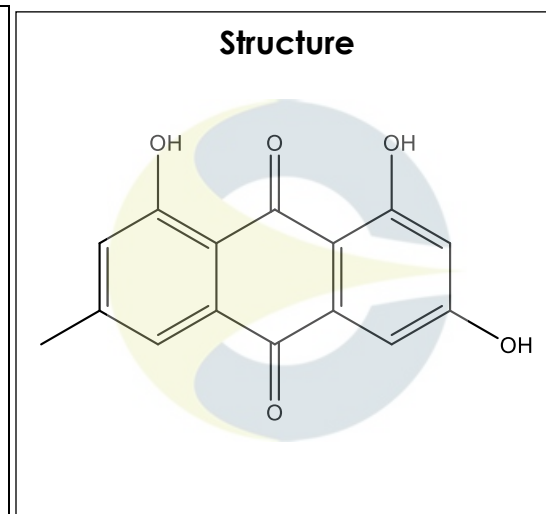


Certificate of Analysis

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PRODUCT NAME	Emodin
PART NUMBER	00005091
STANDARD TYPE	Primary (P)
LOT NUMBER	00005091-601
REPORT NUMBER	CDXA-RSS-1934-02
SAMPLE NUMBER	CDXA-07-1936
DATE OF SAMPLE	08/02/2007
DATE OF RE-EVALUATION	01/07/2012 (1 st); 03/14/2016 (2 nd); 04/22/2020 (3 rd)
DATE OF REPORT	05/26/2020



CHEMICAL NAMES	1,3,8-Trihydroxy-6-methylantraquinone; Rheum-emodin; Archin; Frangulic acid; Emodol; 1,3,8-Trihydroxy-6-methyl-9,10-anthracenedione
CHEMICAL FORMULA	C ₁₅ H ₁₀ O ₅
MOLECULAR WEIGHT (MW)	270.24
CHEMICAL FAMILY	Anthraquinones
CAS NUMBER	[518-82-1]
EC#(EINECS)	208-258-8
RTECS	CB7920600

ANALYTICAL RESULTS

TEST	METHOD	SPECIFICATION	RESULT
Adjusted Purity	NA	NA	91.1%
HPLC	0.700.10.2.METH22	NA	91.9%
NMR	NA	Conforms to structure	Conforms to structure
Mass Spectrum	Direct Infusion, ESI (-)	Conforms	Conforms
Residual Solvent	CDXA-AM-001-04	NA	DMSO – 0.1%
Water	0.700.12.37	NA	0.8%
Appearance	NA	NA	Orange powder

ADJUSTED PURITY: 91.1% IS BASED ON (100 - 0.1 SOLVENTS - 0.8 WATER) X 91.9% HPLC

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STORAGE CONDITIONS

STORAGE	Room Temperature in a dry place.
EXPIRATION DATE	04/2025 under the above conditions.

