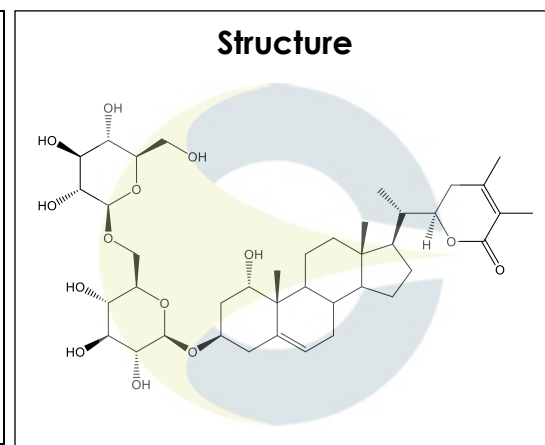


Certificate of Analysis

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PRODUCT NAME	Withanoside V
PART NUMBER	00023254
STANDARD TYPE	Primary (P)
LOT NUMBER	00023254-3C1
REPORT NUMBER	CDXA-RSS-9669-00
SAMPLE NUMBER	CDXP-22-00053
DATE OF SAMPLE	01/20/2022
DATE OF REPORT	02/14/2022



CHEMICAL NAMES	(1 α ,3 β ,22R)- 3-[(6-O- β -D-Glucopyranosyl- β -D-glucopyranosyl)oxy]-1,22-dihydroxy- ergosta-5,24-dien-26-oic acid δ -lactone
CHEMICAL FORMULA	C ₄₀ H ₆₂ O ₁₄
MOLECULAR WEIGHT (MW)	766.91
CHEMICAL FAMILY	Triterpenes
CAS NUMBER	[256520-90-8]
EC#(EINECS)	NA
RTECS	NA

ANALYTICAL RESULTS

TEST	METHOD	SPECIFICATION	RESULT
Adjusted Purity	NA	≥ 85%	99.1%
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	ND
Water	0.700.12.37	NA	0.8%
Appearance	NA	NA	White powder

*Testing performed at an ISO 17025 accredited subcontracted laboratory.

