



# GRACE ANALYTICAL LAB, INC.

5300 McDermott Drive • Berkeley, IL 60163 • Tel. (708) 449-9449

*Your logical choice for custom laboratory solutions*

FDA FEI #3007291509

Silver Moon Nutraceuticals  
2015 Asheville Hwy  
Hendersonville NC, 28791

Project Name: Canabidiol  
Project Number: Canabidiol  
Project Manager: Donovan Drewes

Reported By: AM  
06/05/18 15:10

## ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Received
Cannabidiol; Lot NSB-TW75NOLID	8060403-01	Oil	06/04/18 12:35

Certified by Steven Kim, PhD:

Verified by Grace Kim:



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Project Name: Canabidiol  
Project Number: Canabidiol  
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Reported By: AM  
06/05/18 15:10

**Client Sample ID: Cannabidiol; Lot NSB-TW75NOLID**

**Lab Sample ID: 8060403-01 (Oil)**

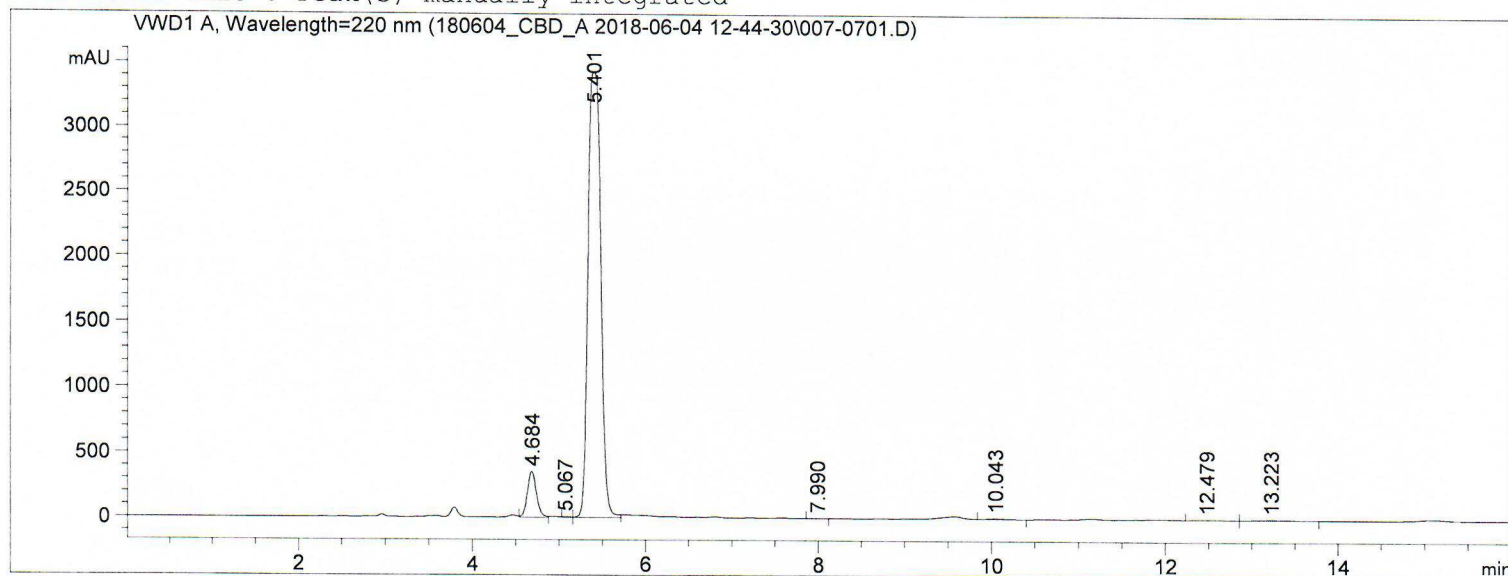
Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Method	Qualifiers
<b>HPLC</b>							
Cannabidiol (CBD)	86.0		%	06/04/18	06/05/18	HPLC	
Cannabinol (CBN)	0.017		%	06/04/18	06/05/18	HPLC	
Delta-9-Tetrahydrocannabinol (delta-9-THC)	0.120		%	06/04/18	06/05/18	HPLC	
Cannabidiol Acid (CBDA)	3.27		%	06/04/18	06/05/18	HPLC	
Cannabigerol (CBG)	0.034		%	06/04/18	06/05/18	HPLC	
Cannabichromene (CBC)	0.079		%	06/04/18	06/05/18	HPLC	
Delta-9-Tetrahydrocannabinolic Acid (THCA)	0.126		%	06/04/18	06/05/18	HPLC	
Tetrahydrocannabivarin (THCV)	ND		%	06/04/18	06/05/18	HPLC	

