

PathoSEEK® Aspergillus flavus, fumigatus, niger, and terreus Detection Assays with MaGiC Lysis for Detection in Cannabis Flower and MIP Matrices

Method Developer Validation

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Abstract

Background:

Certain regulations mandate that cannabis products must be free of pathogenic *Aspergillus* species. The PathoSEEK® species-specific *Aspergillus* Detection Assays with MaGiC Lysis are designed for the individual detection of *Aspergillus flavus*, *Aspergillus fumigatus*, *Aspergillus niger*, and *Aspergillus terreus* in cannabis flower and marijuana-infused product (MIP) samples using separate qPCR assays. These assays are designed to detect the specific *Aspergillus* target in the FAM channel.

Objective:

The goal of this study was to assess the performance of the PathoSEEK® species-specific *Aspergillus* Detection Assays with MaGiC Lysis for identifying the four pathogenic *Aspergillus* species in cannabis flower and MIPs, both with and without the use of Grim Reefer Free DNA Removal.

Results:

The PathoSEEK® species-specific *Aspergillus* Detection Assays utilizing the MaGiC Lysis method demonstrated high specificity and accuracy in identifying target *Aspergillus* species in both cannabis flower and marijuana infused products (MIPs). Validation using certified reference materials (CRMs) confirmed the assay's ability to reliably detect the intended *Aspergillus* species.

Materials

MaGiC Lysis Kit Components (available for order separately but not needed for confirmation testing):

Item P/N	Item Name	Qty Provided	Storage Conditions
420180A	MaGiC Lysis Reagent	1 Bottle (12 mL)	RT (20–28°C)
420180B	MaGiC Stabilization Buffer	1 Bottle (24 mL)	RT (20–28°C)

PathoSEEK® Aspergillus Species-Specific Assays Kit Components (only available as a kit):

Item P/N	Component Name	Qty Provided	Storage Conditions
420537	PathoSEEK® Aspergillus Species-Specific Assays Kit	Components Below	See Below
	PathoSEEK® Amplification Mix <i>Includes 2 tubes nuclease free water for resuspension</i>	4 Vials (50 rxns each)	RT (20–28°C) / -15 to -20 °C*
	PathoSEEK® Aspergillus flavus Detection Assay v2	1 Tube (200 µL)	-15 to -20 °C
	PathoSEEK® Aspergillus fumigatus Detection Assay v2	1 Tube (200 µL)	-15 to -20 °C
	PathoSEEK® Aspergillus niger Detection Assay v2	1 Tube (200 µL)	-15 to -20 °C
	PathoSEEK® Aspergillus terreus Detection Assay v2	1 Tube (200 µL)	-15 to -20 °C

*The PathoSEEK Amplification Mix can be stored lyophilized at Room Temperature for up to 2 years. Once re-hydrated it must be stored at -15 to -20 °C for up to 3 months.

Inclusivity and Exclusivity

Wet Laboratory Methodology

For the inclusivity evaluation, 50 strains of *Aspergillus* were evaluated. Target strains were cultured in Potato Dextrose Broth with Chloramphenicol for 24 hours at 37 °C followed by MaGiC Lysis and PathoSEEK® qPCR. For exclusivity, 35 organisms were evaluated. Target strains were cultured under optimal conditions for growth of the organism followed by MaGiC Lysis and PathoSEEK® qPCR.

Results

Of the 50 inclusivity strains tested, all 50 were correctly detected. Of the 35 exclusivity strains tested, 32 were correctly excluded. Tables 1 and 2 present a summary of the results.

Table 1: Inclusivity Results, PathoSEEK® Species Specific *Aspergillus* Assay v2

Organism	Source	Origin	A. flavus Assay Result	A. fumigatus Assay Result	A. niger Assay Result	A. terreus Assay Result
<i>Aspergillus flavus</i>	ATCC 9643	Shoe sole, New Guinea	Pos	Neg	Neg	Neg
<i>Aspergillus flavus</i>	ATCC 26768	Dry cracower sausage, Poland	Pos	Neg	Neg	Neg
<i>Aspergillus flavus</i>	ATCC 16883	Cellophane. South Pacific	Pos	Neg	Neg	Neg
<i>Aspergillus flavus</i>	ATCC 11489	N/A	Pos	Neg	Neg	Neg
<i>Aspergillus flavus</i>	ATCC 11497	N/A	Pos	Neg	Neg	Neg
<i>Aspergillus flavus</i>	ATCC 204304	Human sputum, Virginia	Pos	Neg	Neg	Neg
<i>Aspergillus flavus</i>	ATCC MYA-1004	Clinical Isolate, New York City, NY	Pos	Neg	Neg	Neg
<i>Aspergillus flavus</i>	ATCC MYA-200026	Peanut cotyledons, USA	Pos	Neg	Neg	Neg
<i>Aspergillus flavus</i>	ATCC 12693	Soil	Pos	Neg	Neg	Neg

