

## Differential Production of Cannabinoids CBD and THC (Yissum)

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### Background

The most common type of cannabinoids is tetrahydrocannabinol (THC) which ensures a psychedelic high but also helps in relieving chronic pain and stimulates poor appetite. On the other hand, cannabidiol (CBD) as well as CBG and CBC are able to reduce the THC action and provide anti-seizure and anti-inflammation effects. The large number of potent chemicals in this plant and their interaction still have to be better classified and studied.

One thing in common, is that only non-pollinated female flowers are of value. Hence, development of female strains, either by genetic control or chemical/physiological means becomes a great advantage.

Currently, most, if not all, Cannabis plantation are clonally propagated with the consequent risks of pathogenic contamination and up to complete loss of the crop. Nuclear stock has to be raised under protected conditions – a costly and risky challenge.

### Research Outlook

Creating new medical cannabis strains, breeders focus on the content of THC and CBD, thus strains with high level of THC or CBD are available on the market. However, there are also other types of cannabinoids that are full of beneficial effects. Selection for desired traits can result in plants yielding high quantities and better expression of CBD and THC groups of compounds, to achieve desired medical outcome.

Production of seed propagated female hybrid populations, rich in the desired cannabinoids may further enhance production and therefore reduce risks and costs.

### Advantages

- Higher yields of female only plants
- Larger quantities of THC can be produced for extraction
- Higher levels of THC produced per plant
- Reduced contamination

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