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Natural Isotopic Labelling of Cannabis

As the cannabis industry expands, so does the black market, highlighting the need for practical methods of cannabis tracking, distinguishing legal from illegally produced material, and counterfeit detection. Counterfeit products are particularly dangerous because they could contain harmful chemicals that put the consumer at risk. To date, proposals to institute a tracking system have centered on adding artificial chemical or isotopic tracers to cannabis products. However, adding artificial substances to cannabis is potentially expensive and has met with fierce opposition from cannabis producers and users that is unlikely to subside.

Dr. Gwyneth Gordon at Arizona State University and collaborators have developed isotopic labels using natural sources and processes that can be added to fertilizers or other nutrient solutions to provide distinct fingerprints for cannabis plants and products. These isotopic labels are either derived from natural sources or created from modifications to ordinary fertilizers, making them much more attractive to cannabis producers and users. The labels are batch specific and difficult to duplicate, resulting in thousands of unique fingerprints. Further, they are effectively incorporated into plant tissues, allowing them to be traced or marked as belonging to a certain producer, and cannot be removed, making them tamper-proof.

These isotopic labels are a natural, inexpensive and effective way to identify cannabis plants and help combat the problem of illegal or counterfeit cannabis production.

Potential Applications

- Natural isotopic labeling of cannabis
 - o Tracking/traceability
 - o Distinguish between legal and illegally produced products
 - o Detection of counterfeit products

Benefits and Advantages

- Natural source of isotopic labels – does not require the addition of artificial

substances

- Provides a unique and difficult to duplicate isotope fingerprint
- Produces plant nutrients chemically identical to those already in use
- Does not require the chemical alteration of the cannabis products
- Less expensive to produce than artificially separated isotopes
- Lead, uranium and other toxic metals are removed from the natural sources
- Effective, tamper-proof and difficult or impossible to counterfeit - the isotopic label becomes incorporated into plant tissues and is unable to be removed

For more information about the inventor(s) and their research, please see

[Dr. Gordon's laboratory webpage](#)