Certified by Steven Kim, PhD:

Verified by Grace Kim:

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Acq. Operator	: IP	Seq. Line	: 7
Acq. Instrument	: LC1	Location	: Vial 7
Injection Date	: 6/4/2018 2:36:37 PM	Inj	: 1
		Inj Volume	: 5.000 µl
Acq. Method	: C:\CHEM32\1\DATA\180604_CBD_A 2018-06-04 12-44-30\CANN1.M		
Last changed	: 6/4/2018 1:59:27 PM by IP (modified after loading)		
Analysis Method	: C:\CHEM32\1\METHODS\CANN1.M		
Last changed	: 6/5/2018 12:15:44 PM by IP (modified after loading)		
Additional Info : Peak(s) manually integrated			



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External Standard Report

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Sorted By : Signal  
Calib. Data Modified : 6/5/2018 12:16:22 PM  
Multiplier: : 1.0000  
Dilution: : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

RetTime [min]	Type	Area [mAU*s]	Amt/Area	Amount [ppm]	Grp	Name
4.684	VV	2566.09326	5.20633e-2	133.59933		CBDA
5.067	VV	36.12547	3.85927e-2	1.39418		CBG
6.148		-	-	-		THCV
7.990	VV	21.00702	3.24089e-2	6.80815e-1		CBN
10.043	VV	105.99073	4.61895e-2	4.89566		THC
12.479	VV	63.17292	5.11180e-2	3.22927		CBC
13.223	VV	97.74679	5.25294e-2	5.13458		THCA

