



An Efficient Method for Sorting Cannabis Seed

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The Wisconsin Alumni Research Foundation is seeking commercial partners interested in implementing an innovative, customizable high throughput method of sexing Cannabis seeds. Early sex determination of Cannabis plants offers control over the composition of male and female seed quantities sorted, maximizing the grower's commercial return while saving time and resources.

Overview

In commercial crop production, it is often desirable to know which individuals are of a specific sex or those harboring certain traits. Current methods employed to isolate or enrich a desired plant population include hormone treatments, DNA sequencing of plant tissue, and culling unwanted plants. Cannabis, a plant that produces separate male and female plants, is a crop that benefits from being sexed early. In the presence of both plant sexes, the female plants go to seed much faster, destroying the lucrative crop of buds and flowers. Still, male plants are critical for seed production. As it stands, existing methods for sexing cannabis plants are time-consuming and not scalable. This invention introduces the capability to sex cannabis seed on a larger scale in an easier and inexpensive manner.

The Invention

Researchers at UW-Madison have developed a higher throughput method for sexing Cannabis seeds or pollen. Their approach takes advantage of the dioecious nature of the plant whereby a marker gene on the Y chromosome will be detected fluorescently. The separation of fluorescent from non-fluorescent seeds or pollen allows for control over the relative proportion of male and female seeds/pollen provided to growers.

This new method of sexing Cannabis seeds/pollen enables growers to maximize their commercial return and save resources by controlling the number of male plants present in a population, which can be isolated with over 70% accuracy depending on the marker gene labelled on the Y chromosome. Compared to standard methodology of seed sorting, which often demands more resources and is not as efficient, this technology is less labor intensive, easily scalable and inexpensive.

Applications

- Offers a method for reliably manipulating Cannabis plants to generate novel transgenic Cannabis lines that would be of interest in the pharmaceutical, medical and fragrance industries.

Key Benefits

- Allows Cannabis to be sexed at the seed/pollen stage rather than the seedling stage
- Improves the efficiency of sexing Cannabis plants in a scalable, inexpensive manner

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Additional Information

For More Information About the Inventors

- [Shawn Kaeppler](#)

Publications

- [2022. Cannabis Genetic Engineering. \[Poster\]. The Emerald Conference, Feb. 27, San Diego, CA.](#)
- [CBDA Synthases Engineered into Hemp Show Over 300% MOre CBDA/THCA in Early Flowers. 2023.](#)
- [Beyond CBD: Optimized Hemp Cultivars](#)

Tech Fields

- [Animals, Agriculture & Food : Plant biotech](#)

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