ADJUSTED PURITY: 99.1% IS BASED ON (100 - 0.0 SOLVENTS - 0.8 WATER) X 99.9% HPLC

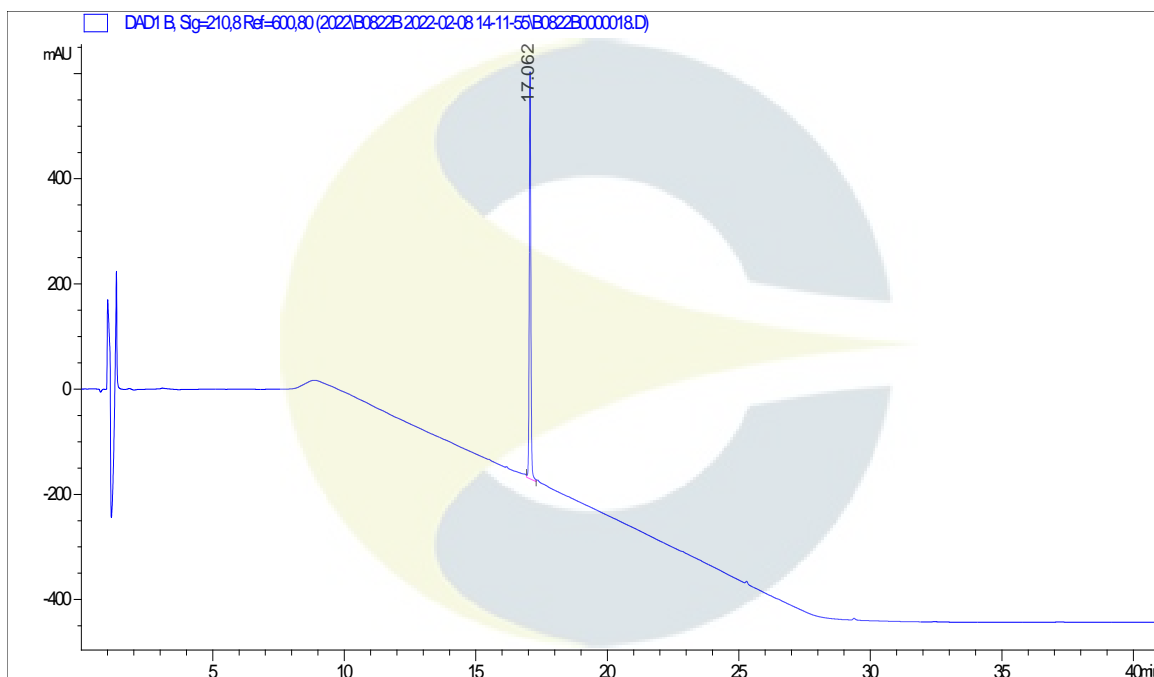
STORAGE CONDITIONS

STORAGE	+4 °C in a dry place.
EXPIRATION DATE	01/2027 under the above conditions.

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ANALYTICAL CONDITIONS

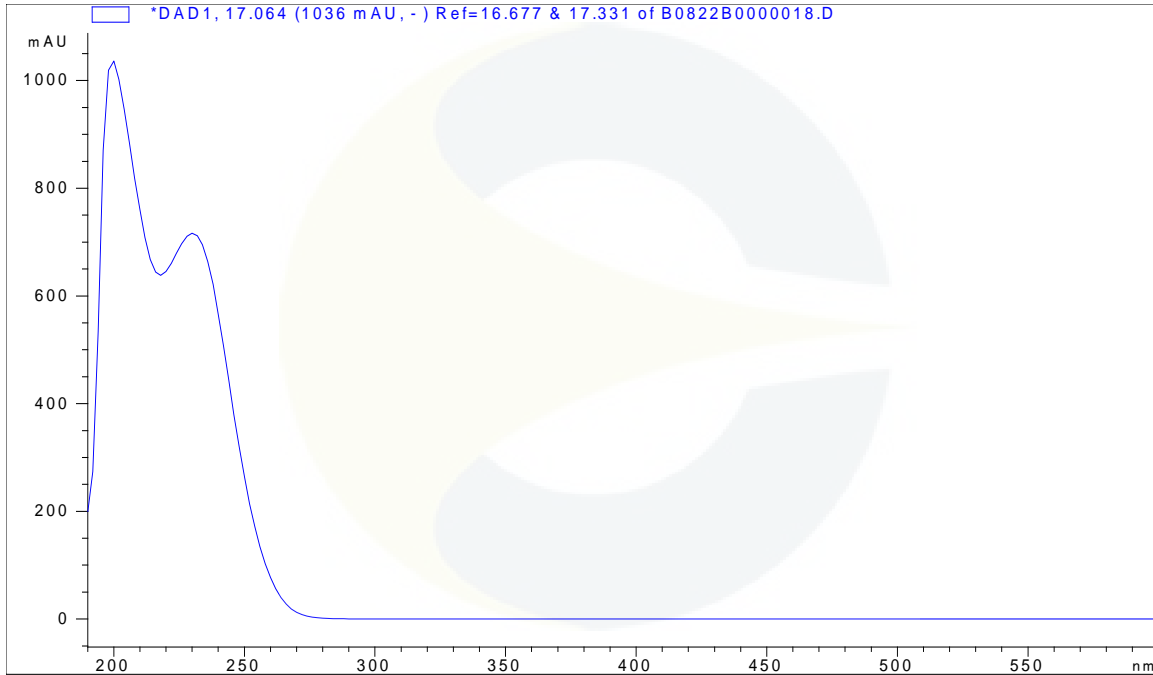
INSTRUMENT	AGILENT 1260 HPLC UV-VIS (DAD); AB-SCIEX 6600 TRIPLE TOF
COLUMN	Phenomenex Luna C18(2) 150 x 2.00 mm, 5 µm particle size
MOBILE PHASE	A - 0.1% Trifluoroacetic acid in Ultrapure water, B - Acetonitrile; Isocratic 5% B for 5 minutes, then increasing to 95% B over 20 minutes. Hold at 95% B for 15 minutes, then decreasing to 5% B over 1 minute.
COLUMN TEMP.	60 °C
FLOW RATE	0.4 mL/minute
INJECTION VOL.	2.0 µL
INJECTION CONC.	1.0 mg/mL in Methanol
DETECTION	210 ± 4 nm