Totals : 148.93383

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

\*\*\* End of Report \*\*\*

$$\text{CBPA} \quad \frac{133.59933}{0.1022} \times 25 = 32680.85 = 3.27\%$$

$$\text{CBG} \quad \frac{1.39413}{0.1022} \times 25 = 341.04 = 0.0341\%$$

$$\text{CBN} \quad \frac{0.680815}{0.1022} \times 25 = 166.54 = 0.0167\%$$

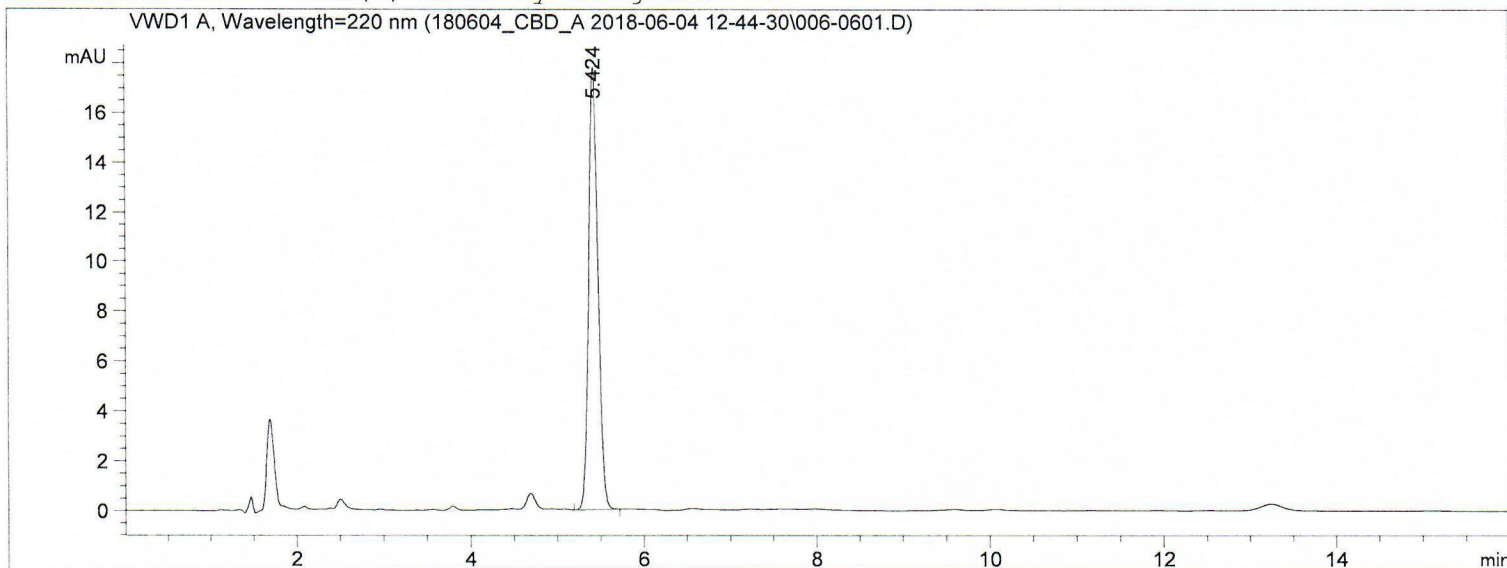
$$\text{THC} \quad \frac{4.89566}{0.1022} \times 25 = 1197.57 = 0.120\%$$

$$\text{CBC} \quad \frac{3.22927}{0.1022} \times 25 = 789.94 = 0.0790\%$$

$$\text{THCA} \quad \frac{5.13453}{0.1022} \times 25 = 1256.01 = 0.126\%$$

IP, sk  
6-5-18

```
=====
Acq. Operator   : IP                               Seq. Line :    6
Acq. Instrument : LC1                             Location  : Vial 6
Injection Date  : 6/4/2018 2:18:51 PM              Inj       :    1
                                                Inj Volume: 5.000 µl
Acq. Method     : C:\CHEM32\1\DATA\180604_CBD_A 2018-06-04 12-44-30\CANN1.M
Last changed    : 6/4/2018 1:59:27 PM by IP
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\CANN1.M
Last changed    : 6/5/2018 10:22:23 AM by IP
                  (modified after loading)
Additional Info  : Peak(s) manually integrated
=====
```



