No two potency tests are the same

1. Natural variation in cannabis composition can cause huge differences in potency between plants, between different buds from the same plant, and even within the same bud.
2. Image analysis shows that trichomes are not dispersed equally throughout a flower bud. Even ground material does not guarantee equal distribution of active compounds. One area can have a higher trichome concentration than another.

Trichomes are NOT spread equal

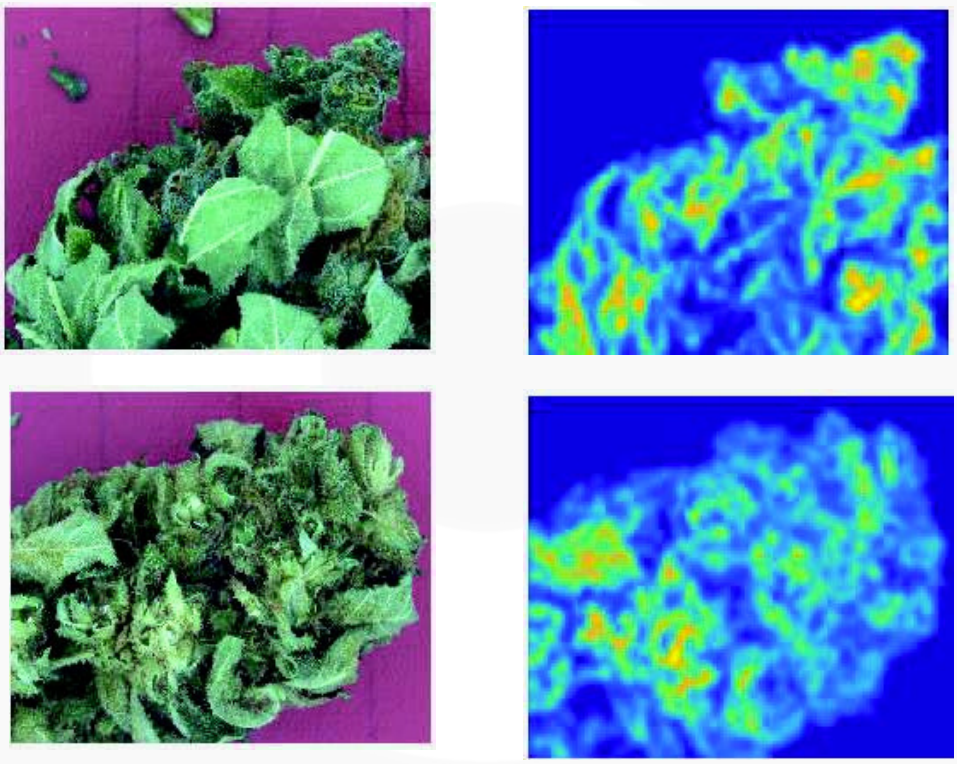

Image analysis by GemmaCert of trichome spread (in yellow)

3. Scientific studies, such as by Prof. Lumir Hanus at the Institute of Drug Research of the Hebrew University of Jerusalem, have shown that two flowers from the same plant can sometimes have a potency variance of 100% or more.
4. In addition to the natural variation which presents high levels of non-homogeneity and hinders accurate potency testing, there is very little standardization in how different labs test for potency. Labs use different diagnostic equipment, and varying testing protocols and each of these has its own measurements of uncertainty.
5. Combining the above, it is highly likely that lab results will differ from one another.

6. Variance will even occur when running the same homogenized sample through the same HPLC (High-Performance Liquid Chromatography - the industry's standard for cannabis potency testing).
7. For example, a 5gr homogenized sample was run 20 times on three HPLCs by 4 different lab technicians at an ISO 17025 certified lab for cannabis testing in Denver (CO), and the following CBDA results were obtained demonstrating considerable variance:

1	15.344	
2	14.857	
3	14.360	
4	14.125	
5	14.495	
6	15.338	
7	15.022	
8	15.909	
9	15.165	
10	15.433	
11	15.753	
12	15.105	
13	14.272	
14	16.755	**MAX**
15	15.218	
16	14.154	
17	14.748	
18	10.319	**MIN**
19	14.455	
20	13.223	

VALUES

MAXIMUM: 16.755%

MINIMUM: 10.319%

MEDIAN: 14.939%

AVERAGE: 14.725%

8. Whenever a sample is taken to a 3rd party laboratory for potency testing, make sure to confirm that the laboratory is ISO 17025 certified. This is the international standard that specifies the general requirements for a laboratory's competence to carry out tests and/or calibrations, including sampling. This should ensure that the laboratory is using calibrated diagnostic equipment, operated by skilled technicians running validated sampling and testing protocols.

9. In addition, make sure to ask for the lab's measurement of uncertainty so that you know the margin of error for any results provided.
10. GemmaCert's analytical laboratory for cannabis testing is ISO 17025 certified. Over 15,000 cannabis flowers, collected from North America, Europe, and Israel, have been tested by the HPLC devices available to GemmaCert and each test has been conducted by the same validated protocol. The results have been incorporated into the reference database which forms the foundation of the GemmaCert analytical performance for testing Total CBD and
11. Total THC. The GemmaCert HPLC protocol for testing cannabis potency is available upon request.
    Potency results by the GemmaCert device are accurate within +/- 10% of HPLC results, assuming the HPLC device used by the ISO 17025 certified lab is calibrated and properly
12. operated, results were correctly interpreted, and the same sample which was tested by GemmaCert was analyzed by HPLC.
    Remember that due to the natural variance of cannabis, and the characteristic variance of analytical testing, cannabis potency should be viewed in terms of batch consistency, not single flower accuracy.

9.