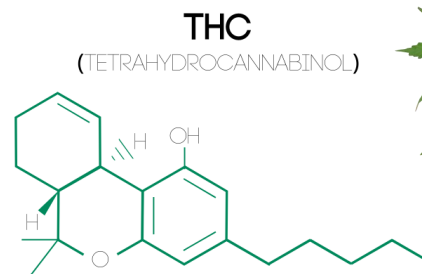


# Getting the most, with the least risk, out of cannabis cultivation

The deregulation of cannabis cultivation and distribution has opened up a new industry with significant economic benefits for both the grower and distributors, however, achieving economic benefit is not without challenges. Dionamix Scientific objective is to overcome three key challenges ensuring you get the most out of your crop.

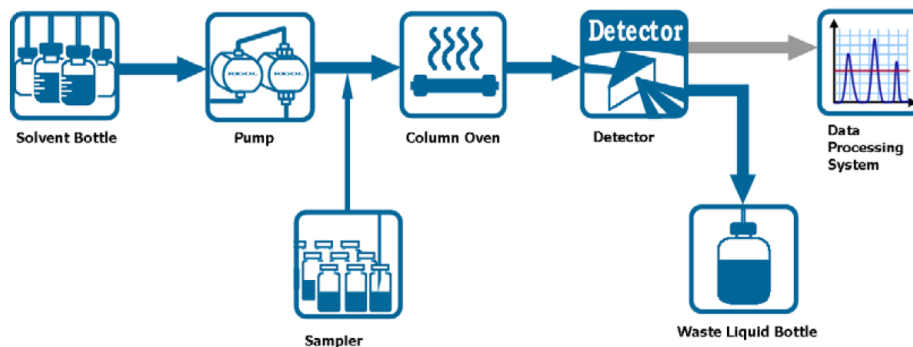
1. By cultivating at the peak level of potency
  - Sample the crop frequently, optimize timing and reduce cost of sample verification and regulatory certification
2. Make sure the product does not age diminishing the psychotropic effect
  - Manage inventories, reduce risk of spoiled batches or negative quality perception
3. Provide quantitative data to optimize processes, nutrients and growth conditions

Strain	Chocolate Fondue		
Compound	Std %	Tested %	QC
CBD	0%	0.2%	Pass
THC	20%	20.3%	Pass
CBG	1%	1.1%	Pass



## Composition separation and analysis, using Liquid Chromatography principles

High performance liquid chromatography is a technique that can be used to separate, identify and quantify individual components in a solution. Using the same technique, Liquid Chromatography can also be used to purify substances.



A sample is extracted with a solvent to create a homogenous sample extract. The sample extract is introduced to a column which is filled with stationary phase materials of various chemical & physical properties. The stationary phase materials interact with sample target compounds causing them to flow at different rates, resulting in their separation from each other. Once the components are separated, the retention time (time takes to flow through column) of each compound is compared to a calibration standard in order to identify each cannabinol.

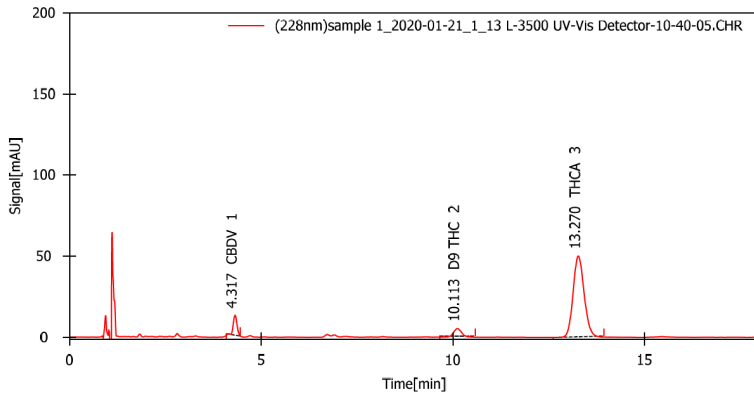
Based on the theory that different concentration of elements will absorb light differently, a light beam and a light detector can be used to measure the retention time and absorbance of each component making it possible, based on their chemical properties, to identify and quantify each cannabinol component.

Liquid chromatography (compound separation) with a light source and Ultraviolet—Visual light (UV-Vis) detector is the industry golden standard for analyzing and determining the cannabis potency.

# Cannabis compound analysis using Dionamix L-3000 HPLC System

In this paper, Dionamix Scientific analyzed two samples using the Liquid Chromatography analytical methods as follows.

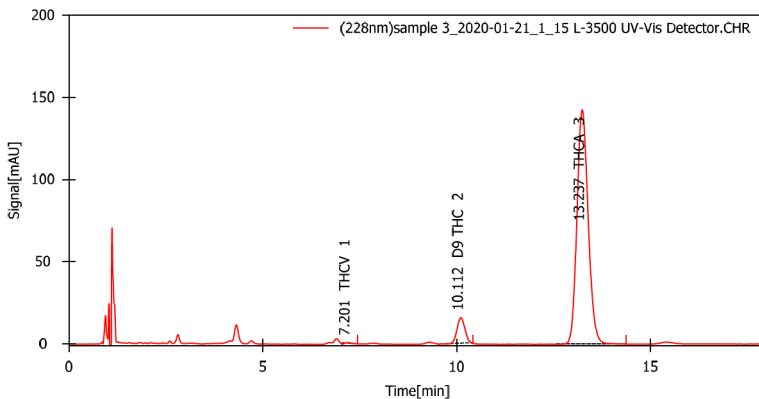
**Sample 1:** Test Results: The sample was separated into the following compounds



	Compound	Amount (mg/g)	Retention Time (Min)	Area (%)
1	CBDV	56.901	4.317	7.303
2	D9 THC	21.113	10.113	6.682
3	THCA	124.474	13.270	86.015
	<b>Total</b>	<b>202.488</b>		<b>100%</b>

Sample 1 contained 21.11mg/g of delta-9 THC, and 124.48mg/g of THC, which equates to 101.39mg/g (10.139%) of total THC.

**Sample 2:** Test Results: The sample was separated into the following compounds



	Compound	Amount (mg/g)	Retention Time (Min)	Area (%)
1	THCV	4.493	7.201	0.274
2	D9 THC	44.135	10.112	7.358
3	THCA	253.741	13.237	92.367
	<b>Total</b>	<b>0.100</b>		<b>100%</b>

Sample 2 contained 250mg/g of total THC, in addition to 4.49mg/g of THCV substance which is undesired caused by aging and natural degradation

**Conclusion:** Using the Dionamix L-3000 HPLC system, multiple samples from across the crop and at various growth phases can be tested to **measure the level of THC % or potency**, allowing you to **maximize the Cannabis plant potency sales potential**. In addition test reports can be archived for an accurate historical record of each crop. In sample 2 above, the test results clearly indicate the crop has begun its natural aging process producing **undesired components like THCV or CBDV**, catching this stage before its too late can **prevent losing an entire crop** or distributing sub-par product, negatively impacting the company's brand. A third benefit to onsite testing capability is for **product and cultivation research**. Using the Dionamix HPLC system to test small R&D batches affords the grower measurements that reduce if not eliminate the subjective analysis and guesswork, making it possible to **optimize processes, nutrients and growth environmental conditions**.

On site repetitive testing provides **clear metrics to maximize revenues and ensure consist quality reducing the risk** of unknowingly distributing sub-par product in an increasingly competitive market.

For more information, consultation or a demonstration contact Dionamix Scientific at [info@dionamix.com](mailto:info@dionamix.com)