HPLC CHROMATOGRAM OF WITHANOSIDE V (CDXP-22-00053)


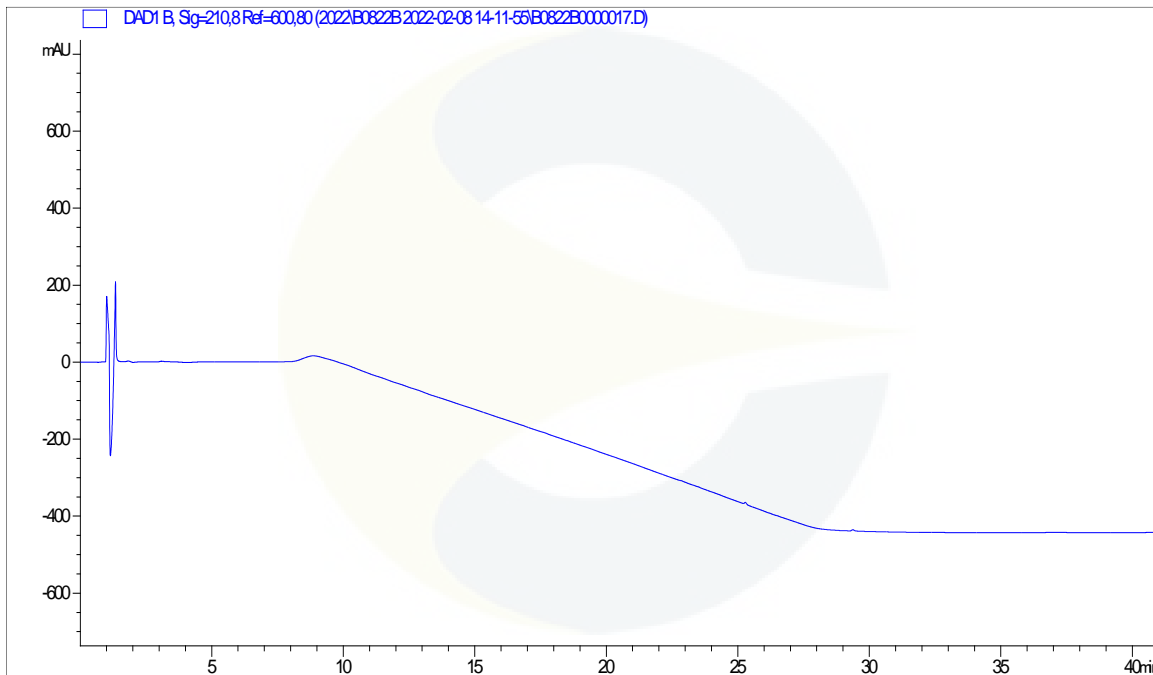
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UV SPECTRUM AT RT = 17.1 MINUTES



