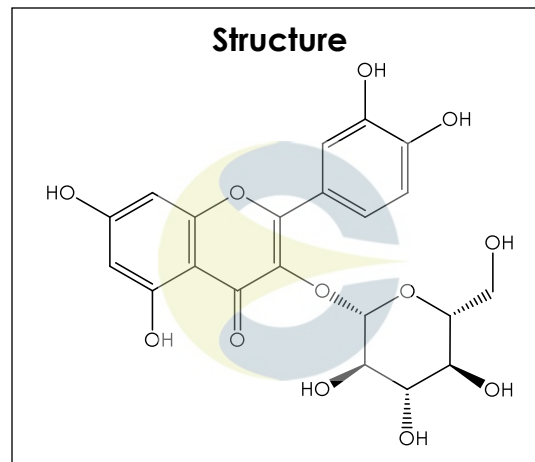


Certificate of Analysis

For Laboratory Use Only

PRODUCT NAME	Isoquercetin
PART NUMBER	00009505
STANDARD TYPE	Primary (P) – AHP Verified*
LOT NUMBER	0009505-049
REPORT NUMBER	CDXA-RSS-4943-03
SAMPLE NUMBER	CDXA-12-2466
DATE OF SAMPLE	04/23/2012
DATE OF RE-EVALUATION	03/09/2016 (1 st), 04/02/2020 (2 nd)
DATE OF REPORT	04/30/2020



CHEMICAL NAMES	2-(3,4-Dihydroxyphenyl)-3-(β-D-glucopyranosyloxy)-5,7-dihydroxy-4H-1-benzopyran-4-one; Hirsutrin
CHEMICAL FORMULA	C ₂₁ H ₂₀ O ₁₂
MOLECULAR WEIGHT (MW)	464.38
CHEMICAL FAMILY	Flavones
CAS NUMBER	[482-35-9]
EC#(EINECS)	640-533-1
RTECS	DJ2982500

ANALYTICAL RESULTS

TEST	METHOD	SPECIFICATION	RESULT
Adjusted Purity	NA	NA	94.0%
HPLC	0.700.10.2.METH22	NA	97.8%
NMR	99.1-CD-1.0-000122	Conforms to structure	Conforms to structure
Mass Spectrum	Direct Infusion, ESI (-)	Conforms	Conforms
Residual Solvent	99.1-CD-5.0-000115	NA	ND
Water	0.700.12.37	NA	3.9%
Appearance	NA	NA	Yellow powder

ADJUSTED PURITY: 94.0% IS BASED ON (100 - 3.9 WATER - 0.0 SOLVENTS) X 97.8% HPLC

STORAGE CONDITIONS

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

*AMERICAN HERBAL PHARMACOPOEIA™ BOTANICAL AND CHEMICAL REFERENCE STANDARD VERIFICATION PROGRAM AVAILABLE THROUGH CHROMADEX

American Herbal Pharmacopoeia™ botanical reference standards are now available. Each American Herbal Pharmacopoeia Verified™ chemical reference is subjected to independent verification for identity and level of purity by American Herbal Pharmacopoeia Verified™ collaborating laboratories. The corresponding data package is similarly archived at the American Herbal Pharmacopoeia Verified™. Corresponding certificates of analyses are available through the authorized licensees of American Herbal Pharmacopoeia Verified™ standards.

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.