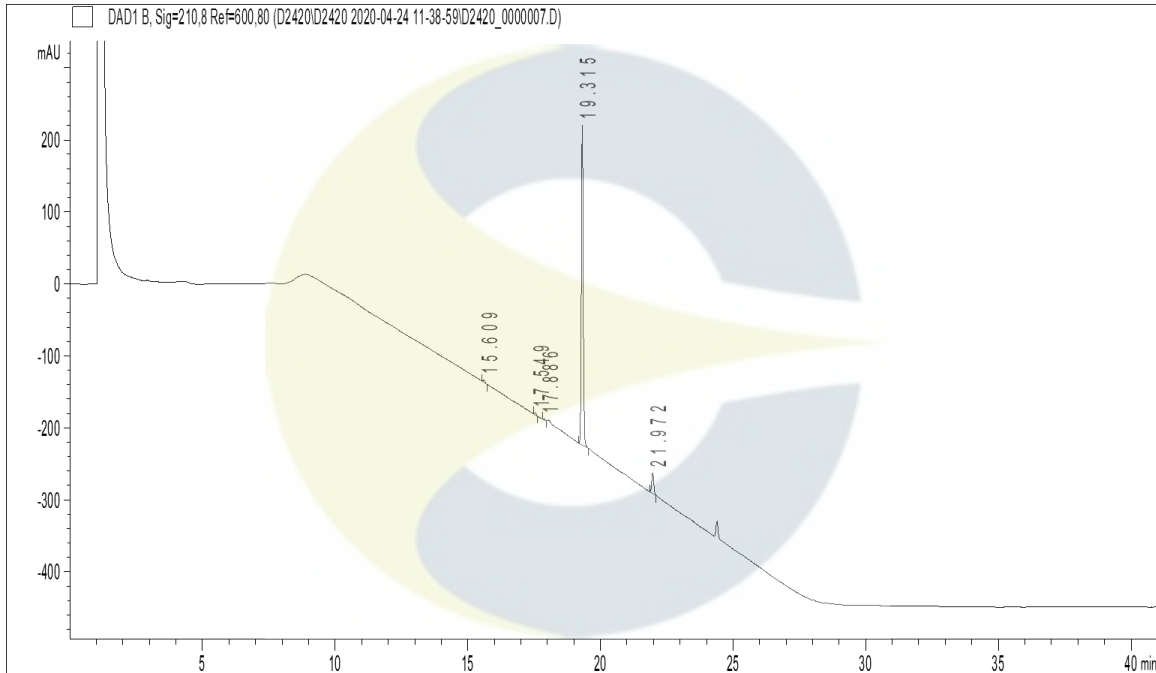
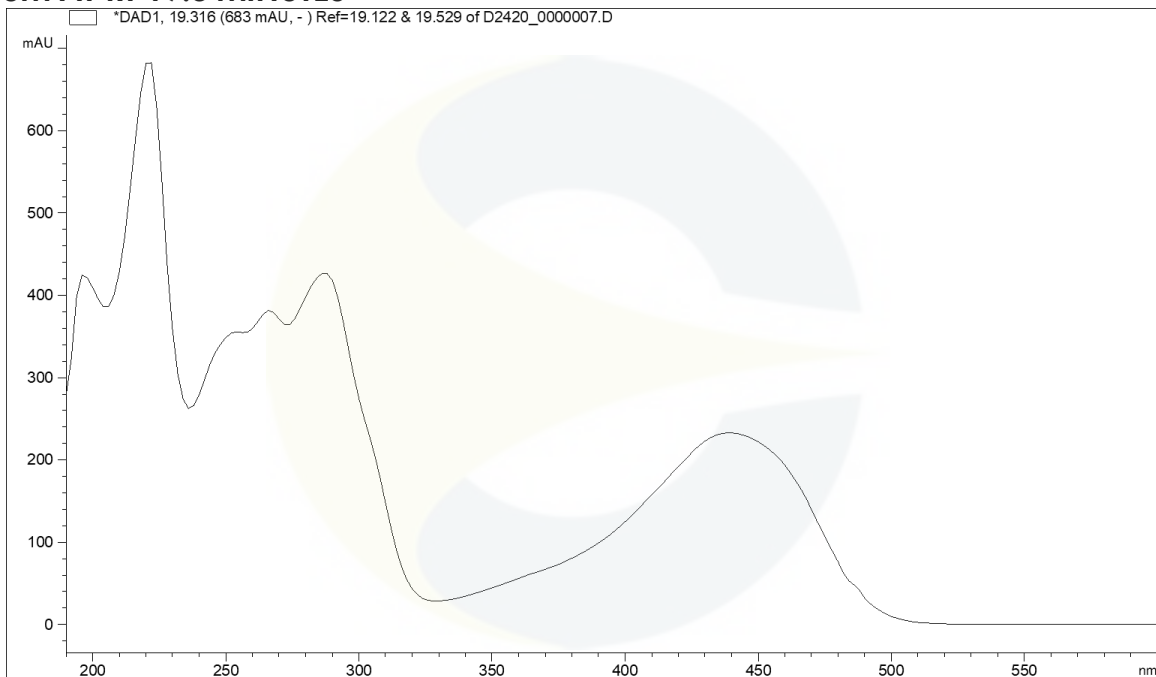
ANALYTICAL CONDITIONS

INSTRUMENT	AGILENT 1260 HPLC UV-VIS (DAD); FINNIGAN LCQ-DECA
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.	0.2 µL
INJECTION CONC.	1.1 mg/mL in Dimethyl Sulfoxide
DETECTION	210 ± 4 nm

