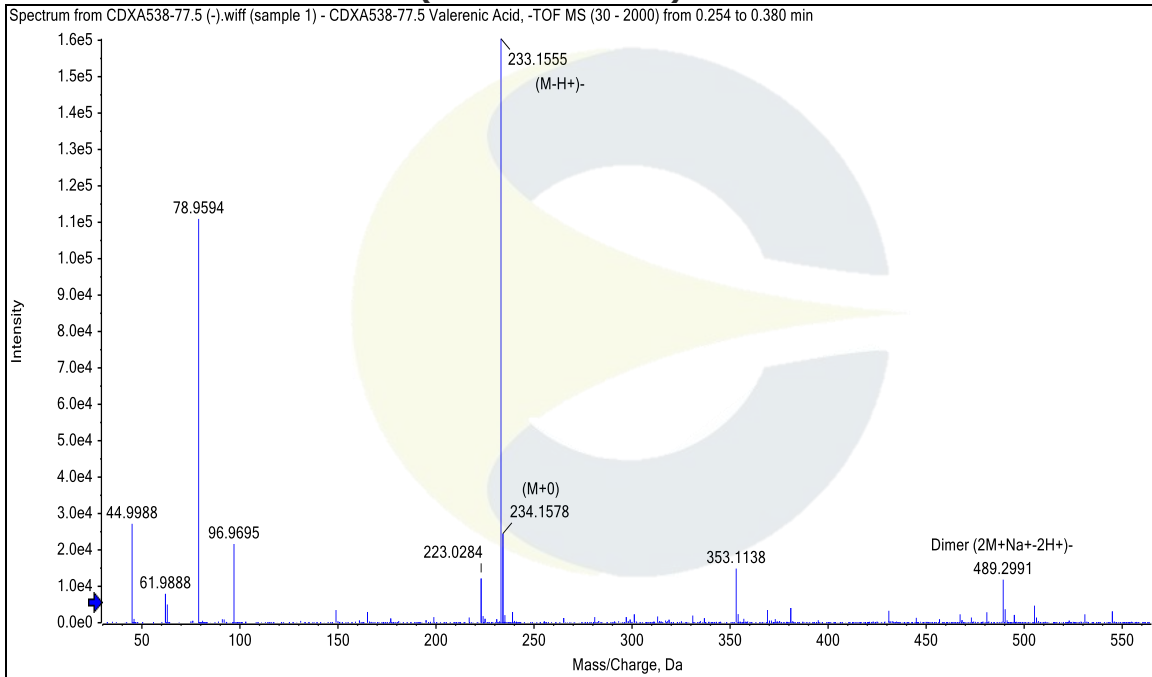
HPLC CHROMATOGRAM OF DILUENT BLANK



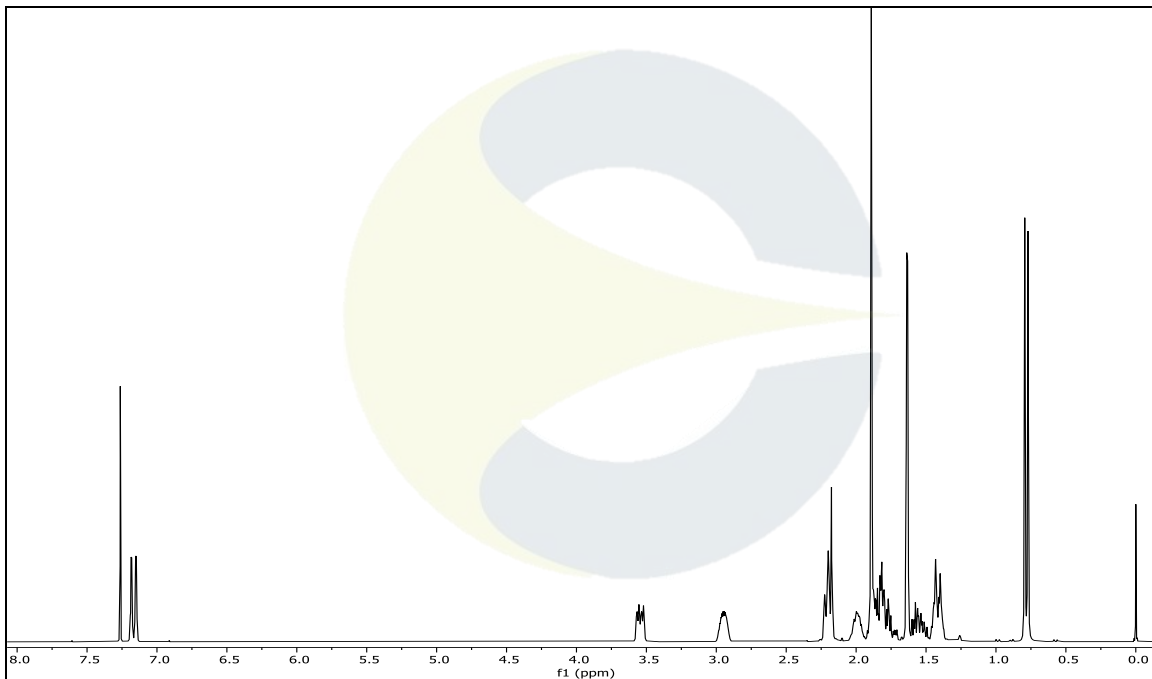
This document is the property of ChromaDex, Inc. and/or its relevant affiliates and contains confidential and proprietary material for the sole use of the intended recipient(s). Any review, use, distribution or disclosure by or to others is strictly prohibited.

