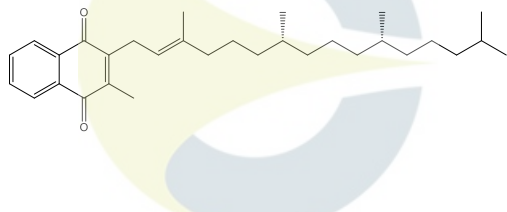


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PRODUCT NAME	Vitamin K1 (Phytonadione)	<div style="text-align: center;"> Structure  *Trans isomer shown above </div>
PART NUMBER	00022816	
STANDARD TYPE	Primary (P)	
LOT NUMBER	00022816-801	
REPORT NUMBER	CDXA-RSS-9146-00	
SAMPLE NUMBER	CDXP-20-00654	
DATE OF SAMPLE	09/09/2020	
DATE OF REPORT	10/08/2020	

CHEMICAL NAMES	Phytonadione; 2-Methyl-3-[(2E,7R,11R)-3,7,11,15-tetramethyl-2-hexadecenyl]-1,4-naphthalenedione; Antihemorrhagic vitamin; Kephton; Konaktion; Mephyton; Mono-Kay; Monodion; Phylloquinone K1; Phytomenadione
CHEMICAL FORMULA	C ₃₁ H ₄₆ O ₂
MOLECULAR WEIGHT (MW)	450.70
CHEMICAL FAMILY	Vitamins
CAS NUMBER	[84-80-0] (trans isomer)
EC#(EINECS)	201-564-2
RTECS	QJ5800000

ANALYTICAL RESULTS

TEST	METHOD	SPECIFICATION	RESULT
Adjusted Purity	NA	NA	98.3%
HPLC	See below	NA	98.3% (sum of isomers, ≥ 80% trans)
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	ND
Appearance	NA	NA	Yellow oil

*Testing performed at an ISO 17025 accredited subcontracted laboratory.

ADJUSTED PURITY: 98.3% IS BASED ON (100 - 0.0 SOLVENTS - 0.0 WATER) X 98.3% HPLC

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STORAGE CONDITIONS

STORAGE +4 °C in a dry place.

EXPIRATION DATE 09/2025 under the above conditions.

ANALYTICAL CONDITIONS

INSTRUMENT AGILENT 1260 HPLC UV-VIS (DAD); AB-SCIEX 6600 TRIPLE TOF

COLUMN Phenomenex Luna C18(2) 250 x 4.6 mm, 5 µm particle size

MOBILE PHASE A - Acetonitrile, B - Methanol;
 Isocratic 25% B for 10 minutes, then increasing to 100% B over 5 minutes. Hold at 100% B for 5 minutes, then decreasing to 25% B over 1 minute.