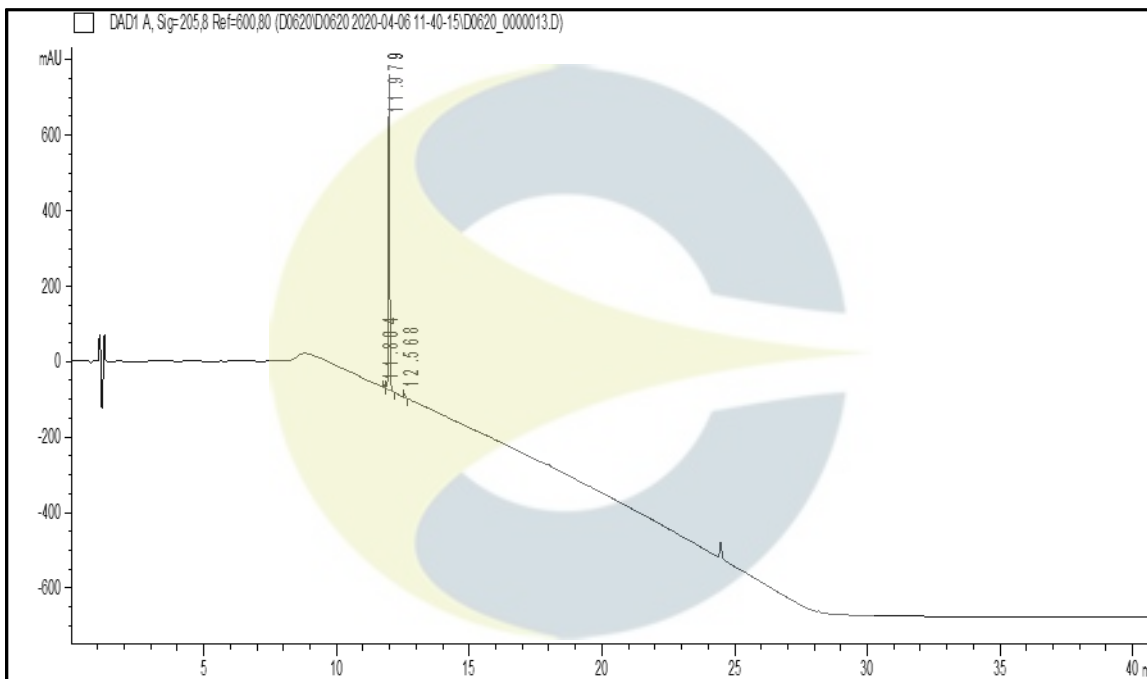
Certificate of Analysis

For Laboratory Use Only

ANALYTICAL CONDITIONS

INSTRUMENT	AGILENT 1260 HPLC UV-VIS (DAD), AGILENT 6510 QTOF
COLUMN	Phenomenex Luna C18(2) 150 x 2.00 mm, 5 µm particle size
MOBILE PHASE	A - 0.1% Trifluoroacetic acid in Milli-Q 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 Methanol
DETECTION	205 ± 4 nm

HPLC CHROMATOGRAM OF ISOQUERCETIN (CDXA-12-2466)

