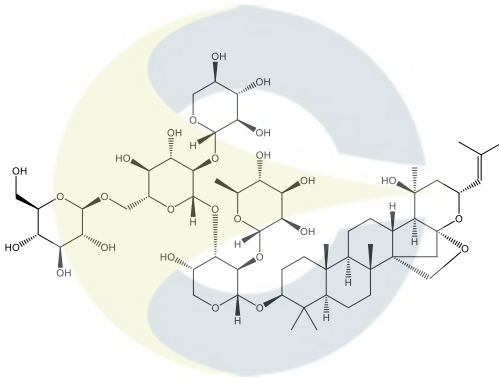


Certificate of Analysis

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PRODUCT NAME	Jujuboside A	<div style="text-align: center;"> Structure  </div>
PART NUMBER	00010525	
STANDARD TYPE	Primary (P)	
LOT NUMBER	00010525-212	
REPORT NUMBER	CDXA-RSS-7860-01	
SAMPLE NUMBER	CDXP-18-00114	
DATE OF SAMPLE	02/16/2018	
DATE OF RE-EVALUATION	01/06/2022	
DATE OF REPORT	02/04/2022	

CHEMICAL NAMES	(3β,16β,23R)-16,23:16,30-diepoxy-20-hydroxydammar-24-en-3-yl O-6-deoxy-α-L-mannopyranosyl-(1→2)-O-[O-β-D-glucopyranosyl-(1→6)-O-[β-D-xylopyranosyl-(1→2)]-β-D-glucopyranosyl-(1→3)]-α-L-Arabinopyranoside
CHEMICAL FORMULA	C ₅₈ H ₉₄ O ₂₆
MOLECULAR WEIGHT (MW)	1207.35
CHEMICAL FAMILY	Saponin
CAS NUMBER	[55466-04-1]
EC#(EINECS)	683-206-9
RTECS	N/A

ANALYTICAL RESULTS

TEST	METHOD	SPECIFICATION	RESULT
Adjusted Purity	NA	≥ 85%	89.7%
HPLC	0.700.10.2.METH22	≥ 90%	98.6%
NMR	4.5.3-CD-4.0-000338	Conforms to structure	Conforms to structure
Mass Spectrum	99.1-04-3.0-000126	Conforms	Conforms
Residual Solvent*	99.1-CD-9.0-000115	NA	EtOH < 0.1%; Acetone < 0.1%
Water	0.700.12.37	NA	9.0%
Appearance	NA	NA	White powder

*Testing performed at an ISO 17025 accredited subcontracted laboratory.