COLUMN TEMP. 30 °C

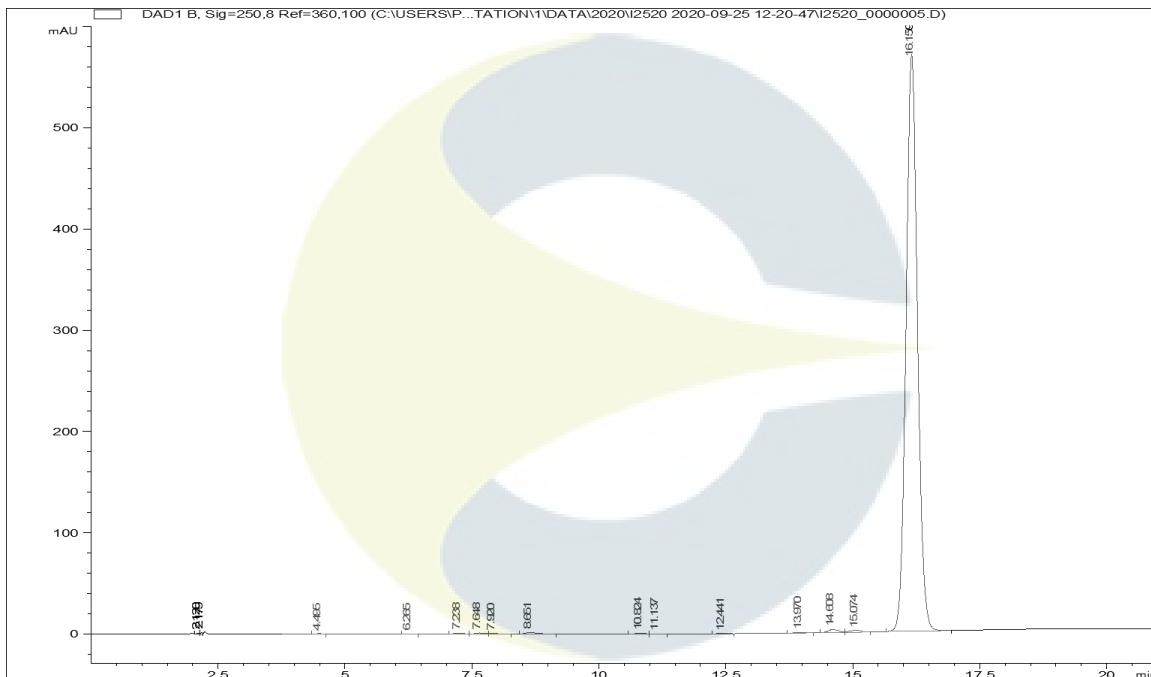
FLOW RATE 1.5 mL/minute

INJECTION VOL. 5.0 µL

INJECTION CONC. 1.4 mg/mL in ethanol

DETECTION 250 ± 4 nm

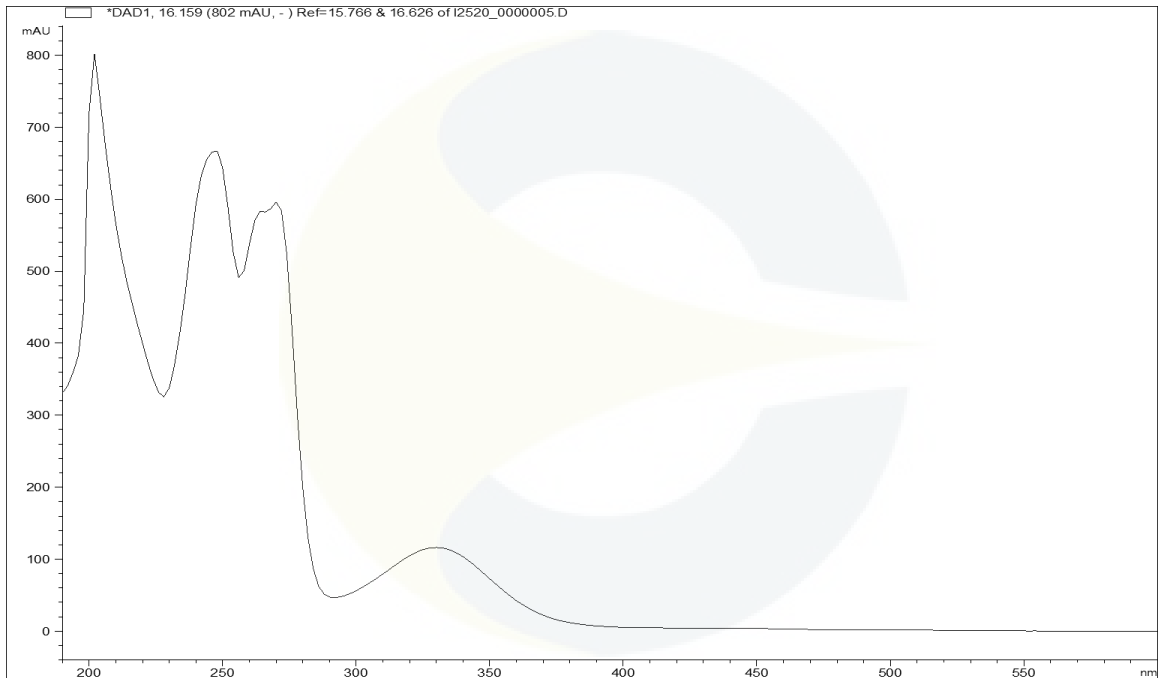
HPLC CHROMATOGRAM OF VITAMIN K1 (PHYTONADIONE) (CDXP-20-00654)