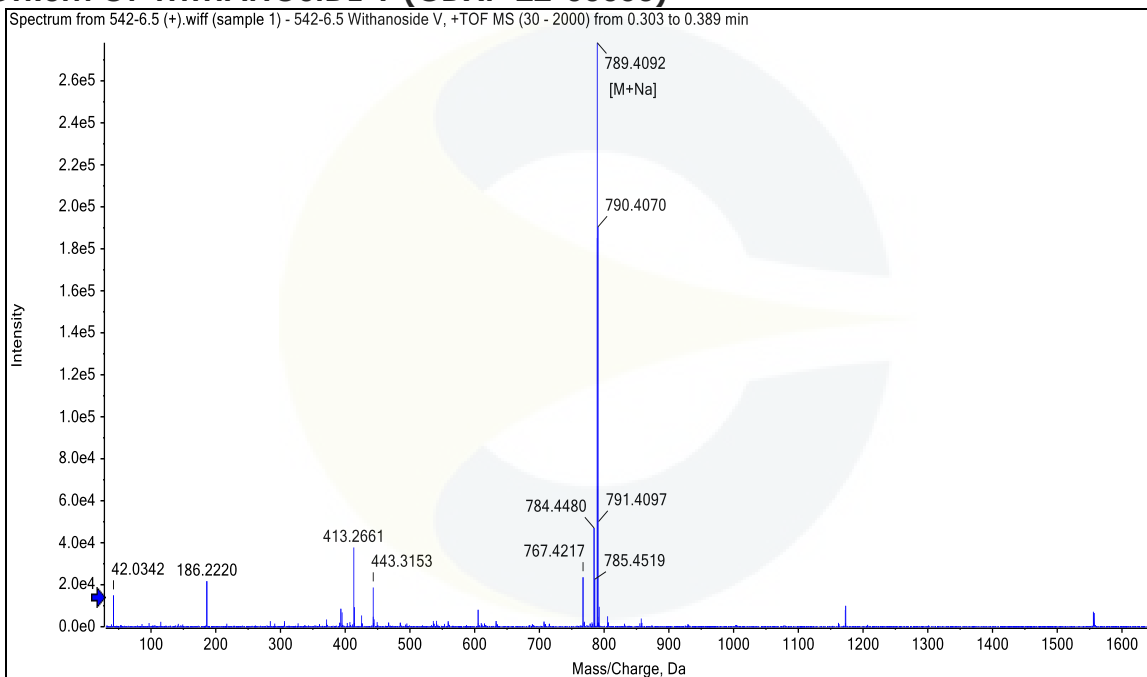
HPLC CHROMATOGRAM OF DILUENT BLANK



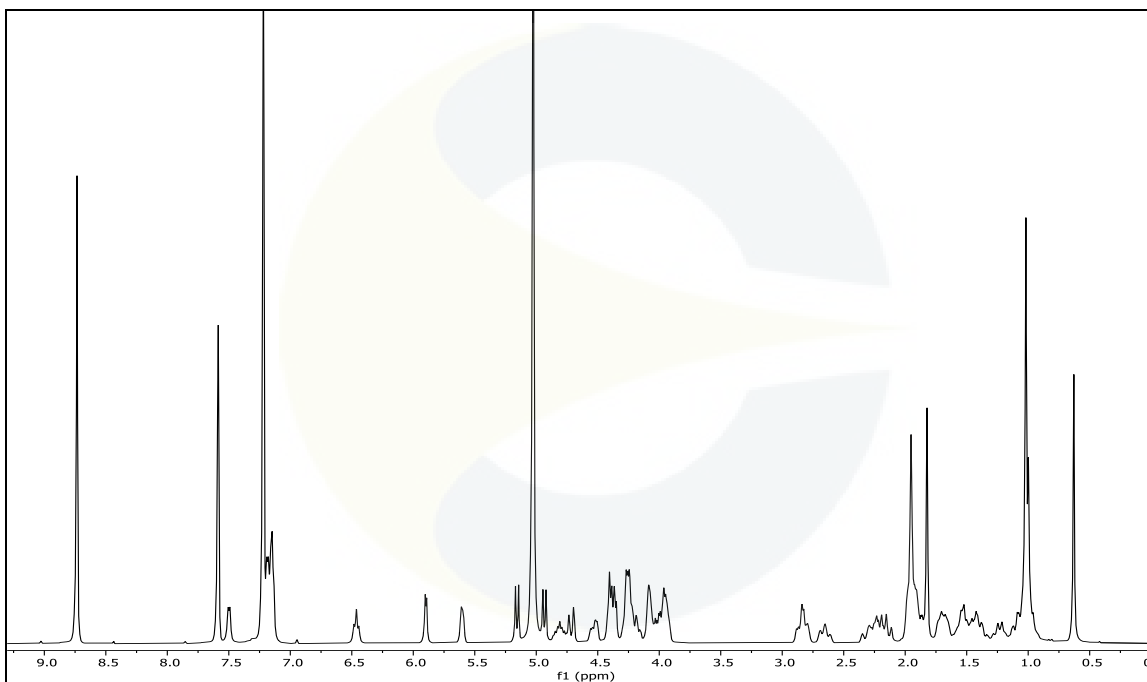
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MASS SPECTRUM OF WITHANOSIDE V (CDXP-22-00053)