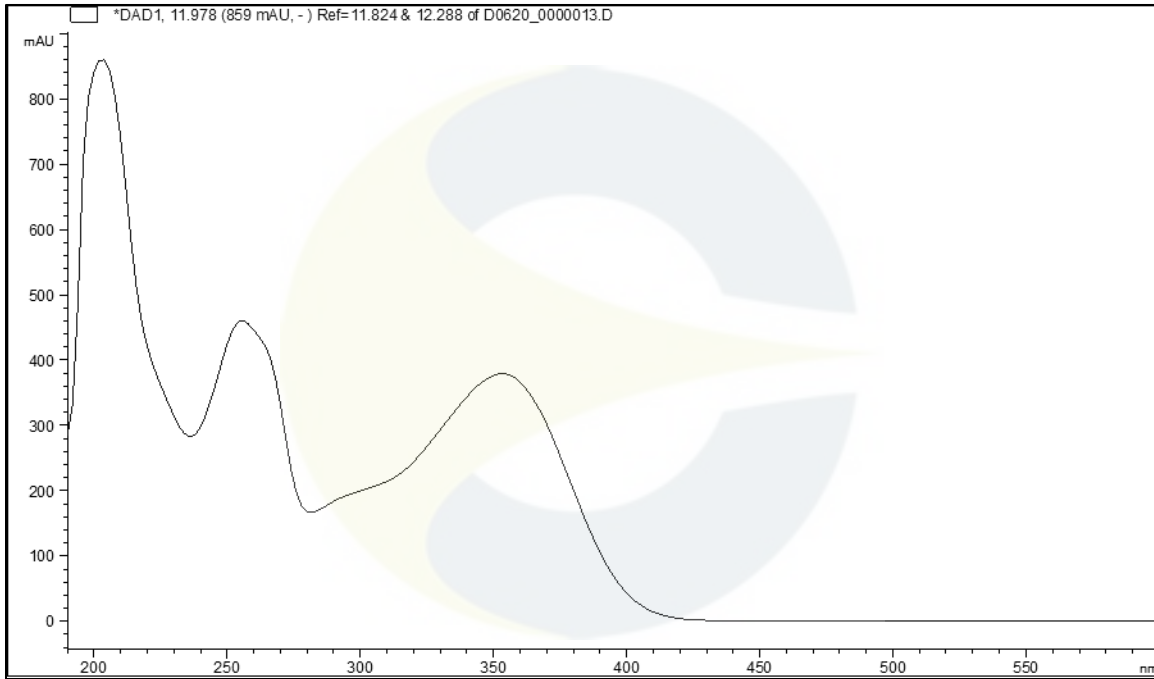


This document is the property of ChromaDex, Inc. and/or its relevant affiliates and contains confidential and proprietary material for the sole use of the intended recipient(s). Any review, use, distribution or disclosure by or to others is strictly prohibited.