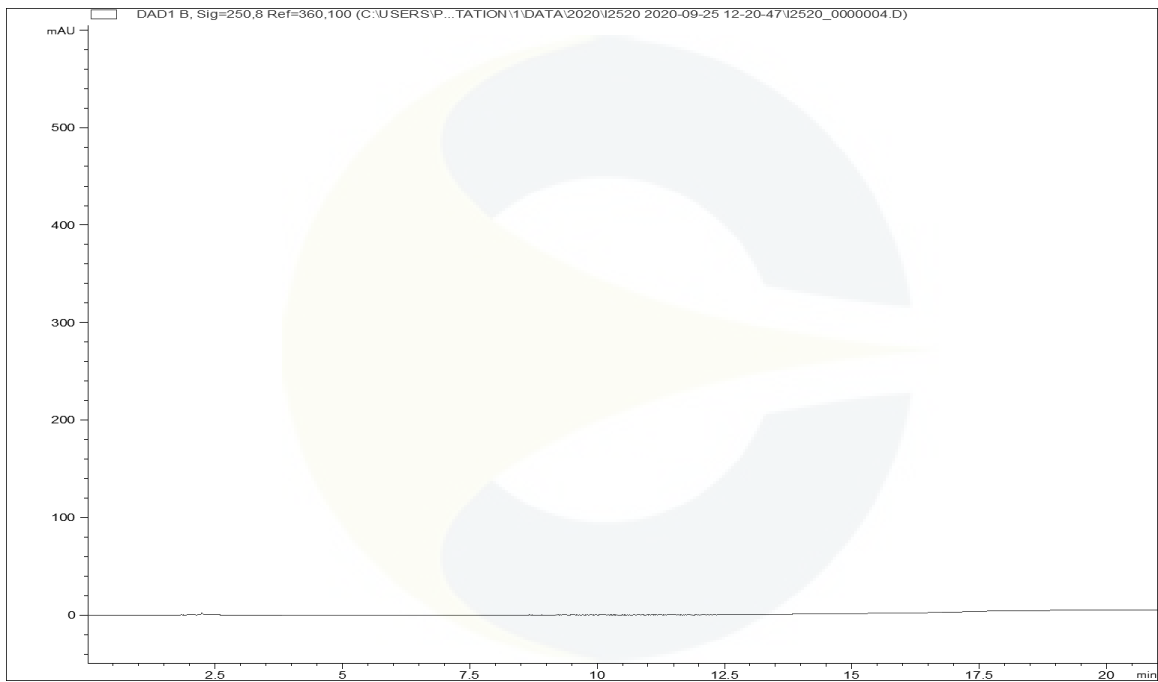
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UV SPECTRUM AT 16.2 MINUTES