External Standard Report

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=====
Sorted By      :      Signal
Calib. Data Modified : 6/5/2018 10:22:36 AM
Multiplier:    :      1.0000
Dilution:      :      1.0000
Use Multiplier & Dilution Factor with ISTDs
=====
```

Signal 1: VWD1 A, Wavelength=220 nm

RetTime [min]	Type	Area [mAU*s]	Amt/Area	Amount [ppm]	Grp	Name
5.424	VB	135.55437	5.18523e-2	7.02881		CBD

Totals : 7.02881

Handwritten calculations:  
 $\frac{7.02881}{0.1022} \times 25 \times 50 = 859638.1$   
 $\frac{859638.1}{10.1} = 86.0\%$

\*\*\* End of Report \*\*\*

IP  
6-5-18



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Calibration Table

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## Cannabinoids

Calib. Data Modified : Tuesday, June 05, 2018 10:12:34 AM

Rel. Reference Window : 5.000 %  
 Abs. Reference Window : 0.000 min  
 Rel. Non-ref. Window : 5.000 %  
 Abs. Non-ref. Window : 0.000 min  
 Uncalibrated Peaks : not reported  
 Partial Calibration : Yes, identified peaks are recalibrated  
 Correct All Ret. Times: No, only for identified peaks

Curve Type : Linear  
 Origin : Included  
 Weight : Equal

Recalibration Settings:  
 Average Response : Average all calibrations  
 Average Retention Time: Floating Average New 75%

## Calibration Report Options :

Printout of recalibrations within a sequence:

Calibration Table after Recalibration

Normal Report after Recalibration

If the sequence is done with bracketing:

Results of first cycle (ending previous bracket)

Signal 1: VWD1 A, Wavelength=220 nm

RetTime [min]	Lvl Sig	Amount [ppm]	Area	Amt/Area	Ref Grp Name
4.695	1 1	10.00000	208.39084	4.79868e-2	CBDA
	2	50.00000	964.59424	5.18353e-2	
	3	100.00000	1922.13672	5.20254e-2	
5.093	1 1	10.00000	203.53024	4.91327e-2	CBG
	2	50.00000	1006.26215	4.96888e-2	
	3	100.00000	1955.30701	5.11429e-2	
5.432	1 1	10.00000	193.14168	5.17755e-2	CBD
	2	50.00000	952.90070	5.24714e-2	
	3	100.00000	1897.83630	5.26916e-2	
6.148	1 1	10.00000	208.80470	4.78916e-2	THCV
	2	50.00000	994.88928	5.02568e-2	
	3	100.00000	2009.84790	4.97550e-2	
8.024	1 1	10.00000	345.28018	2.89620e-2	CBN
	2	50.00000	1735.54285	2.88094e-2	
	3	100.00000	3485.02881	2.86942e-2	
10.098	1 1	10.00000	215.90298	4.63171e-2	THC
	2	50.00000	1078.51538	4.63600e-2	
	3	100.00000	2153.62061	4.64334e-2	
12.559	1 1	10.00000	198.69679	5.03279e-2	CBC
	2	50.00000	933.39636	5.35678e-2	
	3	100.00000	1888.08252	5.29638e-2	
13.299	1 1	10.00000	196.03131	5.10123e-2	THCA
	2	50.00000	973.59589	5.13560e-2	

RetTime [min]	Lvl Sig	Amount [ppm]	Area	Amt/Area	Ref	Grp	Name
3	100.00000	1979.02710	5.05299e-2				

Peak Sum Table

\*\*\*No Entries in table\*\*\*

Sample Name: 50PPM CBDA,CBG,CBD,THCV,CBN,THC,CBC,THCA