<i>Aspergillus flavus</i>	ATCC 13697	N/A	Pos	Neg	Neg	Neg
<i>Aspergillus flavus</i>	ATCC MYA-4921	N/A	Pos	Neg	Neg	Neg
<i>Aspergillus flavus</i>	ATCC MYA-3631	Human biopsy, USA	Pos	Neg	Neg	Neg
<i>Aspergillus fumigatus</i>	ATCC 16903	Human chest cavity lining, Illinois	Neg	Pos	Neg	Neg
<i>Aspergillus fumigatus</i>	ATCC 1022	Lung of chicken, Connecticut	Neg	Pos	Neg	Neg
<i>Aspergillus fumigatus</i>	ATCC 1028	Soil, Germany	Neg	Pos	Neg	Neg
<i>Aspergillus fumigatus</i>	ATCC 96918	N/A	Neg	Pos	Neg	Neg
<i>Aspergillus fumigatus</i>	ATCC 13073	Human pulmonary lesion, Maryland	Neg	Pos	Neg	Neg
<i>Aspergillus fumigatus</i>	ATCC 26934	Human with Aspergillosis disease, Montana	Neg	Pos	Neg	Neg
<i>Aspergillus fumigatus</i>	ATCC 14110	Human sputum	Neg	Pos	Neg	Neg
<i>Aspergillus fumigatus</i>	ATCC 204305	Human sputum, Virginia	Neg	Pos	Neg	Neg
<i>Aspergillus fumigatus</i>	ATCC MYA-3626	California, USA	Neg	Pos	Neg	Neg
<i>Aspergillus fumigatus</i>	ATCC MYA-3627	Jacksonville, TN, USA	Neg	Pos	Neg	Neg
<i>Aspergillus fumigatus</i>	ATCC MYA-4690	N/A	Neg	Pos	Neg	Neg
<i>Aspergillus fumigatus</i>	ATCC MYA-4915	Human sputum, Shanghai, China	Neg	Pos	Neg	Neg
<i>Aspergillus fumigatus</i>	ATCC 16424	Human lung with aspergillosis, Pennsylvania	Neg	Pos	Neg	Neg
<i>Aspergillus niger</i>	11414	Derived from ATCC 1015	Neg	Neg	Pos	Neg
<i>Aspergillus niger</i>	ATCC 16888	N/A	Neg	Neg	Pos	Neg
<i>Aspergillus niger</i>	ATCC 9142	N/A	Neg	Neg	Pos	Neg
<i>Aspergillus niger</i>	ATCC 9029	N/A	Neg	Neg	Pos	Neg

<i>Aspergillus niger</i>	ATCC 10535	Painted pine board, Virginia	Neg	Neg	Pos	Neg
<i>Aspergillus niger</i>	ATCC 13496	Soil, Louisiana	Neg	Neg	Pos	Neg
<i>Aspergillus niger</i>	ATCC 1015	N/A	Neg	Neg	Pos	Neg
<i>Aspergillus niger</i>	ATCC 6275	Leather	Neg	Neg	Pos	Neg
<i>Aspergillus niger</i>	ATCC 10579	Otomycosis, England	Neg	Neg	Pos	Neg
<i>Aspergillus niger</i>	ATCC 201201	Farmland, Korea	Neg	Neg	Pos	Neg
<i>Aspergillus niger</i>	ATCC 208815	Derived from ATCC 9029	Neg	Neg	Pos	Neg
<i>Aspergillus niger</i>	ATCC 10578	Otomycosis, England	Neg	Neg	Pos	Neg
<i>Aspergillus terreus</i>	ATCC 16793	Soil, Texas	Neg	Neg	Neg	Pos
<i>Aspergillus terreus</i>	ATCC 1012	Soil, Connecticut	Neg	Neg	Neg	Pos
<i>Aspergillus terreus</i>	ATCC 10690	Haversack, New Guinea	Neg	Neg	Neg	Pos
<i>Aspergillus terreus</i>	ATCC 16794	N/A	Neg	Neg	Neg	Pos
<i>Aspergillus terreus</i>	ATCC 24839	N/A	Neg	Neg	Neg	Pos
<i>Aspergillus terreus</i>	ATCC 52430	Decayed timber, India	Neg	Neg	Neg	Pos
<i>Aspergillus terreus</i>	ATCC 12238	N/A	Neg	Neg	Neg	Pos
<i>Aspergillus terreus</i>	ATCC MYA-4897	Soil, Baghdad, Iran	Neg	Neg	Neg	Pos
<i>Aspergillus terreus</i>	ATCC MYA-4898	N/A	Neg	Neg	Neg	Pos
<i>Aspergillus terreus</i>	ATCC 26604	Ankylosing spondylitis	Neg	Neg	Neg	Pos
<i>Aspergillus terreus</i>	ATCC 20542	N/A	Neg	Neg	Neg	Pos
<i>Aspergillus terreus</i>	ATCC 20064	N/A	Neg	Neg	Neg	Pos