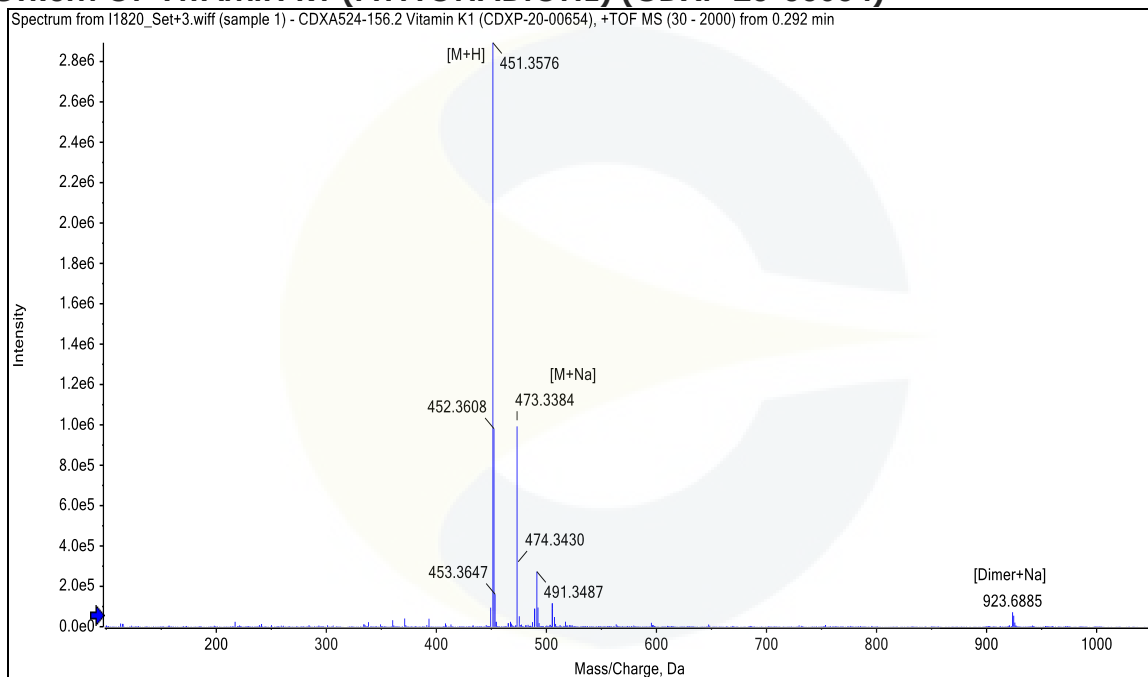


HPLC CHROMATOGRAM OF DILUENT BLANK

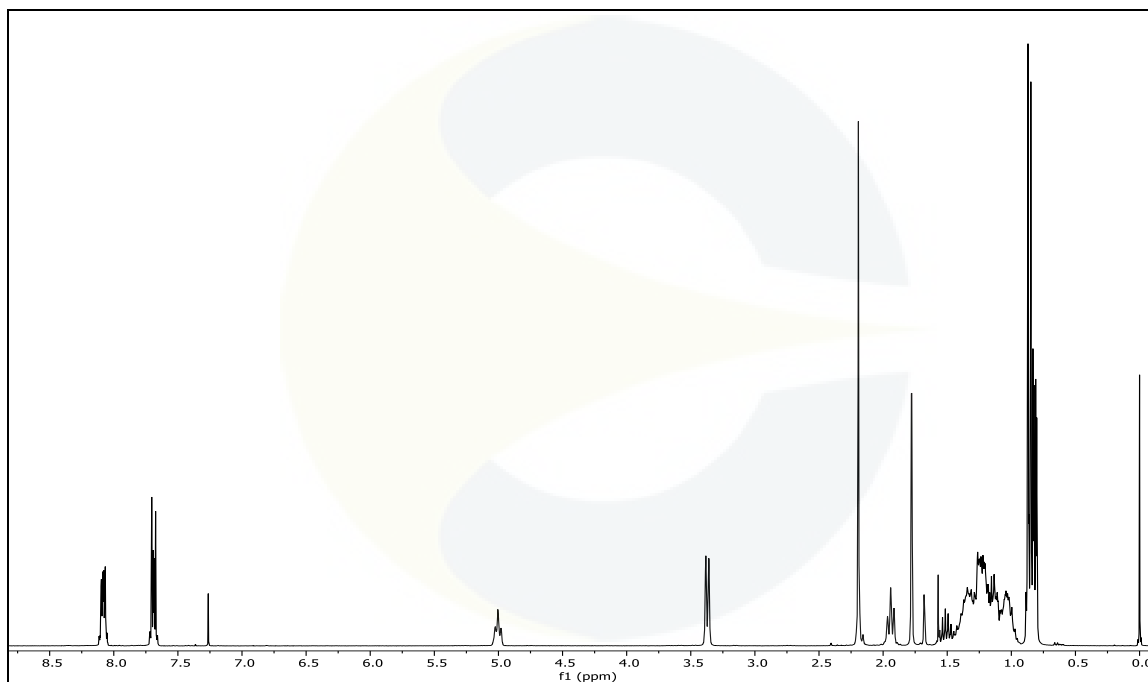


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MASS