```

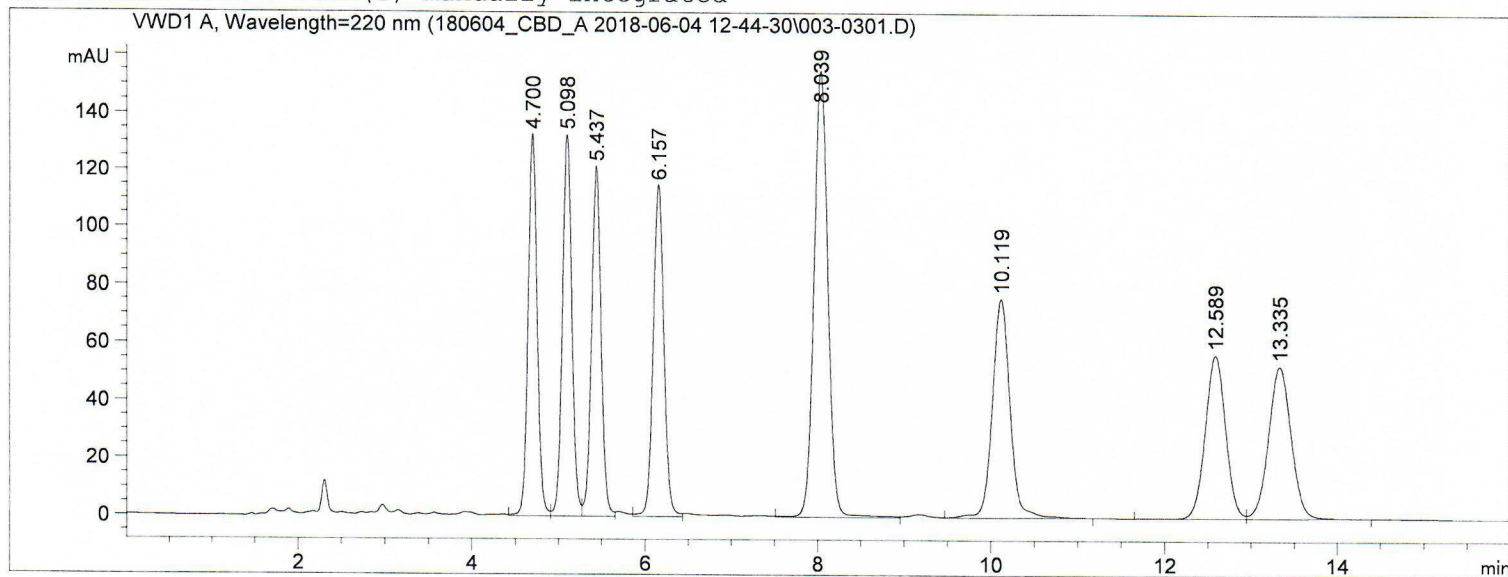
=====
Acq. Operator   : IP                               Seq. Line :    3
Acq. Instrument : LC1                             Location  : Vial 3
Injection Date  : 6/4/2018 1:25:34 PM              Inj       :    1
                                                    Inj Volume: 5.000 µl

Acq. Method     : C:\CHEM32\1\DATA\180604_CBD_A 2018-06-04 12-44-30\CANN1.M
Last changed    : 6/4/2018 1:25:05 PM by IP
                  (modified after loading)

Analysis Method : C:\CHEM32\1\METHODS\CANN1.M
Last changed    : 6/5/2018 12:15:01 PM by IP
                  (modified after loading)

Additional Info  : Peak(s) manually integrated
=====

```



External Standard Report