<i>Aspergillus terreus</i>	ATCC 32587	Gamma mutant of NRRL 1960	Neg	Neg	Neg	Pos
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Table 2: Exclusivity Results, PathoSEEK® Species Specific Aspergillus Detection Assay v2

Organism	Source	Origin	A. flavus Assay Result	A. fumigatus Assay Result	A. niger Assay Result	A. terreus Assay Result
<i>Acinetobacter baumannii</i>	ATCC 19606	Urine	Neg	Neg	Neg	Neg
<i>Alternaria alternata</i>	ATCC 6663	N/A	Neg	Neg	Neg	Neg
<i>Aspergillus aculeatus</i>	ATCC 24147	N/A	Neg	Neg	Neg	Neg
<i>Aspergillus brasiliensis</i> <i>Varga et al.</i>	ATCC 964	Wireless radio equipment, New South Wales, Australia	Neg	Neg	Neg	Neg
<i>Aspergillus casingii</i>	ATCC 42693	Dried chillies, New Guinea	Neg	Neg	Neg	Neg
<i>Aspergillus carbonarius</i>	ATCC MYA-4641	Grape berry, Brindis, Apulia, Italy	Neg	Neg	Neg	Neg
<i>Aspergillus clavatus</i>	ATCC 1007	N/A	Neg	Neg	Neg	Neg
<i>Aspergillus deflectus</i>	ATCC 62502	Wheat, China	Neg	Neg	Neg	Neg
<i>Aspergillus fijiensis</i> <i>Varga et al.</i>	ATCC 20611	N/A	Neg	Neg	Neg	Neg
<i>Aspergillus niveo-glaucus</i>	ATCC 10075	N/A	Neg	Neg	Neg	Neg
<i>Aspergillus japonicus</i>	ATCC 16873	Soil, Panama	Neg	Neg	Neg	Neg
<i>Aspergillus nidulans</i>	ATCC 38163	N/A	Neg	Neg	Neg	Neg
<i>Aspergillus oryzae</i> <i>(Ahlburg) Cohn</i>	ATCC 10124	N/A	Positive	Pos	Neg	Neg
<i>Aspergillus parasiticus</i> <i>Speare</i>	ATCC 15517	N/A	Positive	Neg	Neg	Neg
<i>Aspergillus pseudo terreus</i> <i>Peterson et al.</i>	ATCC 10020	N/A	Neg	Neg	Neg	Positive
<i>Aspergillus tamarii</i>	ATCC 1005	tomato	Neg	Neg	Neg	Neg
<i>Aspergillus tubingensis</i> <i>(Schober) Mosseray</i>	ATCC 1004	N/A	Neg	Neg	Neg	Neg
<i>Aspergillus tubingensis</i> <i>(Schober) Mosseray</i>	ATCC 10550	N/A	Neg	Neg	Neg	Neg
<i>Aspergillus ustus</i>	ATCC 1041	Culture containment, USA	Neg	Neg	Neg	Neg
<i>Aspergillus versicolor</i>	ATCC 11730	Cellophane gas mask, India	Neg	Neg	Neg	Neg