SPECTRUM OF VITAMIN K1 (PHYTONADIONE) (CDXP-20-00654)



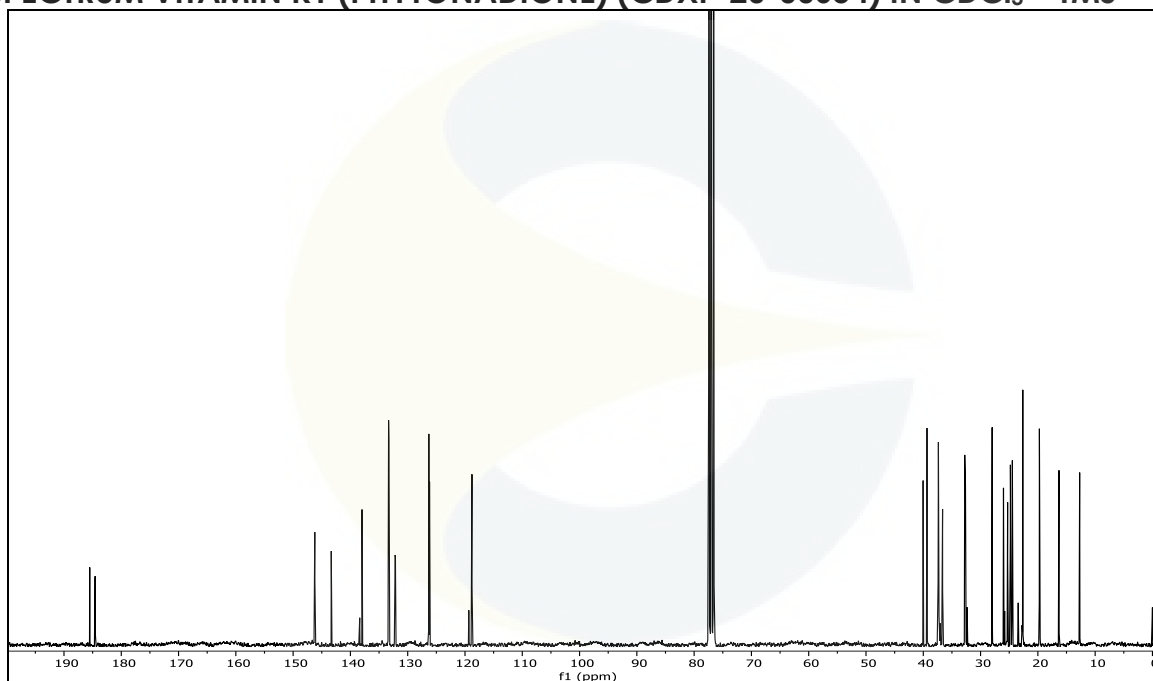
¹H-NMR SPECTRUM OF VITAMIN K1 (PHYTONADIONE) (CDXP-20-00654) IN CDCl₃ + TMS