```

=====
Sorted By           :      Signal
Calib. Data Modified :      6/5/2018 12:14:29 PM
Multiplier:         :      1.0000
Dilution:           :      1.0000
Use Multiplier & Dilution Factor with ISTDs
=====

```

Signal 1: VWD1 A, Wavelength=220 nm

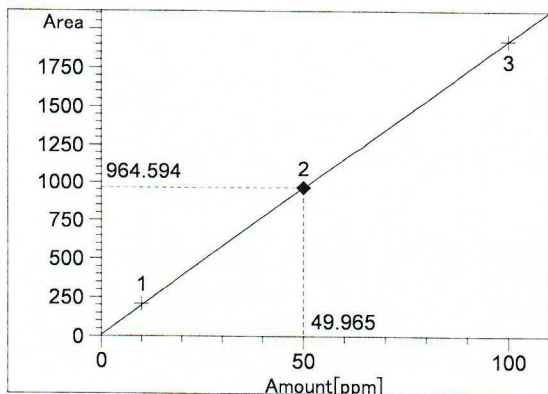
RetTime [min]	Type	Area [mAU*s]	Amt/Area	Amount [ppm]	Grp	Name
4.700	VV	964.59424	5.17988e-2	49.96480		CBDA
5.098	VV	1006.26215	5.06736e-2	50.99089		CBG
5.437	VV	952.90070	5.25956e-2	50.11839		CBD
6.157	VV	994.88928	4.98085e-2	49.55395		THCV
8.039	VV	1735.54285	2.87356e-2	49.87185		CBN
10.119	VB	1078.51538	4.64092e-2	50.05304		THC
12.589	BV	933.39636	5.30095e-2	49.47886		CBC
13.335	VB	973.59589	5.07688e-2	49.42832		THCA

Totals : 399.46010

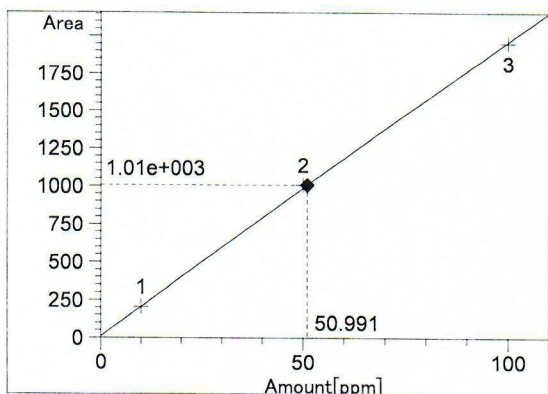


Sample Name: 50PPM CBDA,CBG,CBD,THCV,CBN,THC,CBC,THCA

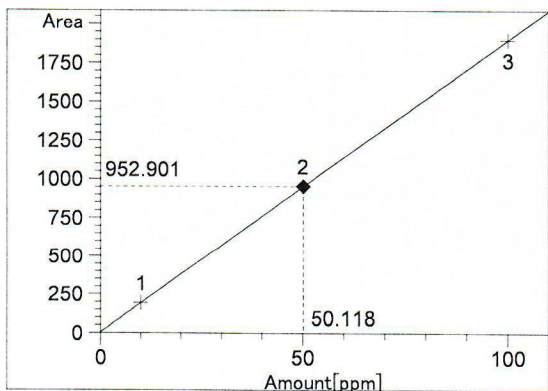
## Calibration Curves



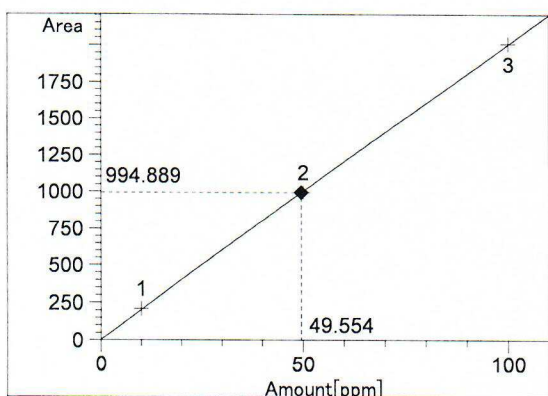
CBDA at exp. RT: 4.695  
VWD1 A, Wavelength=220 nm  
Correlation: 0.99997  
Residual Std. Dev.: 8.49737  
Formula:  $y = mx + b$   
m: 19.14878  
b: 7.82935  
x: Amount  
y: Area



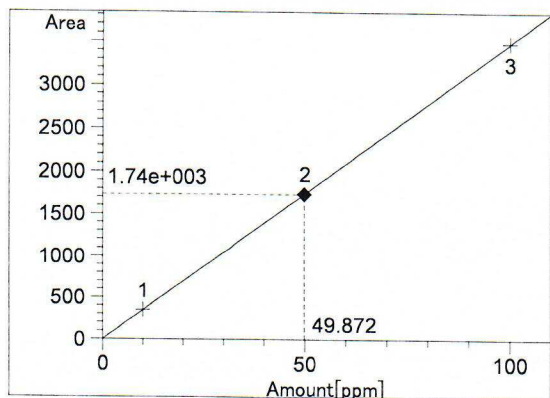
CBG at exp. RT: 5.093  
VWD1 A, Wavelength=220 nm  
Correlation: 0.99988  
Residual Std. Dev.: 16.53881  
Formula:  $y = mx + b$   