ADJUSTED PURITY: 89.7% IS BASED ON (100 - 0.0 SOLVENTS - 9.0 WATER) X 98.6% HPLC

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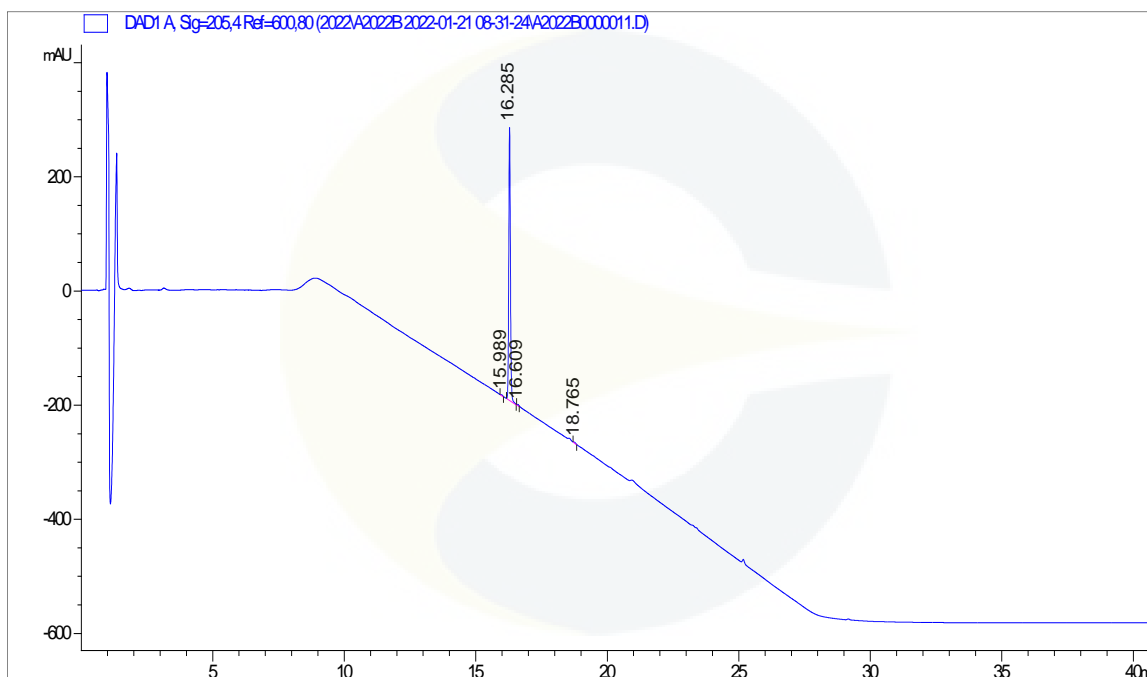
STORAGE CONDITIONS

STORAGE -20 °C in a dry place.
EXPIRATION DATE 01/2027 under the above conditions.

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.
COLUMN TEMP. 60 °C
FLOW RATE 0.4 mL/minute
INJECTION VOL. 4.0 µL
INJECTION CONC. 1.0 mg/mL in Methanol
DETECTION 205 ± 4 nm

HPLC CHROMATOGRAM OF JUJUBOSIDE A (CDXP-18-00114)

