

Terpene Profiles Before and After Using AirROS System

Effective Pathogen Control and Terpene Preservation with AirROS System

In the competitive field of cannabis cultivation, ensuring superior product quality and safety is paramount. This case study explores how SA Cultivation, a leading cannabis cultivator, leveraged the AirROS Air Purification System to effectively control pathogens while preserving terpene profiles.

SA Cultivation, an industry leader in cannabis cultivation, aimed to enhance their pathogen control measures without compromising the terpene profiles of their Lemon Dosi strain. Their initial goal was to maintain high terpene levels while ensuring the environment was free of harmful microbes.



Challenge and Goals

Challenge

SA Cultivation's primary challenge was to enhance the terpene profiles of their Lemon Dosi strain to ensure superior product quality and better customer satisfaction. The initial terpene levels were not meeting the high standards set by the company.

Goal

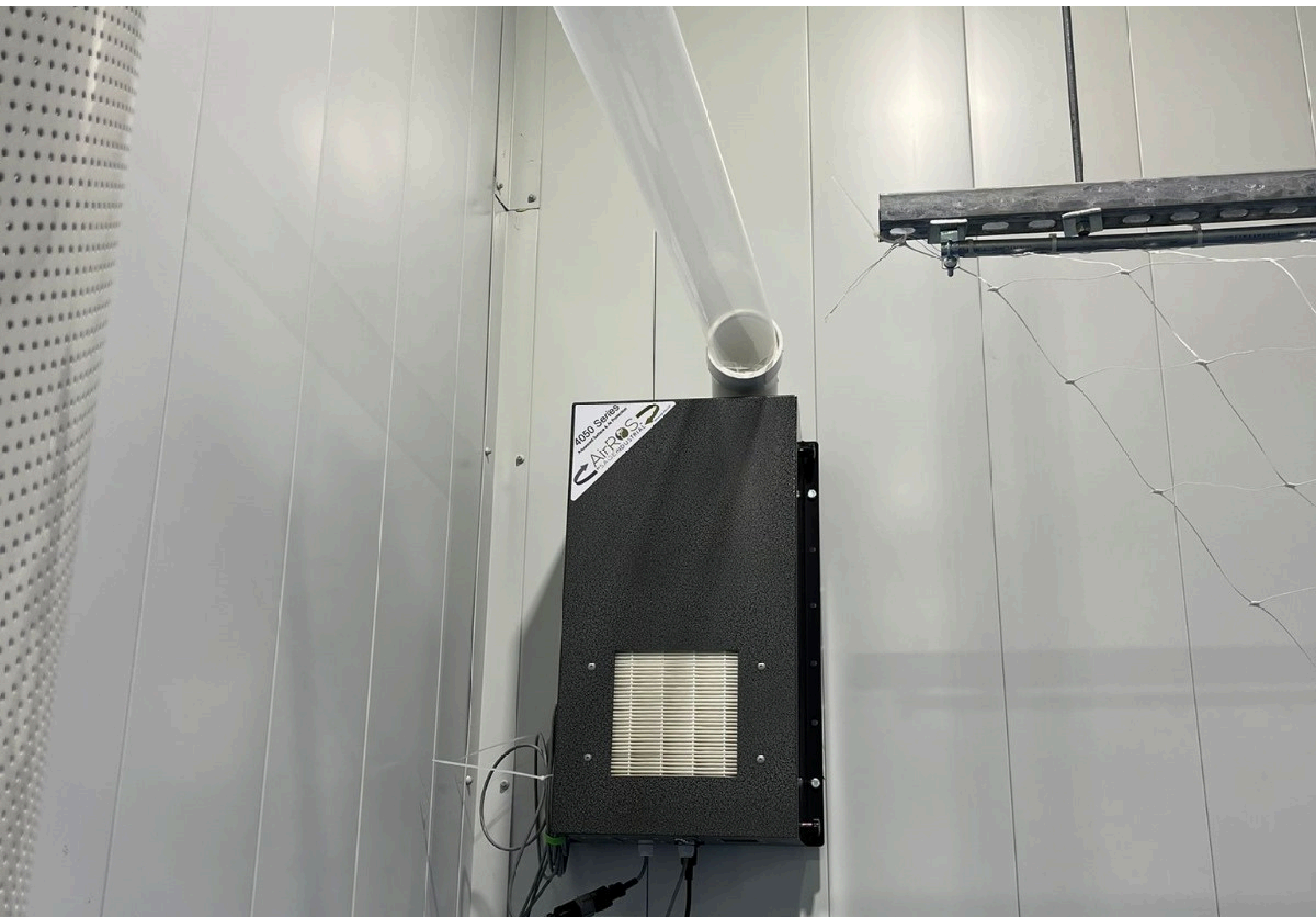
The goal was to significantly increase the total terpene content on Lemon Dosi strain.