<i>Botrytis cinerea</i> Persoon	ATCC 11542	Azalea flowers, Washington, D.C.	Neg	Neg	Neg	Neg
<i>Candida albicans</i>	ATCC 10231	Man with bronchomycosis	Neg	Neg	Neg	Neg
<i>Cryptococcus laurentii</i>	ATCC 18803	Palm wine, malaffou, Congo	Neg	Neg	Neg	Neg
<i>Cryptococcus neoformans</i>	ATCC 208821	Patient with Hodgkin's disease, New York	Neg	Neg	Neg	Neg
<i>Fusarium proliferatum</i>	ATCC 76097	Raw cotton, North Carolina	Neg	Neg	Neg	Neg
<i>Fusarium oxysporum</i>	ATCC 62506	Celery, Apium graveolens var. dulce, California, USA	Neg	Neg	Neg	Neg
<i>Fusarium solani</i>	ATCC 52628	Cardamom fruit pod, Elettaria cardamomum, Guatemala	Neg	Neg	Neg	Neg
<i>Mucor circinelloides</i>	ATCC 38592	N/A	Neg	Neg	Neg	Neg
<i>Mucor hiemalis</i>	ATCC 28935	Soil in spruce forest, Germany	Neg	Neg	Neg	Neg
<i>Penicillium chrysogenum</i>	ATCC 18476	Cheese?, USSR	Neg	Neg	Neg	Neg
<i>Penicillium rubens</i>	ATCC 11709	Selected from Wis. 48-701, ATCC 11707, after N-mustard exposure	Neg	Neg	Neg	Neg
<i>Penicillium venetum</i>	ATCC 16025	Hyacinthus sp. Bulb, England	Neg	Neg	Neg	Neg
<i>Pseudomonas aeruginosa</i>	ATCC 35554	N/A	Neg	Neg	Neg	Neg
<i>Rhizopus stolonifer</i>	ATCC 14037	N/A	Neg	Neg	Neg	Neg
<i>Yarrowia lipolytica</i>	ATCC 20390	Non Sporulating diploid	Neg	Neg	Neg	Neg

Flower Proficiency Testing/Certified Reference Material Results

NSI CRM Part numbers FM-601- 604 were used to test proficiency. Each CRM was enriched in PDB + Chloramphenicol at 37 °C for 24 and 48 hours. The results can be found in Table 3A-D.

Table 3A: 24 and 48-hour enrichment using *Aspergillus flavus* Detection Assay v2

Sample	Target FAM	24 Hours FAM (Cq)	48 Hours FAM (Cq) NO GR	48 Hours FAM (Cq) with GR
A. flavus in Hemp	<i>Aspergillus flavus</i>	+	+	+
A. flavus in Hemp	<i>Aspergillus flavus</i>	+	+	+
A. flavus in Hemp	<i>Aspergillus flavus</i>	+	+	+
A. fumigatus in Hemp	<i>Aspergillus flavus</i>	-	-	-
A. fumigatus in Hemp	<i>Aspergillus flavus</i>	-	-	-
A. fumigatus in Hemp	<i>Aspergillus flavus</i>	-	-	-

A. niger in Hemp	Aspergillus flavus	-	-	-
A. niger in Hemp	Aspergillus flavus	-	-	-
A. niger in Hemp	Aspergillus flavus	-	-	-
A. terreus in Hemp	Aspergillus flavus	-	-	-
A. terreus in Hemp	Aspergillus flavus	-	-	-
A. terreus in Hemp	Aspergillus flavus	-	-	-
Positive Control	Aspergillus flavus	+	+	+
NTC	Aspergillus flavus	ND	ND	ND

Table 3B: 24 and 48-hour enrichment using Aspergillus fumigatus Detection Assay v2

Sample	Target FAM	24 Hours FAM (Cq)	48 Hours FAM (Cq) NO GR	48 Hours FAM (Cq) with GR
A. flavus in Hemp	Aspergillus fumigatus	-	-	-
A. flavus in Hemp	Aspergillus fumigatus	-	-	-
A. flavus in Hemp	Aspergillus fumigatus	-	-	-
A. fumigatus in Hemp	Aspergillus fumigatus	+	+	+
A. fumigatus in Hemp	Aspergillus fumigatus	+	+	+
A. fumigatus in Hemp	Aspergillus fumigatus	+	+	+
A. niger in Hemp	Aspergillus fumigatus	-	-	-
A. niger in Hemp	Aspergillus fumigatus	-	-	-
A. niger in Hemp	Aspergillus fumigatus	-	-	-
A. terreus in Hemp	Aspergillus fumigatus	-	-	-
A. terreus in Hemp	Aspergillus fumigatus	-	-	-
A. terreus in Hemp	Aspergillus fumigatus	-	-	-
Positive Control	Aspergillus fumigatus	+	+	+
NTC	Aspergillus fumigatus	ND	ND	ND