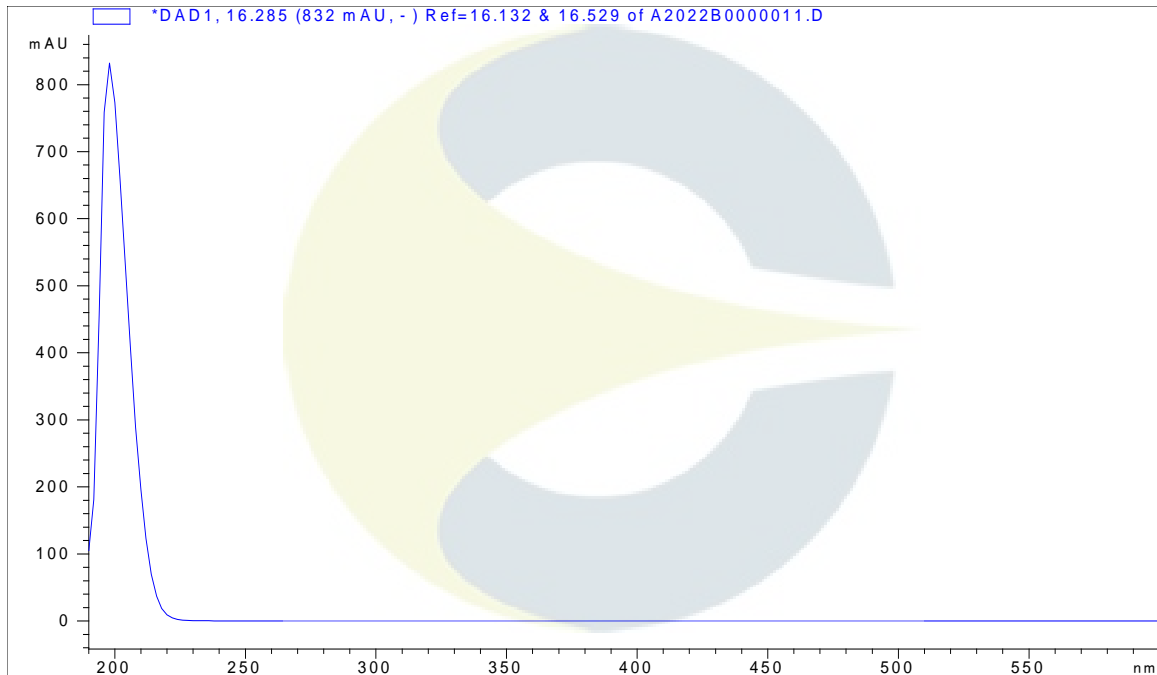


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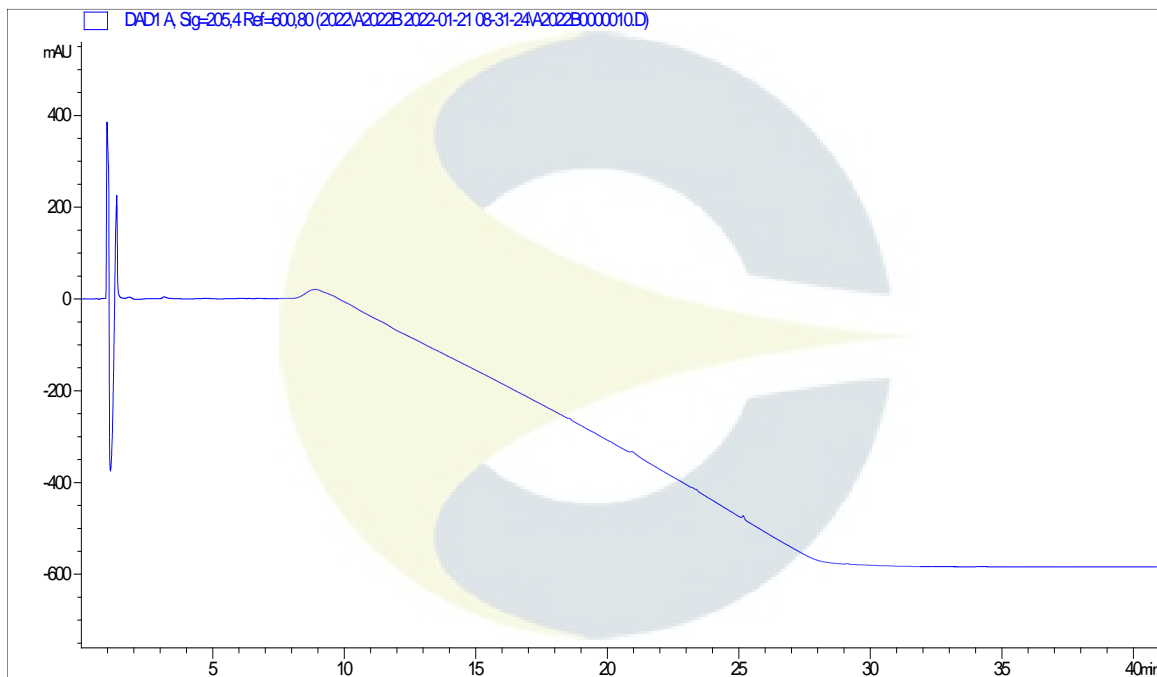
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UV SPECTRUM AT RT = 16.3 MINUTES

