Automation of the SenSATIVAx® Sample Extraction and PathoSEEK® or FemINDICAtor™ qPCR Setup Platforms on the Microlab® NIMBUS®

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High-throughput DNA Extraction and qPCR Setup Directly from Cannabis Flower on the Microlab NIMBUS

Introduction

Cannabis testing is critical to the success of growers and processors. In addition to providing vital information on product quality and safety while complying with state regulations, certain cannabis tests can help growers to maximize the efficiency of their yield prior to harvest. At the same time, an increased number of samples submitted for testing, combined with time-consuming manual testing methods, creates a backlog in the testing laboratory that, in turn, delays the sale of the crop.

Assay protocols vary widely, and many older methods are not specifically validated for use with cannabis samples, are not scalable, and do not include internal cannabis controls to confirm test accuracy. Additionally, labor-intensive protocol steps such as sample preparation limit sample throughput, and risk error due to human variability and subjective interpretation. Automated cannabis testing methods, using assays specifically developed for cannabis testing, can increase throughput and reduce bottlenecks without sacrificing the quality of results. Here, we demonstrate automated workflows using Medicinal Genomics (MGC) assays specifically developed for cannabis testing. The SenSATIVAx Plant/Microbial DNA Purification Kit provides fast, easy isolation of plant and microbial DNA from freshly cut or cured leaf or flower material without the need for organic extraction, and can be used to prepare samples for use with the PathoSEEK and FemINDICAtor assays. The PathoSEEK Microbial Safety Testing Platform uses a quantitative polymerase chain reaction to search for and quantify the unique DNA sequences of target organisms in cannabis flower, extracts and infused product samples, and includes an internal cannabis control. The FemINDICAtor qPCR Plant Gender Detection Assay accurately identifies male cannabis plants significantly faster and earlier than visual inspections so that growers can remove them from the crop, thereby improving yields.

Highlights

- Maximize profits, including reducing or reallocating labor resources
- Eliminate human errors and variability during processing and results interpretation
- Reliably safeguard product and crop integrity