Table 3C: 24 and 48-hour enrichment using *Aspergillus niger* Detection Assay v2

Sample	Target FAM	24 Hours FAM (Cq)	48 Hours FAM (Cq) NO GR	48 Hours FAM (Cq) with GR
A. flavus in Hemp	<i>Aspergillus niger</i>	-	-	-
A. flavus in Hemp	<i>Aspergillus niger</i>	-	-	-
A. flavus in Hemp	<i>Aspergillus niger</i>	-	-	-
A. fumigatus in Hemp	<i>Aspergillus niger</i>	-	-	-
A. fumigatus in Hemp	<i>Aspergillus niger</i>	-	-	-
A. fumigatus in Hemp	<i>Aspergillus niger</i>	-	-	-
A. niger in Hemp	<i>Aspergillus niger</i>	+	+	+
A. niger in Hemp	<i>Aspergillus niger</i>	+	+	+
A. niger in Hemp	<i>Aspergillus niger</i>	+	+	+
A. terreus in Hemp	<i>Aspergillus niger</i>	-	-	-
A. terreus in Hemp	<i>Aspergillus niger</i>	-	-	-
A. terreus in Hemp	<i>Aspergillus niger</i>	-	-	-
Positive Control	<i>Aspergillus niger</i>	+	+	+
NTC	<i>Aspergillus niger</i>	ND	ND	ND

Table 3D: 24 and 48-hour enrichment using *Aspergillus terreus* Detection Assay v2

Sample	Target FAM	24 Hours FAM (Cq)	48 Hours FAM (Cq) NO GR	48 Hours FAM (Cq) with GR
A. flavus in Hemp	<i>Aspergillus terreus</i>	-	-	-
A. flavus in Hemp	<i>Aspergillus terreus</i>	-	-	-
A. flavus in Hemp	<i>Aspergillus terreus</i>	-	-	-
A. fumigatus in Hemp	<i>Aspergillus terreus</i>	-	-	-
A. fumigatus in Hemp	<i>Aspergillus terreus</i>	-	-	-
A. fumigatus in Hemp	<i>Aspergillus terreus</i>	-	-	-
A. niger in Hemp	<i>Aspergillus terreus</i>	-	-	-
A. niger in Hemp	<i>Aspergillus terreus</i>	-	-	-
A. niger in Hemp	<i>Aspergillus terreus</i>	-	-	-
A. terreus in Hemp	<i>Aspergillus terreus</i>	+	+	+

A. terreus in Hemp	Aspergillus terreus	+	+	+
A. terreus in Hemp	Aspergillus terreus	+	+	+
Positive Control	Aspergillus terreus	+	+	+
NTC	Aspergillus terreus	ND	ND	ND

MIP Proficiency Testing / Certified Reference Material Results

NSI CRM Part numbers FM-613- 616 were used to test proficiency. Each CRM was enriched in PDB + Chloramphenicol at 37 °C for 48 hours. The results can be found in Table 5A-D.

Table 4A: PathoSEEK® Aspergillus flavus Assay in Hemp Oil Matrix: 48-hour enrichment

Sample	Target FAM	24 Hours FAM (Cq)	48 Hours FAM (Cq) NO GR	48 Hours FAM (Cq) with GR
A. flavus in Oil	Aspergillus flavus	+	+	+
A. flavus in Oil	Aspergillus flavus	+	+	+
A. flavus in Oil	Aspergillus flavus	+	+	+
A. fumigatus in Oil	Aspergillus flavus	-	-	-
A. fumigatus in Oil	Aspergillus flavus	-	-	-
A. fumigatus in Oil	Aspergillus flavus	-	-	-
A. niger in Oil	Aspergillus flavus	-	-	-
A. niger in Oil	Aspergillus flavus	-	-	-
A. niger in Oil	Aspergillus flavus	-	-	-
A. terreus in Oil	Aspergillus flavus	-	-	-
A. terreus in Oil	Aspergillus flavus	-	-	-
A. terreus in Oil	Aspergillus flavus	-	-	-
Positive Control	Aspergillus flavus	+	+	+
NTC	Aspergillus flavus	ND	ND	ND

Table 4B: PathoSEEK® Aspergillus fumigatus Assay in Hemp Oil Matrix: 48-hour enrichment