Acquisition and Installation Process

SA Cultivation acquired three AirROS systems for comprehensive coverage of their facility. The systems were installed in the following areas:

- Veg Room
- Flower Room
- Dry Room

The installation was conducted with the guidance of SAGE Industrial's Tech Support to ensure optimal setup and operation.



Deploying the AirROS Solution

Phase 1: Primary Air Cleaning

SA Cultivation implemented the AirROS system uses reaction chamber to fulfill its commitment to excellence. This chamber produces Reactive Oxygen Species (ROS) that act as potent cleaning agents. Air from the cultivation environment was purified as it passed through this chamber with the ROS agents neutralizing microbial cell walls and effectively eliminating molds, viruses, and other pathogens.

Phase 2: Secondary Air and Surface Purification

After the initial phase, the purified air re-entered the growing facility. This air contained longer-lived ROS, specifically gas-phase hydrogen peroxide, and minimal ozone (20 ppb). These compounds not only maintained the purity of the air but also sanitized surfaces. A reaction between ozone and hydrogen peroxide produced Hydrogen Trioxide, a natural antimicrobial, adding another layer of sanitation and odor control.

Analysis

The results indicate a significant increase in the total terpene content after the implementation of the AirROS system:

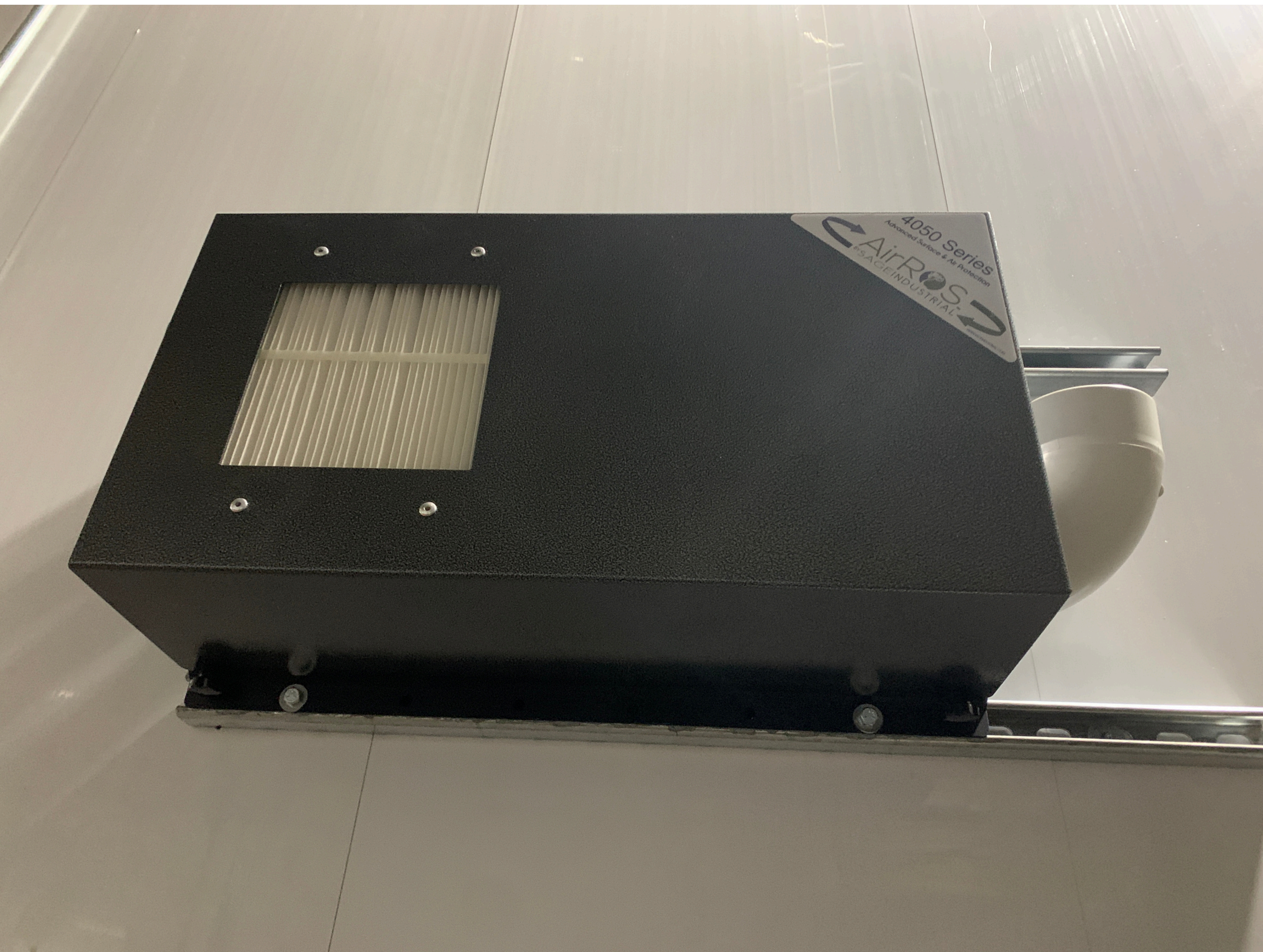
- Before AirROS: 2.199%
- After AirROS (First Sample): 5.664%
- After AirROS (Second Sample): 3.4168%