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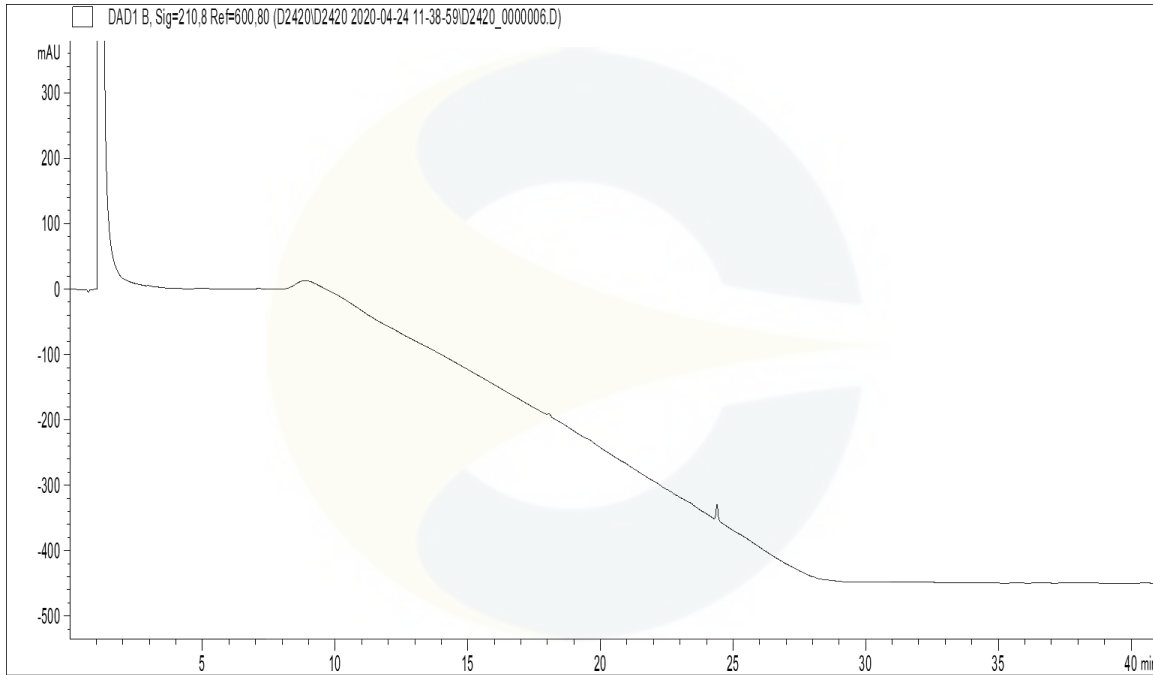
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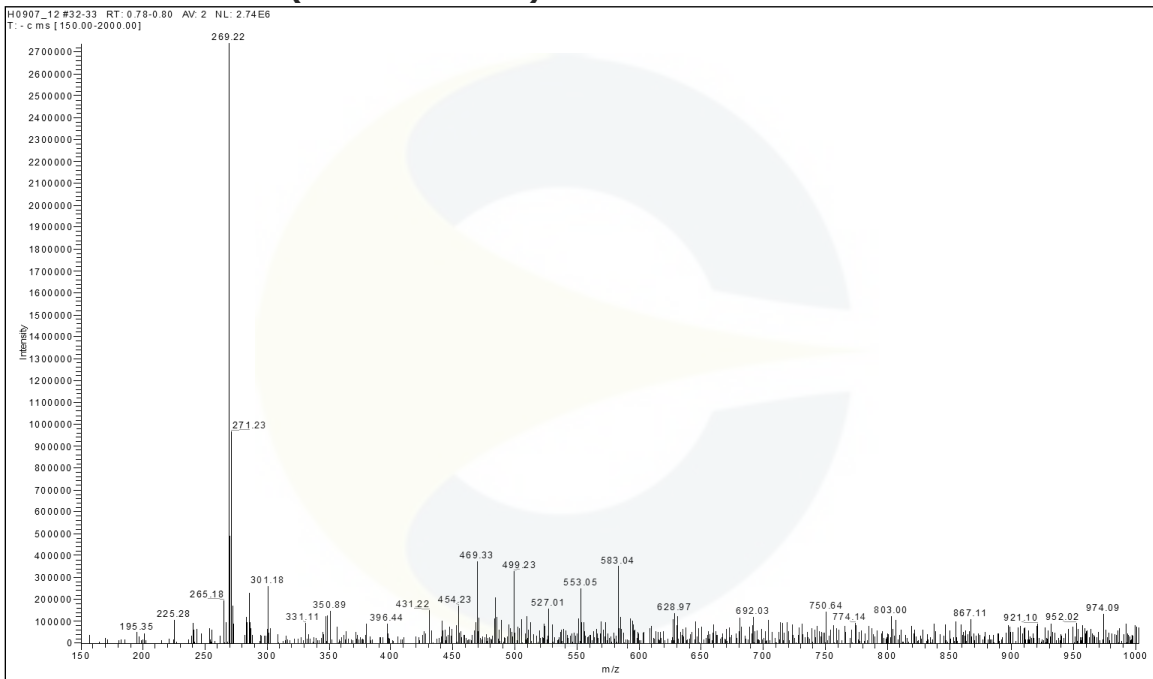
HPLC CHROMATOGRAM OF EMODIN (CDXA-07-1936)**UV SPECTRUM AT RT 19.3 MINUTES**