m: 19.56051  
b: 8.85463  
x: Amount  
y: Area



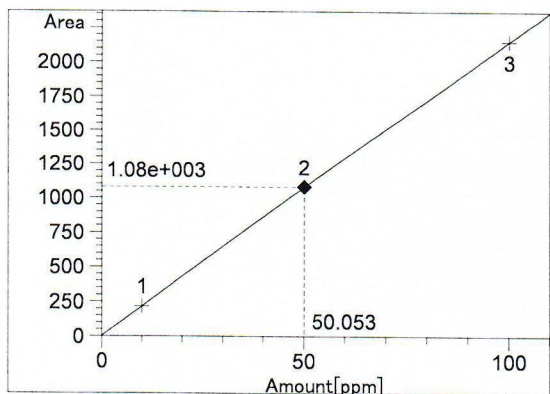
CBD at exp. RT: 5.432  
VWD1 A, Wavelength=220 nm  
Correlation: 1.00000  
Residual Std. Dev.: 2.55613  
Formula:  $y = mx + b$   
m: 18.96854  
b: 2.22815  
x: Amount  
y: Area



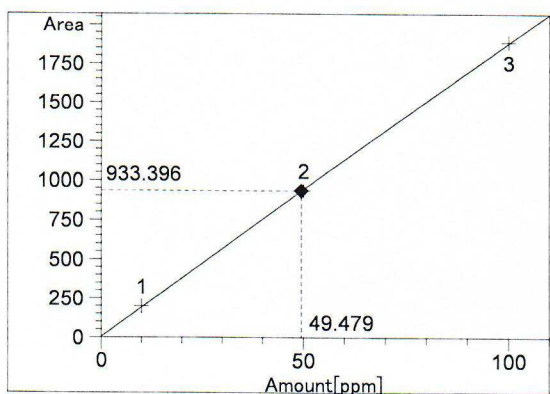
THCV at exp. RT: 6.148  
VWD1 A, Wavelength=220 nm  
Correlation: 0.99997  
Residual Std. Dev.: 8.44170  
Formula:  $y = mx + b$   
m: 20.04446  
b: 1.60724  
x: Amount  
y: Area



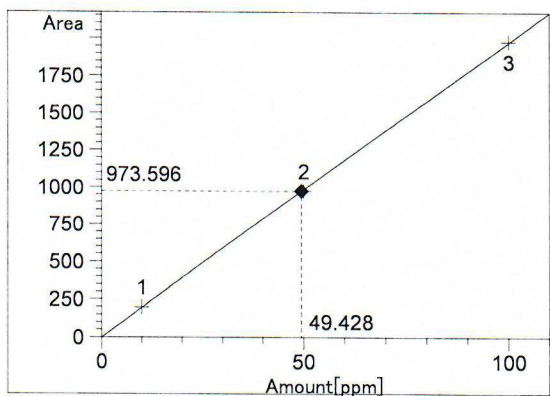
CBN at exp. RT: 8.024  
VWD1 A, Wavelength=220 nm  
Correlation: 1.00000  
Residual Std. Dev.: 4.05527  
Formula:  $y = mx + b$   
m: 34.85464  
b: -2.72253  
x: Amount  
y: Area



THC at exp. RT: 10.098  
VWD1 A, Wavelength=220 nm  
Correlation: 1.00000  
Residual Std. Dev.: 0.98454  
Formula:  $y = mx + b$   
m: 21.53634  
b: 5.56190e-1  
x: Amount  
y: Area



CBC at exp. RT: 12.559  
VWD1 A, Wavelength=220 nm  
Correlation: 0.99996  
Residual Std. Dev.: 9.61107  
Formula:  $y = mx + b$   
m: 18.81581  
b: 2.41159  
x: Amount  
y: Area



THCA at exp. RT: 13.299  
VWD1 A, Wavelength=220 nm  
Correlation: 0.99996  
Residual Std. Dev.: 9.38214  
Formula:  $y = mx + b$   
m: 19.77365  
b: -3.78253  
x: Amount  
y: Area

\*\*\* End of Report \*\*\*