These changes represent a substantial enhancement in the overall terpene profile of the Lemon Dosi strain. The data highlights the effectiveness of the AirROS system in preserving and improving terpene content while controlling pathogens.

Conclusion and Strategic Insight

The implementation of the AirROS system at SA Cultivation led to a marked improvement in the terpene profile of their Lemon Dosi strain. This enhancement can contribute to better product quality, offering improved aroma and potential therapeutic benefits to consumers.

For cannabis cultivators seeking to optimize the quality of their products, the AirROS system presents a valuable solution to achieve higher terpene concentrations without compromising the integrity of the strain.



Without AirROS

Company: SA Cultivation

4758 RT100A

Plymouth, VT 05056

Customer ID: 220930-3

Grower License #: SCLT0134

Sample ID: Lemon Dosi

Lot: 092322-1

Matrix: Flower

Date Sampled: 11/17/2022

Date Received: 11/17/2022

Report Date: 12/20/2022

Date Analyzed: 12/19/2022

Analyst: 035

Report ID: C22117AC

Terpenes Summary

Terpene	LOQ (mg/g)	Results (mg/g)	Weight (%)
α - Pinene	0.010	4.464	0.446
Camphene	0.010	0.135	0.014
β -Myrcene	0.010	6.047	0.605
β -Pinene	0.010	2.263	0.226
3-Carene	0.010	<LOQ	<LOQ
α -Terpinene	0.010	<LOQ	<LOQ
Limonene	0.010	2.781	0.278
p -Cymene	0.010	<LOQ	<LOQ
Ocimene	0.010	2.908	0.291
Eucalyptol	0.010	<LOQ	<LOQ
γ -Terpinene	0.010	0.017	0.002
Terpinolene	0.010	0.109	0.011
Linalool	0.010	0.843	0.084
Isopulegol	0.010	<LOQ	<LOQ
Geraniol	0.010	<LOQ	<LOQ
Caryophyllene	0.010	1.945	0.195
α -Humulene	0.010	0.474	0.047
Trans-Nerolidol	0.010	<LOQ	<LOQ
Cis-Nerolidol	0.010	<LOQ	<LOQ
Guaiol	0.010	<LOQ	<LOQ
Caryophyllene Oxide	0.010	<LOQ	<LOQ
α -Bisabolol	0.010	<LOQ	<LOQ
Total Terpenes		21.986	2.199

12.01%

**Percent
Moisture**

LOQ = The lowest quantity this method can reliably detect. Any terpene that was not detected is assumed to be less than the stated LOQ (<LOQ).

Terpene Methodology: Headspace Sampler, Gas Chromatography-Mass Spectrometry (GC-MS), using Perkin Elmer Clarus® SQ8 GC MS

Reagent Blanks: < LOQs for all analytes

All results reflect dry weight of material, based on % moisture of the sample.

All moisture analysis is determined by loss-on-drying measurement using OHAUS Model MB90 Moisture Content Readers.