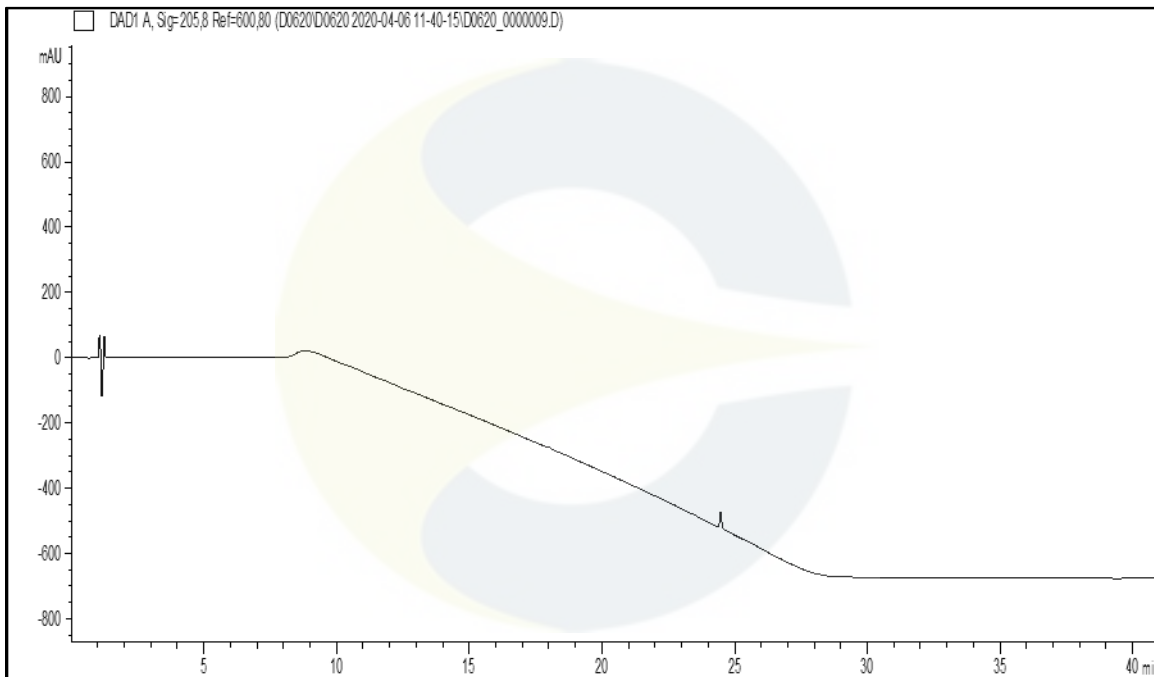
Certificate of Analysis

For Laboratory Use Only

UV SPECTRUM AT RT = 12.0 MINUTES

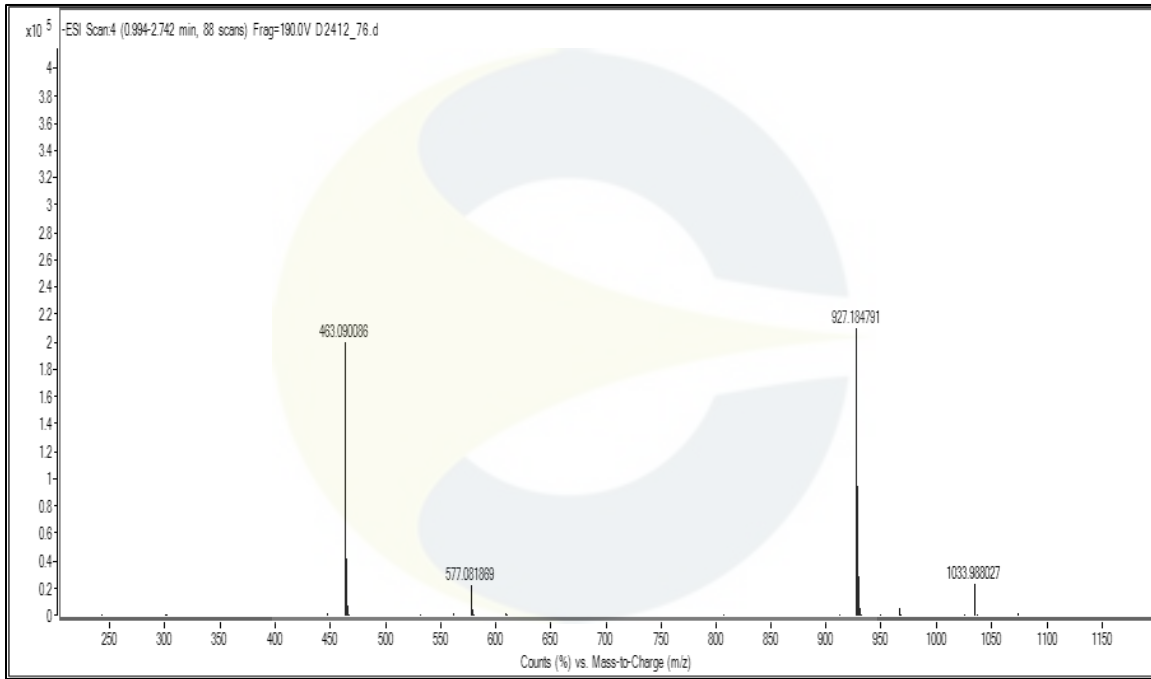


HPLC CHROMATOGRAM OF DILUENT BLANK

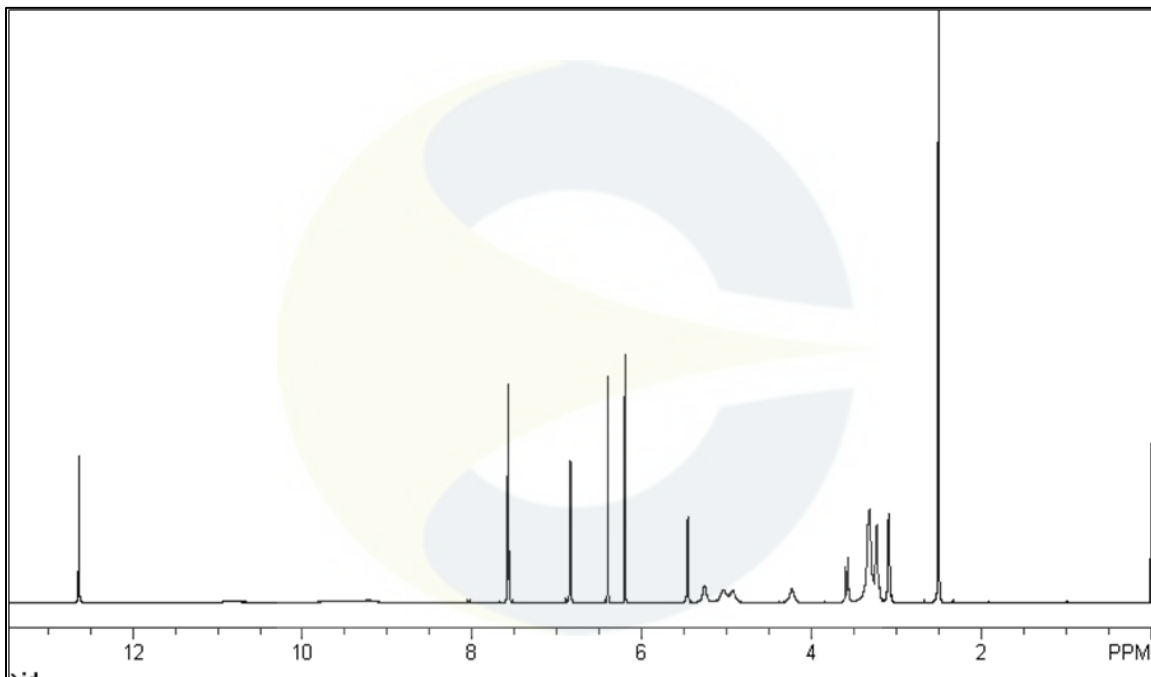


This document is the property of ChromaDex, Inc. and/or its relevant affiliates and contains confidential and proprietary material for the sole use of the intended recipient(s). Any review, use, distribution or disclosure by or to others is strictly prohibited.

MASS SPECTRUM OF ISOQUERCETIN (CDXA-12-2466)