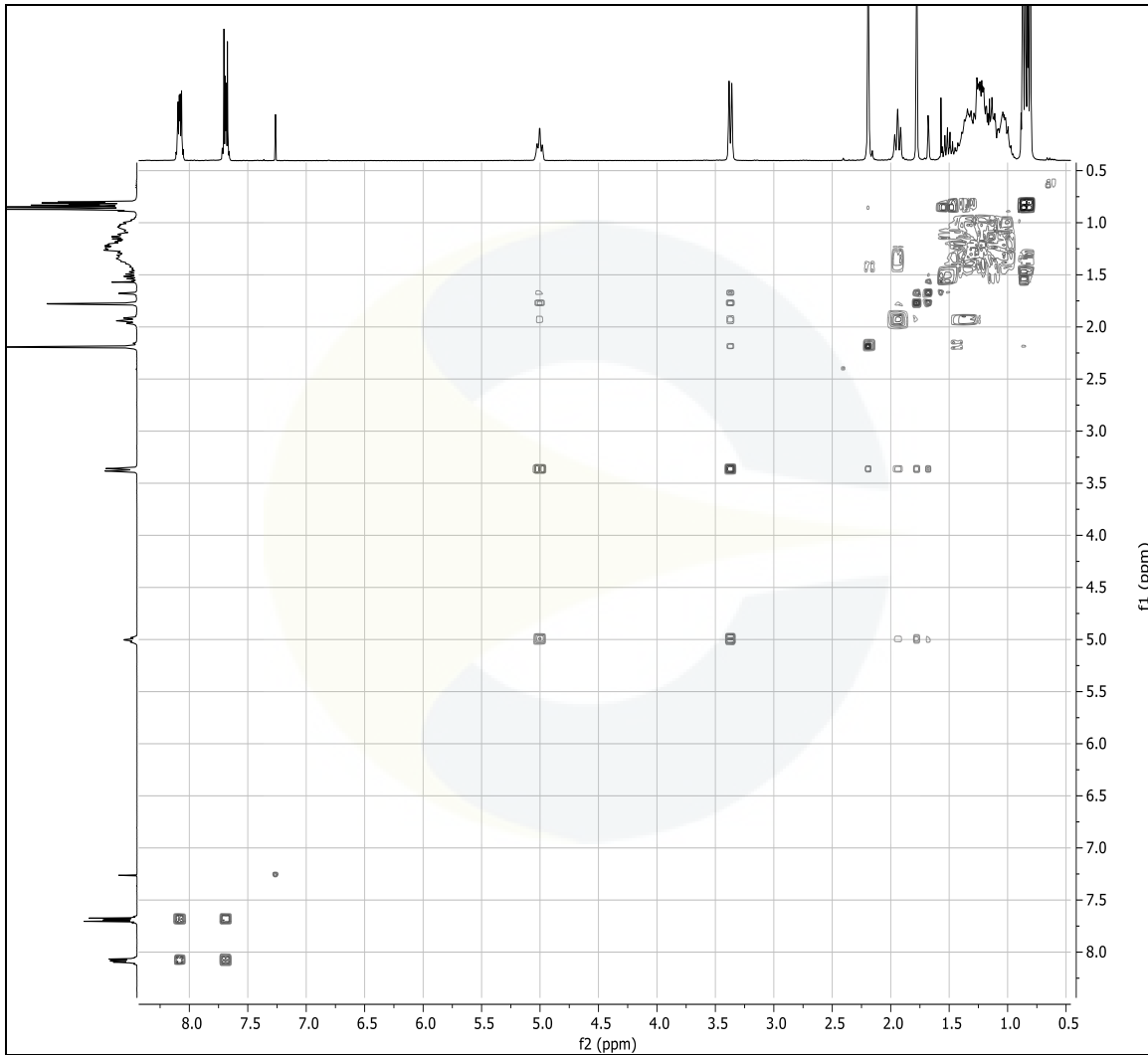
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¹³C-NMR SPECTRUM VITAMIN K1 (PHYTONADIONE) (CDXP-20-00654) IN CDCl₃ + TMS

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COSY-NMR SPECTRUM OF VITAMIN K1 (PHYTONADIONE) (CDXP-20-00654) IN CDCl₃ + TMS

REVISION HISTORY

<u>Revision History</u>	<u>Date of Revision</u>	<u>Document/Changes</u>
00	10/08/2020	New report

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