With AirROS

Client Name: SA Cultivation

License Number: SCLT0134

Sample ID: VT9027

Sample Name: Lemon Dosi

Sample Lot: 240119r1

Sample Matrix: Flower

Date Received: 4/11/2024

Date Reported: 4/17/2024

Date Tested: 4/15/2024



Total Terpenes (%) : 3.4168

Dominant Terpenes (%)

Myrcene	1.8996
Ocimene	0.4997
alpha-Pinene	0.3772
Limonene	0.1822
beta-caryophyllene	0.1792

Terpenes

Standard terpene analysis utilizing Gas Chromatography – Mass Spectrometry (GC-MS; SOP-069-OA) | Test ID: #26746

Analyte	Result (%)	Result (mg/g)	LOD (mg/g)	LOQ (mg/g)
3-Carene	ND	ND	0.000002	0.002
alpha-Bisabolol	0.0374	0.374	0.000003	0.002
alpha-Humulene	0.0412	0.412	0.000002	0.002
alpha-Pinene	0.3772	3.772	0.000001	0.002
alpha-Terpinene	ND	ND	0.000001	0.002
alpha-Terpinolene	< LOQ	< LOQ	0.000004	0.002
beta-caryophyllene	0.1792	1.792	0.000004	0.002
beta-Pinene	0.1087	1.087	0.000002	0.002
Camphene	0.0215	0.215	0.000001	0.002
Caryophyllene Oxide	ND	ND	0.000011	0.002
Eucalyptol	ND	ND	0.000002	0.002
gamma-Terpinene	ND	ND	0.000002	0.002
Geraniol	ND	ND	0.000008	0.002
Guaiol	ND	ND	0.000007	0.002
Isopulegol	ND	ND	0.000005	0.002
Isopropyl Toluene	ND	ND	0.000003	0.002
Limonene	0.1822	1.822	0.000002	0.002
Linalool	0.046	0.46	0.000003	0.002
Nerolidol	0.0241	0.241	0.000007	0.002
Myrcene	1.8996	18.996	0.000003	0.002
Ocimene	0.4997	4.997	0.000002	0.002
Total Terpenes	3.4168	34.168		

With AirROS



Client Name: SA Cultivation

License Number: SCLT0134



Sample ID: VT7578

Sample Name: Lemon Dosi

Sample Lot: sclt0134231212r2

Sample Matrix: Flower

Date Received: 2/15/2024

Date Reported: 3/13/2024

Date Tested: 3/11/2024



Total Terpenes (%) : 5.664

Dominant Terpenes (%)

Myrcene	2.9453
alpha-Pinene	0.9428
Ocimene	0.6806
beta-caryophyllene	0.3466
Limonene	0.2258

Terpenes

Standard terpene analysis utilizing Gas Chromatography – Mass Spectrometry (GC-MS; SOP-069-OA) | Test ID: #23037

Analyte	Result (%)	Result (mg/g)	LOD (mg/g)	LOQ (mg/g)
3-Carene	ND	ND	0.000002	0.002
alpha-Bisabolol	0.0872	0.872	0.000003	0.002
alpha-Humulene	0.0939	0.939	0.000002	0.002
alpha-Pinene	0.9428	9.428	0.000001	0.002
alpha-Terpinene	ND	ND	0.000001	0.002
alpha-Terpinolene	ND	ND	0.000004	0.002
beta-caryophyllene	0.3466	3.466	0.000004	0.002
beta-Pinene	0.2094	2.094	0.000002	0.002
Camphene	< LOQ	< LOQ	0.000001	0.002
Caryophyllene Oxide	0.0576	0.576	0.000011	0.002
Eucalyptol	ND	ND	0.000002	0.002
gamma-Terpinene	ND	ND	0.000002	0.002
Geraniol	ND	ND	0.000008	0.002
Guaiol	ND	ND	0.000007	0.002
Isopulegol	ND	ND	0.000005	0.002
Isopropyl Toluene	ND	ND	0.000003	0.002
Limonene	0.2258	2.258	0.000002	0.002
Linalool	0.0379	0.379	0.000003	0.002
Nerolidol	0.0369	0.369	0.000007	0.002
Myrcene	2.9453	29.453	0.000003	0.002
Ocimene	0.6806	6.806	0.000002	0.002
Total Terpenes	5.664	56.64		