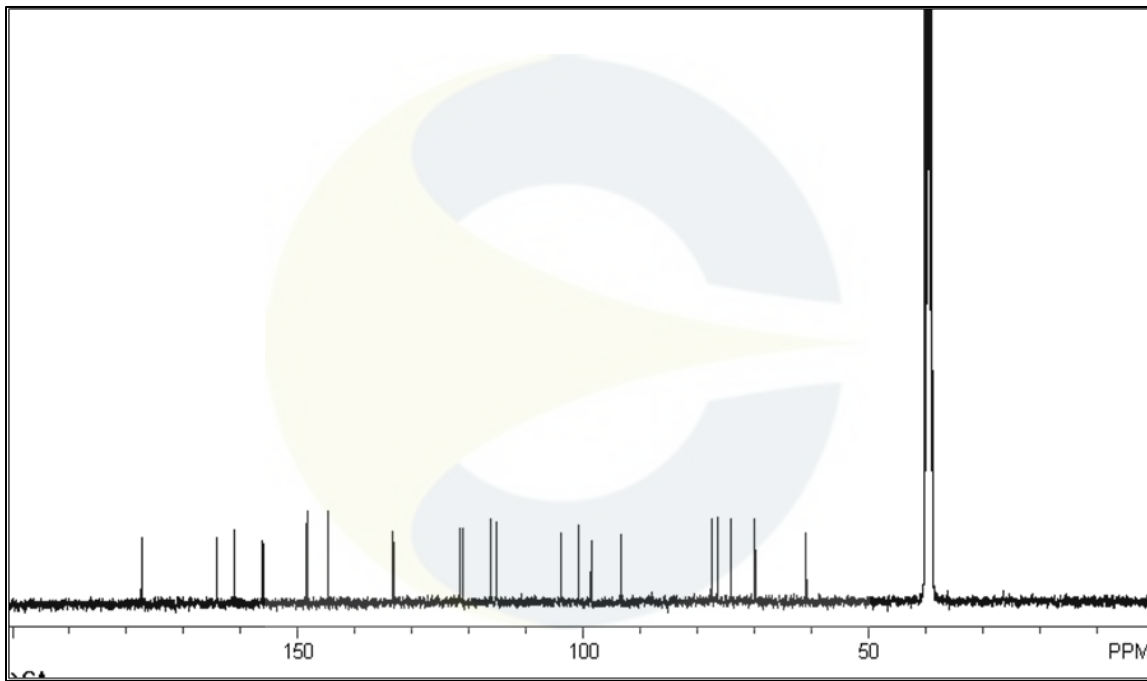


¹H-NMR SPECTRUM OF ISOQUERCETIN (CDXA-12-2466) IN DMSO-d₆

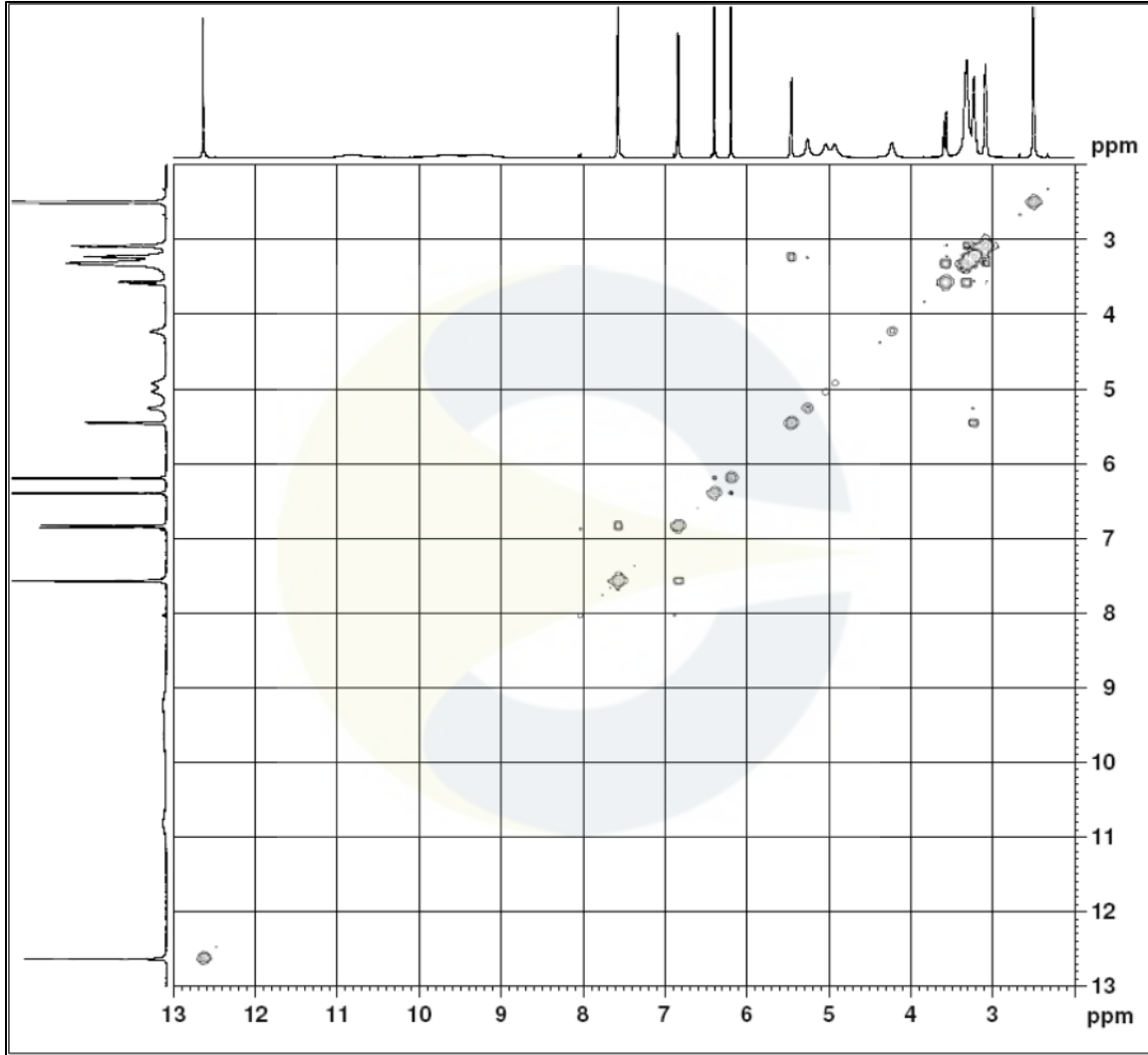


This document is the property of ChromaDex, Inc. and/or its relevant affiliates and contains confidential and proprietary material for the sole use of the intended recipient(s). Any review, use, distribution or disclosure by or to others is strictly prohibited.

¹³C-NMR SPECTRUM OF ISOQUERCETIN (CDXA-12-2466) IN DMSO-d₆



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 ISOQUERCETIN (CDXA-12-2466) IN DMSO-*d*₆

REVISION HISTORY

<u>Revision History</u>	<u>Date of Revision</u>	<u>Document/Changes</u>
00	04/27/2012	New report
01	08/19/2014	Updated product grade to AHP
02	03/31/2016	Passed re-evaluation by HPLC, KF. Updated expiration date.
03	04/30/2020	Passed re-evaluation by HPLC & water determination. Added EC#. Removed Melting Point. Updated Analytical Conditions, Results, chromatograms, UV spectrum, & expiration date.

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.