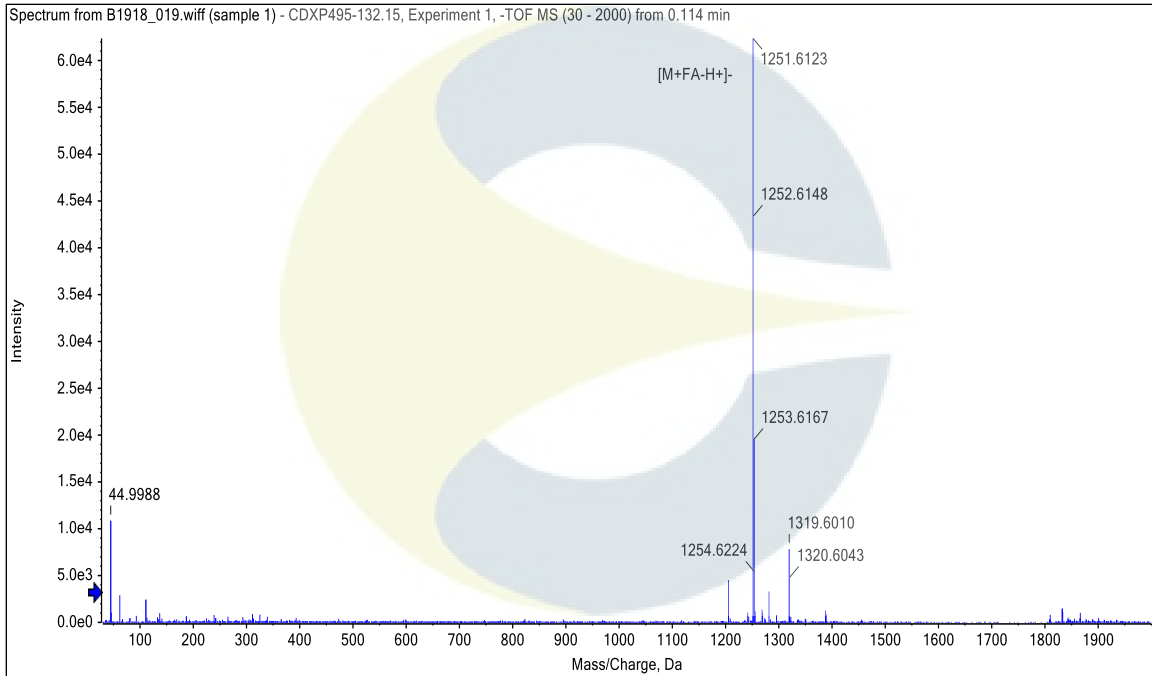


HPLC CHROMATOGRAM OF DILUENT BLANK

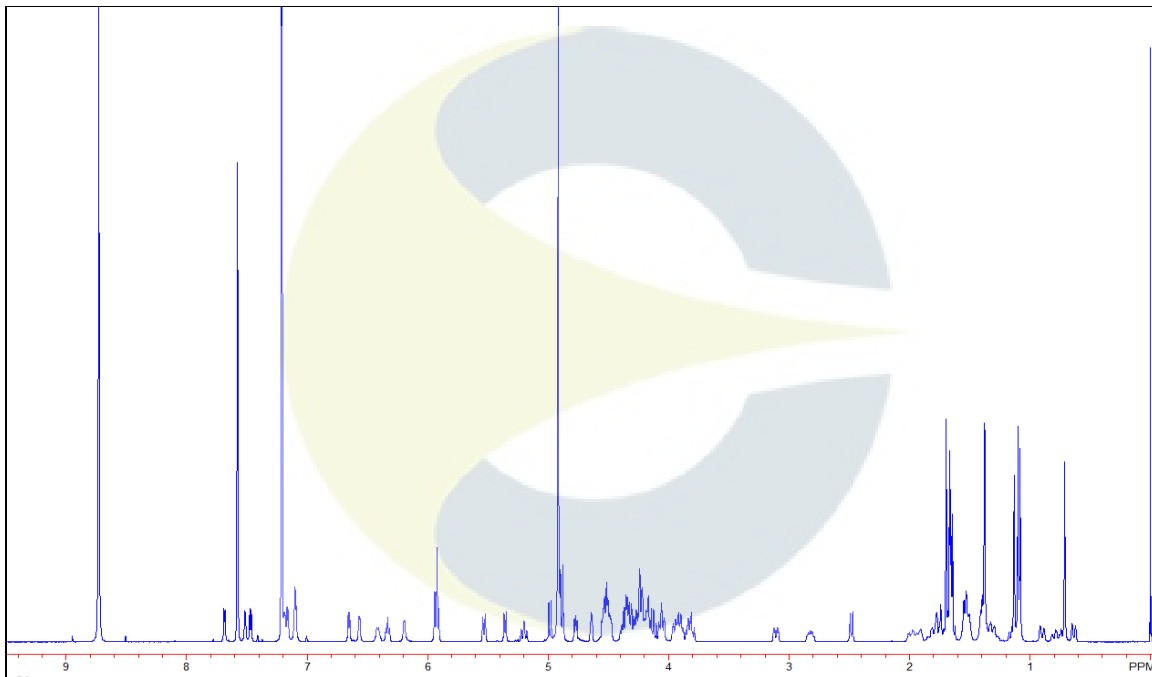


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MASS SPECTRUM OF JUJUBOSIDE A (CDXP-18-00114)