Certificate of Analysis For Laboratory Use Only

MASS SPECTRUM OF VALERENIC ACID (CDXP-22-00191)

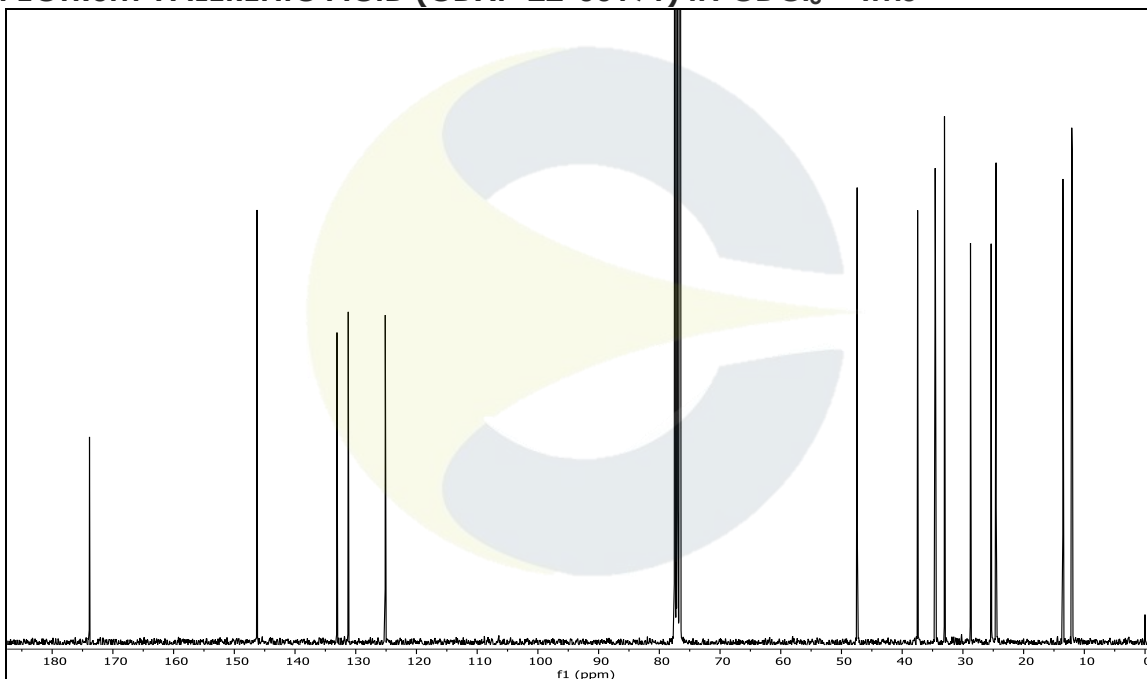


¹H-NMR SPECTRUM OF VALERENIC ACID (CDXP-22-00191) IN CDCl₃ + TMS

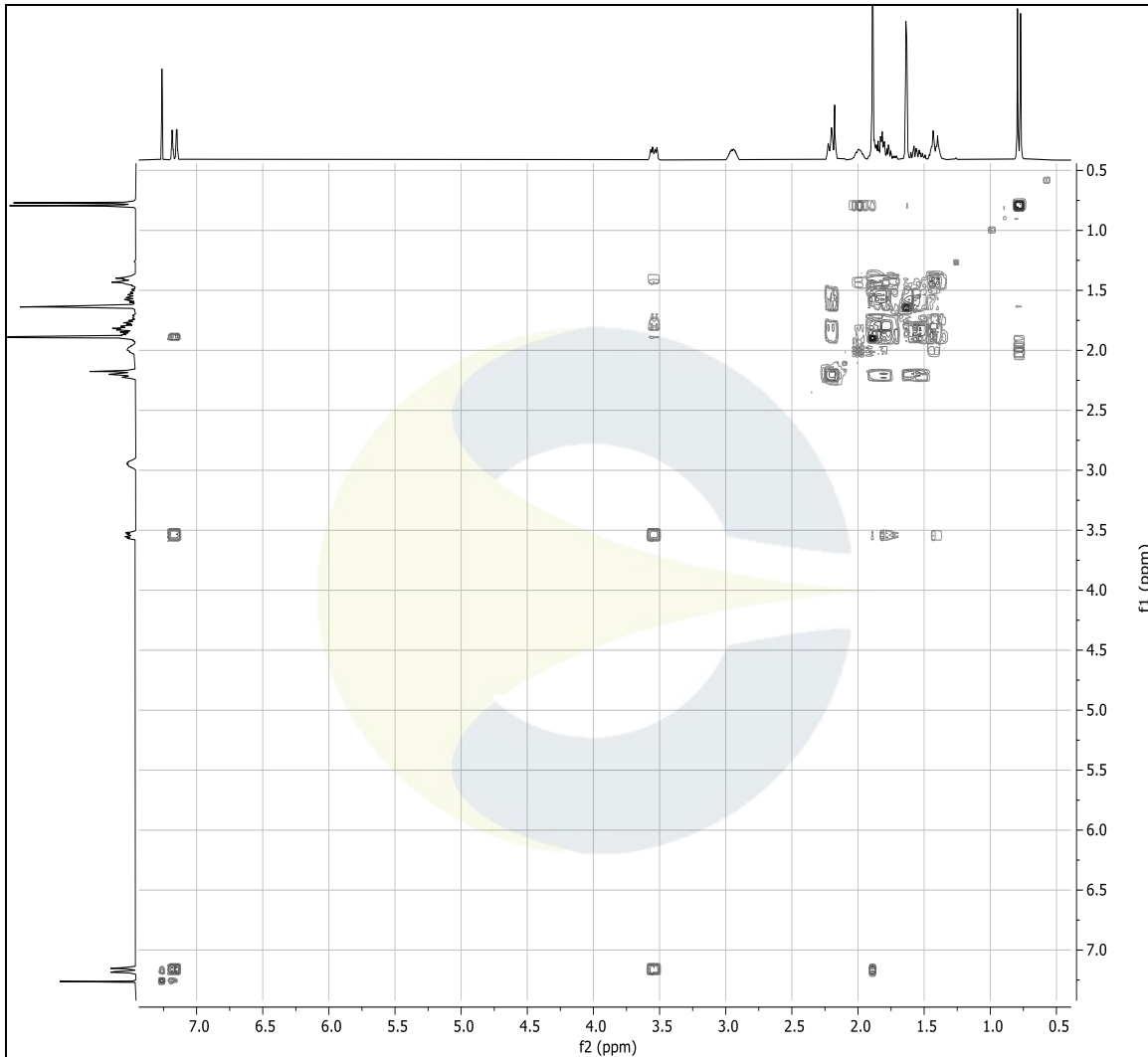


This document is the property of ChromaDex, Inc. and/or its relevant affiliates and contains confidential and proprietary material for the sole use of the intended recipient(s). Any review, use, distribution or disclosure by or to others is strictly prohibited.

¹³C-NMR SPECTRUM VALERENIC ACID (CDXP-22-00191) IN CDCl₃ + TMS



This document is the property of ChromaDex, Inc. and/or its relevant affiliates and contains confidential and proprietary material for the sole use of the intended recipient(s). Any review, use, distribution or disclosure by or to others is strictly prohibited.

COSY-NMR SPECTRUM OF VALERENIC ACID (CDXP-22-00191) IN CDCl₃ + TMS

REVISION HISTORY

<u>Revision History</u>	<u>Date of Revision</u>	<u>Document/Changes</u>
00	03/30/2022	New report

This document is the property of ChromaDex, Inc. and/or its relevant affiliates and contains confidential and proprietary material for the sole use of the intended recipient(s). Any review, use, distribution or disclosure by or to others is strictly prohibited.