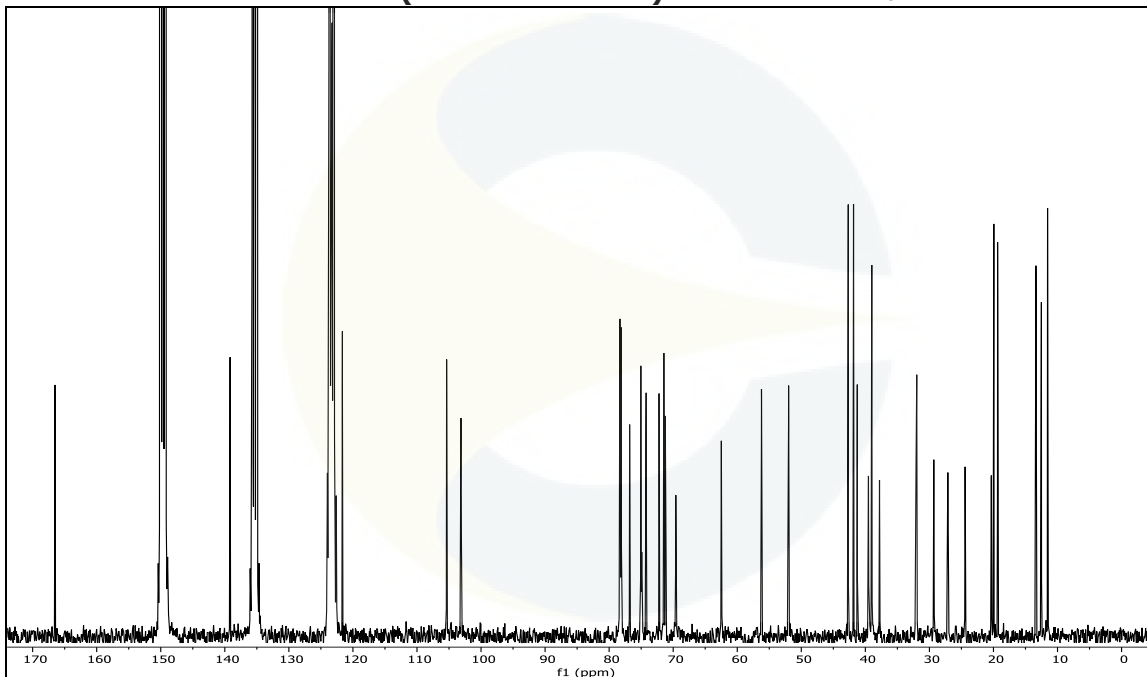


¹H-NMR SPECTRUM OF WITHANOSIDE V (CDXP-22-00053) IN PYRIDINE-d₅

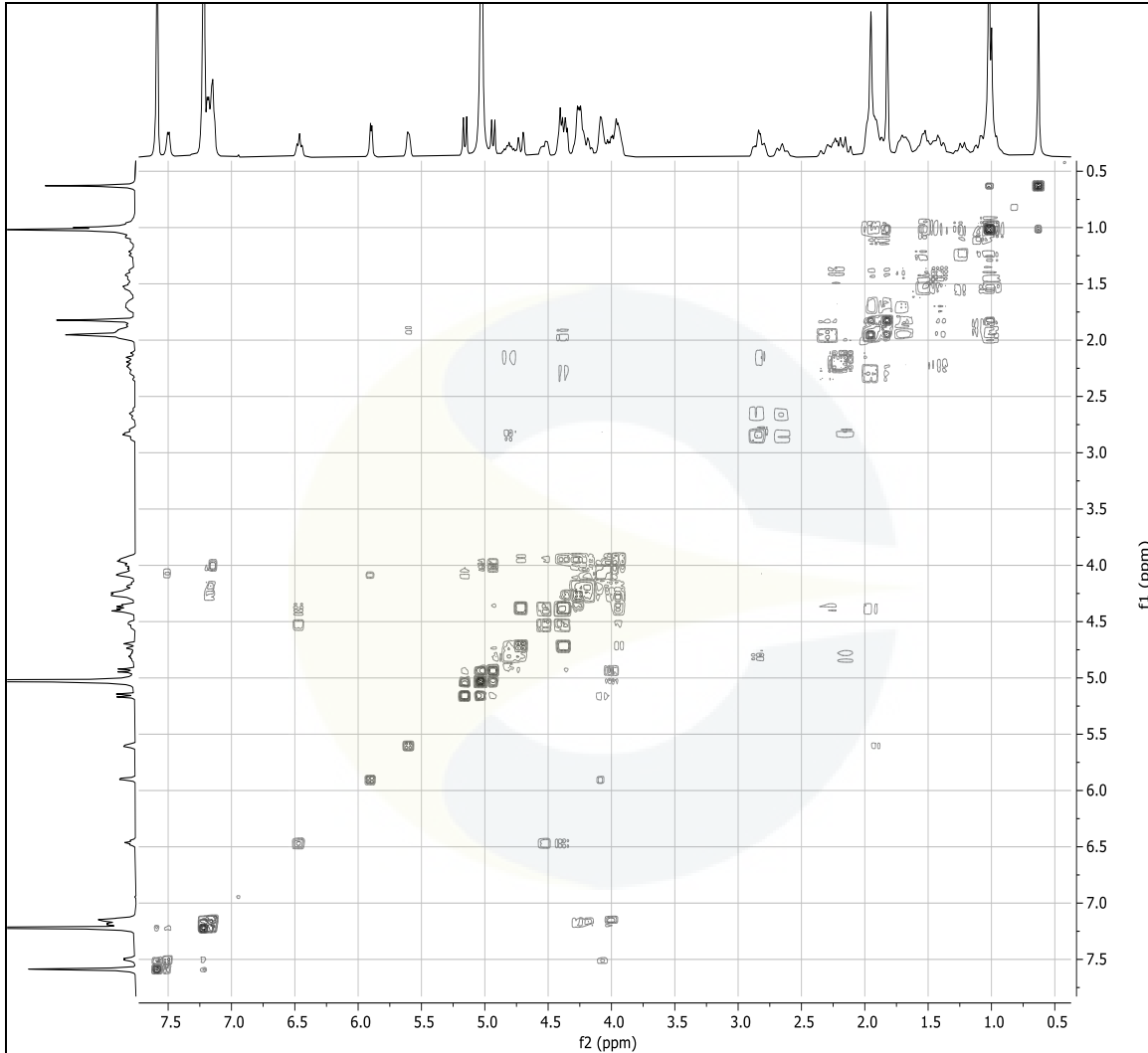


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¹³C-NMR SPECTRUM WITHANOSIDE V (CDXP-22-00053) IN PYRIDINE-d₅



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COSY-NMR SPECTRUM OF WITHANOSIDE V (CDXP-22-00053) IN PYRIDINE-*d*₅

REVISION HISTORY

<u>Revision History</u>	<u>Date of Revision</u>	<u>Document/Changes</u>
00	02/14/2022	New report

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