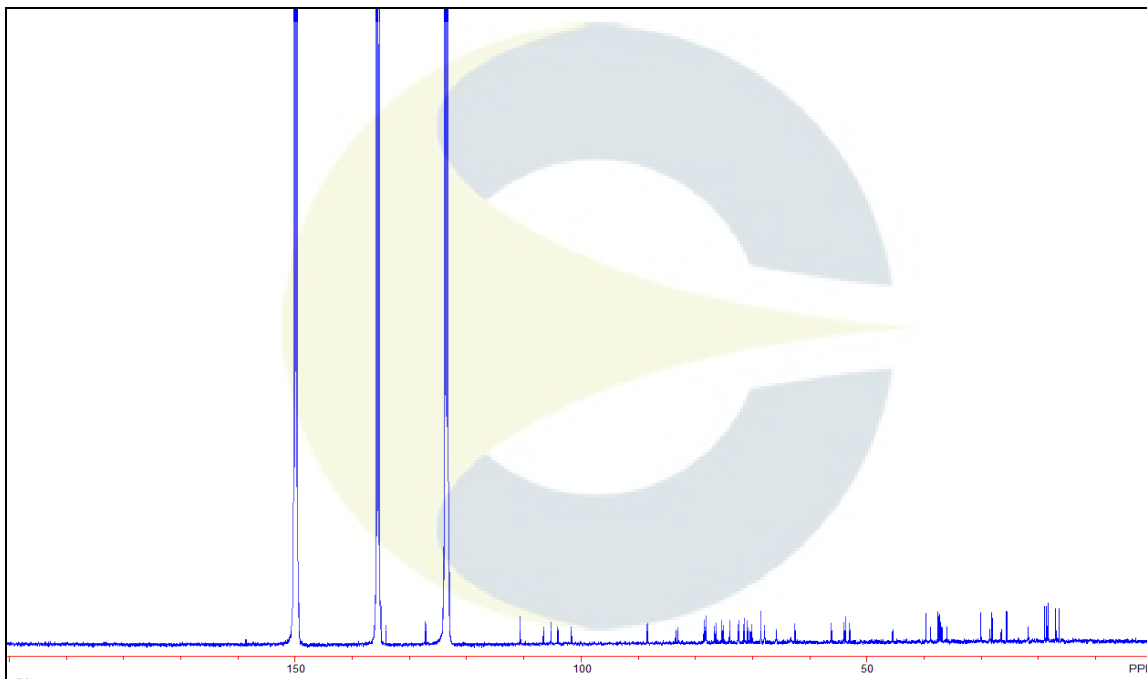


¹H-NMR SPECTRUM OF JUJUBOSIDE A (CDXP-18-00114) IN PYRIDINE-d₅

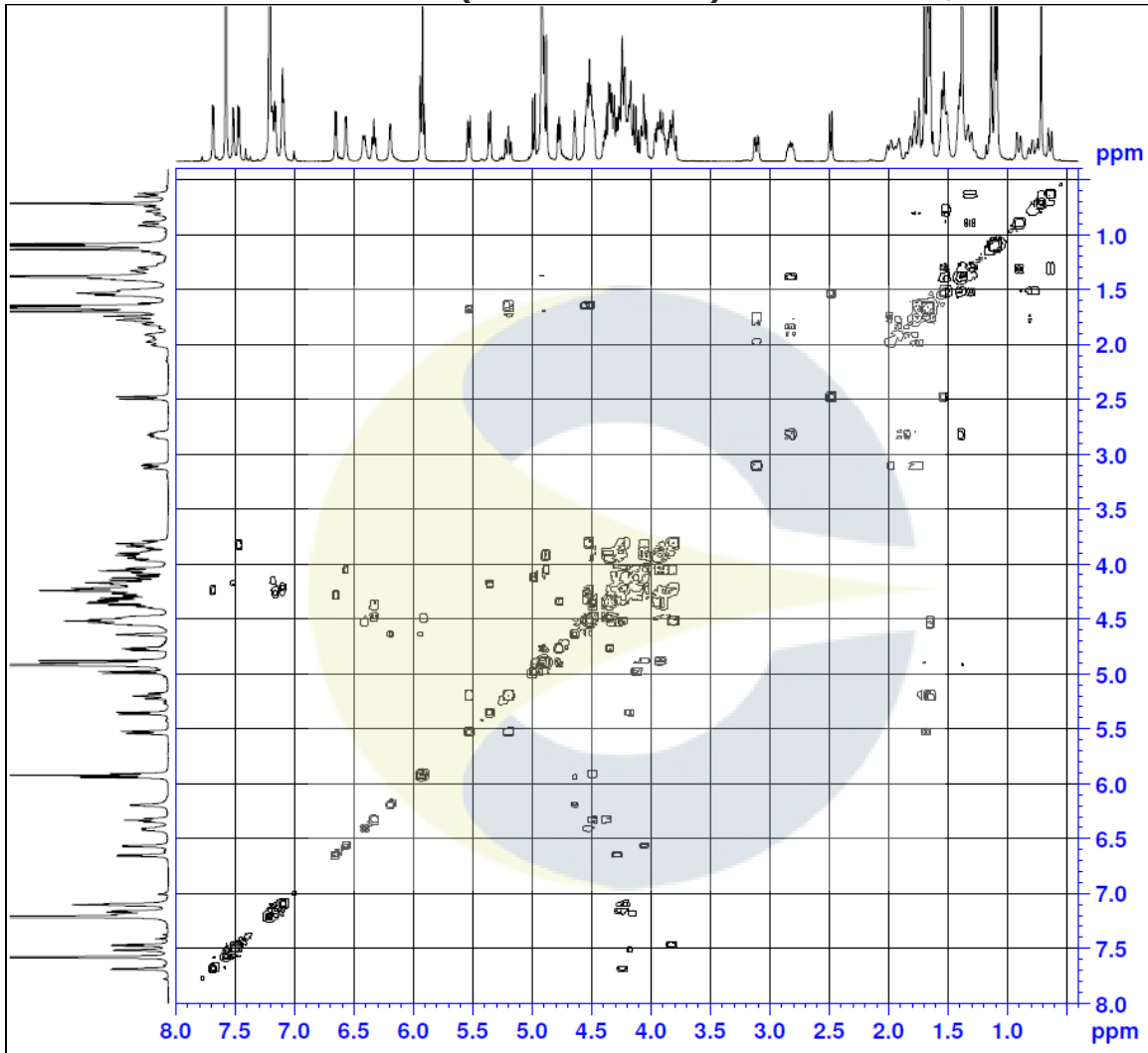


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^{13}C -NMR SPECTRUM OF JUJUBOSIDE A (CDXP-18-00114) IN PYRIDINE- d_5



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COSY-NMR SPECTRUM OF JUJUBOSIDE A (CDXP-18-00114) IN PYRIDINE-*d*₅

REVISION HISTORY

<u>Revision History</u>	<u>Date of Revision</u>	<u>Document/Changes</u>
00	03/06/2018	New report
01	02/04/2022	Passed re-evaluation by HPLC, KF. Updated expiration date, analytical results, analytical conditions, and chromatograms. Added EC#.

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