Sample	Target FAM	24 Hours FAM (Cq)	48 Hours FAM (Cq) NO GR	48 Hours FAM (Cq) with GR
A. flavus in Oil	Aspergillus fumigatus	-	-	-
A. flavus in Oil	Aspergillus fumigatus	-	-	-
A. flavus in Oil	Aspergillus fumigatus	-	-	-
A. fumigatus in Oil	Aspergillus fumigatus	+	+	+
A. fumigatus in Oil	Aspergillus fumigatus	+	+	+
A. fumigatus in Oil	Aspergillus fumigatus	+	+	+
A. niger in Oil	Aspergillus fumigatus	-	-	-
A. niger in Oil	Aspergillus fumigatus	-	-	-
A. niger in Oil	Aspergillus fumigatus	-	-	-
A. terreus in Oil	Aspergillus fumigatus	-	-	-
A. terreus in Oil	Aspergillus fumigatus	-	-	-
A. terreus in Oil	Aspergillus fumigatus	-	-	-
Positive Control	Aspergillus fumigatus	+	+	+
NTC	Aspergillus fumigatus	ND	ND	ND

Table 4C: PathoSEEK® Aspergillus niger Assay in Hemp Oil Matrix: 48-hour enrichment

Sample	Target FAM	24 Hours FAM (Cq)	48 Hours FAM (Cq) NO GR	48 Hours FAM (Cq) with GR
A. flavus in Oil	Aspergillus niger	-	-	-
A. flavus in Oil	Aspergillus niger	-	-	-
A. flavus in Oil	Aspergillus niger	-	-	-
A. fumigatus in Oil	Aspergillus niger	-	-	-
A. fumigatus in Oil	Aspergillus niger	-	-	-
A. fumigatus in Oil	Aspergillus niger	-	-	-
A. niger in Oil	Aspergillus niger	+	+	+
A. niger in Oil	Aspergillus niger	+	+	+
A. niger in Oil	Aspergillus niger	+	+	+

A. terreus in Oil	Aspergillus niger	-	-	-
A. terreus in Oil	Aspergillus niger	-	-	-
A. terreus in Oil	Aspergillus niger	-	-	-
Positive Control	Aspergillus niger	+	+	+
NTC	Aspergillus niger	ND	ND	ND

Table 4D: PathoSEEK® Aspergillus terreus Assay in Hemp Oil Matrix: 48-hour enrichment

Sample	Target FAM	24 Hours FAM (Cq)	48 Hours FAM (Cq) NO GR	48 Hours FAM (Cq) with GR
A. flavus in Oil	Aspergillus terreus	-	-	-
A. flavus in Oil	Aspergillus terreus	-	-	-
A. flavus in Oil	Aspergillus terreus	-	-	-
A. fumigatus in Oil	Aspergillus terreus	-	-	-
A. fumigatus in Oil	Aspergillus terreus	-	-	-
A. fumigatus in Oil	Aspergillus terreus	-	-	-
A. niger in Oil	Aspergillus terreus	-	-	-
A. niger in Oil	Aspergillus terreus	-	-	-
A. niger in Oil	Aspergillus terreus	-	-	-
A. terreus in Oil	Aspergillus terreus	+	+	+
A. terreus in Oil	Aspergillus terreus	+	+	+
A. terreus in Oil	Aspergillus terreus	+	+	+
Positive Control	Aspergillus terreus	+	+	+
NTC	Aspergillus terreus	ND	ND	ND

Conclusions

The PathoSEEK species-specific *Aspergillus* Detection Assays using MaGiC Lysis is a rapid method for the detection of *A. flavus*, *A. fumigatus*, *A. niger*, and *A. terreus* in cannabis flower and marijuana infused products. The Grim Reefer Free DNA Removal method is appropriate for use when samples are enriched for 48 hours.

REVISION HISTORY

Version	Date	Description
v1	April 2025	Validation for MaGiC Lysis with species-specific Aspergillus Assays, with and without Grim Reefer Free DNA Removal.

DISCLAIMER

This test was developed, and its performance characteristics determined by Medicinal Genomics Company, for laboratory use. Any deviations from this protocol are not supported by MGC.

This test has not been validated on remediated (irradiated, ozone treated, acid treated, hydrogen peroxide treated, etc.) samples. Samples that have undergone remediation may cause discordant results between plating methods and PathoSEEK® methods. When remediated samples produce a result above the action limit on qPCR, we recommend confirming viability with an approved plating method.

Results may vary based on laboratory conditions. Altitude and humidity are factors known to affect the growth of bacterial and fungal species.

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