MyFloraDNA

MFDetect™

Advancing Cannabis Pathogen Surveillance and Detection

Highlights

- Mitigating Cannabis pathogens spread: MFDetect™ - the trusted method for reliable detection of pathogens in plants.
- Empowering Cannabis Growers: MFDetect™ Technology offers a robust, high throughput, and cost-effective solution for Cannabis pathogen detection (viruses, viroids, and fungi).
- MFDetect™: combining the simplicity of RT-LAMP and sensitivity of RT-qPCR for unparalleled accuracy in Cannabis pathogen identification.
- Fast, sensitive, and reliable: unveiling the power of MFDetect™ for pathogen detection in Cannabis plants.

Introduction

Several detection technologies exist for identifying plant pathogens with RNA, such as reverse-transcriptase polymerase chain reaction (RT-PCR), reverse-transcriptase quantitative polymerase chain reaction (RT-qPCR), and reverse transcriptase loop-mediated isothermal amplification (RT-LAMP) (1,2). While RT-qPCR is considered the gold standard, it is costly and lacks high throughput capacity. In contrast, RT-LAMP is gaining popularity due to its advantages: high throughput, affordability, and rapidity. Both methods have pros and cons.

The industry requires a reliable, low-cost, specific, accurate, and high-throughput molecular diagnostic approach for early detection and control of plant pathogens. To address this, MyFloraDNA developed MFDetect™, an advanced diagnostic technology offering accurate, high-throughput, and cost-effective pathogen detection, including viroids, viruses, and fungi (3). Safeguard your crops and promote optimal health and productivity with our cutting-edge testing platform.

Development of MFDetect™ Method:

The MFDetect™ technology pioneered by the MyFloraDNA research team facilitates quick and precise detection of a set of common plant pathogens. The technology combines elements of two leading techniques, RT-LAMP and RT-qPCR, to accurately detect specific viroids, viruses, and fungi.

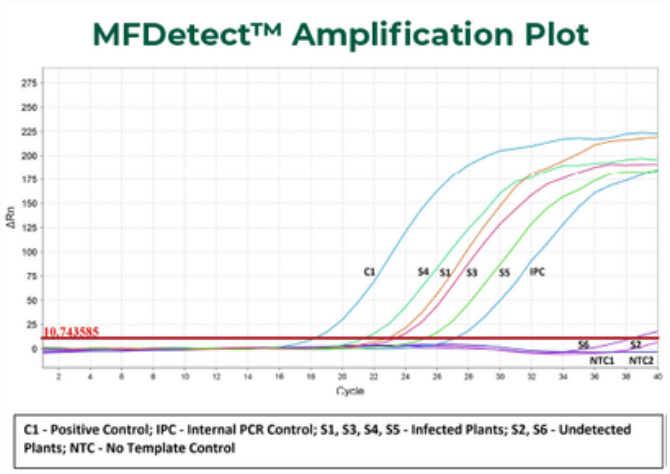
MFDetect™ was developed to enhance the sensitivity and specificity of high throughput, low-cost detection. The new technique combines a unique nucleic acid extraction recipe, primers designed to work at high temperatures, and the application of DNA-binding dyes to facilitate the quantification of the pathogen titer in provided tissue samples when analyzed using a qPCR machine. Thus, we have the ability not only to detect but also to monitor the pathogen load in infected plants.

Evaluation of MFDetect™ Accuracy:

Hop Latent Viroid (HLVd) is a serious disease of Cannabis (4,5). To compare the accuracy of MFDetect™ for HLVd detection with widely used TaqMan RT-qPCR assays, we conducted side-by-side experiments. The comprehensive study was conducted on leaf samples collected from fifty plants which were identified after an analysis of over 5000 plants. The fifty plants selected for the study included forty-four infected and six uninfected plants, from which tissue samples were collected at biweekly intervals.

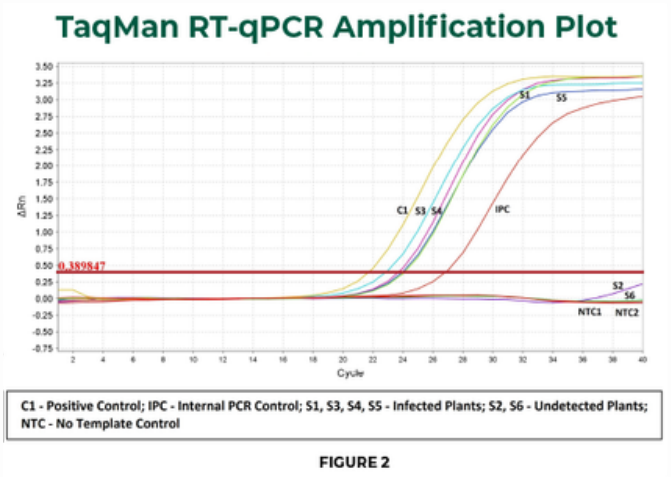
Using MFDetect™, the extracted RNA from these plants underwent thorough analysis to validate its sensitivity and specificity in pathogen detection. Our results reveal 99% agreement between MFDetect™ and TaqMan RT-qPCR for the detection of infected plants.

With its fast turnaround times, simple sample collection process, and the convenience of MyFloraCLOUD, our comprehensive MFDetect™ technology empowers you with the knowledge necessary to safeguard your cannabis crops. Join us in this journey of precision and innovation as we uncover hidden threats and ensure the continued vitality of your valuable plants.



C1 - Positive Control; IPC - Internal PCR Control; S1, S3, S4, S5 - Infected Plants; S2, S6 - Undetected Plants; NTC - No Template Control

FIGURE 1



C1 - Positive Control; IPC - Internal PCR Control; S1, S3, S4, S5 - Infected Plants; S2, S6 - Undetected Plants; NTC - No Template Control

FIGURE 2

Download the full scientific paper here.

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Thank you!

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