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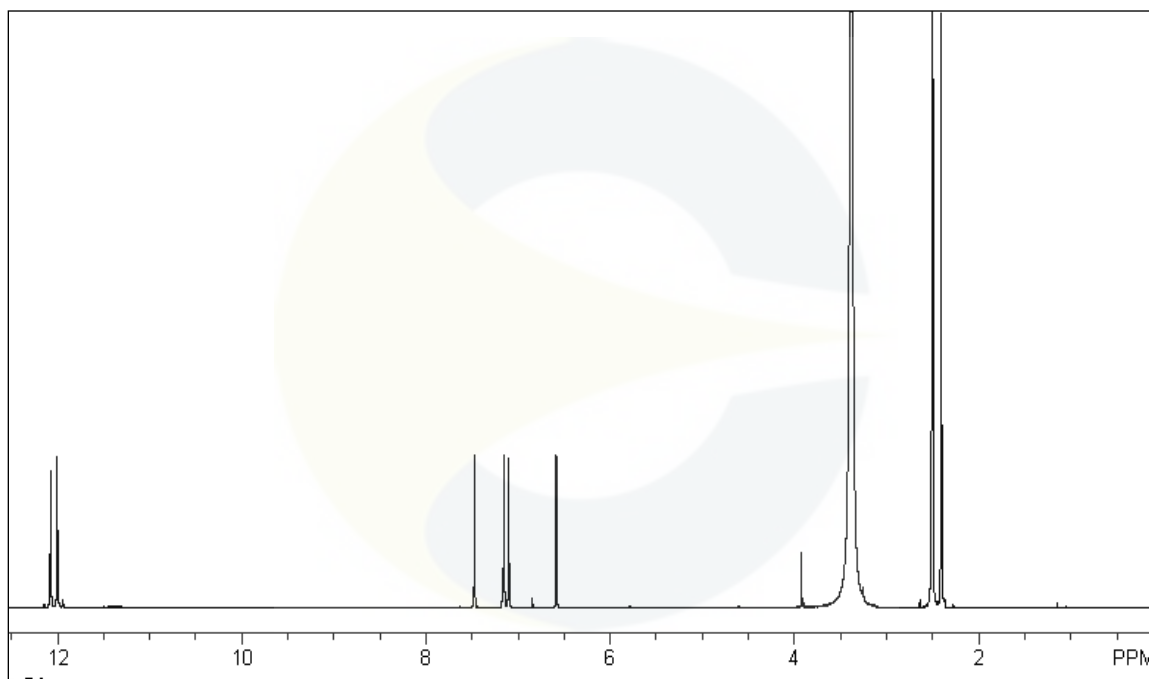
HPLC CHROMATOGRAM OF DILUENT BLANK



MASS SPECTRUM OF EMODIN (CDXA-07-1936)



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¹H-NMR SPECTRUM OF EMODIN (CDXA-07-1936) IN DMSO-d₆

REVISION HISTORY

<u>Revision History</u>	<u>Date of Revision</u>	<u>Document/Changes</u>
00	02/21/2012	New report and first re-evaluation.
01	04/08/2016	Passed second re-evaluation by HPLC, KF. Updated expiration date and chemical names.
02	05/26/2020	Passed third re-evaluation by HPLC, KF. Updated expiration date, purity, analytical conditions, chromatograms, and removed melting point.

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