



# CordycepsPRIME™

***A wide spectrum health tonic***  
supports overall vitality and well-being, immune,  
heart, lung, liver, and kidney health

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A NuLiv Science proprietary *Cordyceps sinensis* produced  
by a proprietary fermentation technology

Validated by HPTLC and Morphology as  
an authentic *Cordyceps sinensis*

Over 30 large human clinical studies in over 2,000 patients

Contains the highest active compounds Adenosine  
and Cordycepic acid (d-mannitol)

# *DISCOVER CORDYCEPSPRIME™*

## *A PREMIUM CORDYDEPS SINENSIS*

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*Cordyceps sinensis* is a parasitic mushroom found in the Tibetan high plateau and has been used in China for thousands of years by royal and elite families as a tonic for energy, vitality, endurance, male potency, heart, immune, liver, and lung health.

Over several decades, more than 30 pre-clinical and clinical studies on 2,000 patients in large hospitals in China<sup>1,2</sup> have shown that *Cordyceps sinensis*:

- supports general well-being and vitality
- increases oxygen uptake in the lungs
- improve tolerance during anaerobic conditions
- provides for more robust lung function
- beneficial for weak elderly persons

*For details, please view the scientific papers*



1. J.S. Zhu, G.M. Halpern, K. Jones. The Scientific Rediscovery of an Ancient Chinese Herbal Medicine: Cordyceps sinensis, Part I. *The Journal of Alternative and Complementary Medicine*, Vol. 4, Number 3, 1998, pp. 289–303.
2. J.S. Zhu, G.M. Halpern, K. Jones. The Scientific Rediscovery of an Ancient Chinese Herbal Medicine: Cordyceps sinensis, Part II. *The Journal of Alternative and Complementary Medicine*, Vol. 4, Number 3, 1998, pp. 429--457

## *HOW CORDYCEPS WORKS*



Cordyceps supports better energy and vitality likely due to its ability to help the human body use oxygen more efficiently. In several human clinical trials, Cordyceps has shown to increase oxygen uptake in the lungs and improve tolerance during anaerobic conditions.<sup>3,4</sup>

Cordyceps helps support more robust lung functions. In several human clinical trials, Cordyceps has shown to increase respiratory secretions to facilitate expectoration, while calming cough, ameliorates airway wall thickening and decreases inflammatory cytokine production in model rats with Chronic Obstructive Pulmonary Disease (COPD).<sup>5,6</sup>

Senile deficiency syndrome was related to the imbalance of oxygen-free radical metabolism. Cordyceps has also shown in several human clinical trials to scavenge oxygen-free radicals to reduce oxidative stress that shown in the improvement of senile deficiency syndrome, such as cold intolerance, dizziness, fatigue, and tinnitus in weak elderly persons.<sup>7</sup>

3. Yi X. et al., Randomized double-blind placebo-controlled clinical trial and assessment of fermentation product of Cordyceps sinensis (Cs-4) in enhancing aerobic capacity and respiratory function of the healthy elderly volunteers. *Chinese Journal of Integrative Medicine*. 2004;10(3):187-192.
4. Zhu J-S. et al., CordyMax enhances endurance performance and exercise metabolism in mid-age to elderly humans. *Shanghai Journal of Preventive Medicine*. 2008;20(9): 467-469.
5. Wang N. et al., Herbal Medicine Cordyceps sinensis Improves Health-Related Quality of Life in Moderate-to-Severe Asthma. *Evid Based Complement Alternat Med*. 2016;2016:6134593.
6. Yang L. et al., Cordyceps sinensis inhibits airway remodeling in rats with chronic obstructive pulmonary disease. *Exp Ther Med*. 2018;15(3):2731-2738.
7. Zhang Z-J. Et al., Clinical and experimental study on elimination of oxygen free radicals of Jinshuibao capsule in senile deficiency syndrome. *Modern Diagnosis & Treatment*. 1994;5(6):325-328.

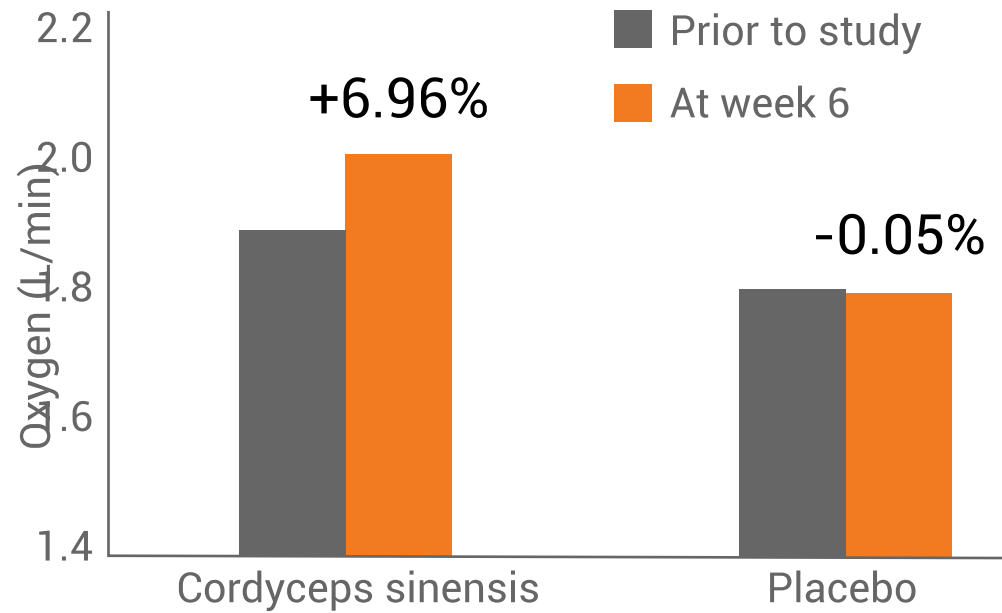
## *CLINICAL TRIALS*



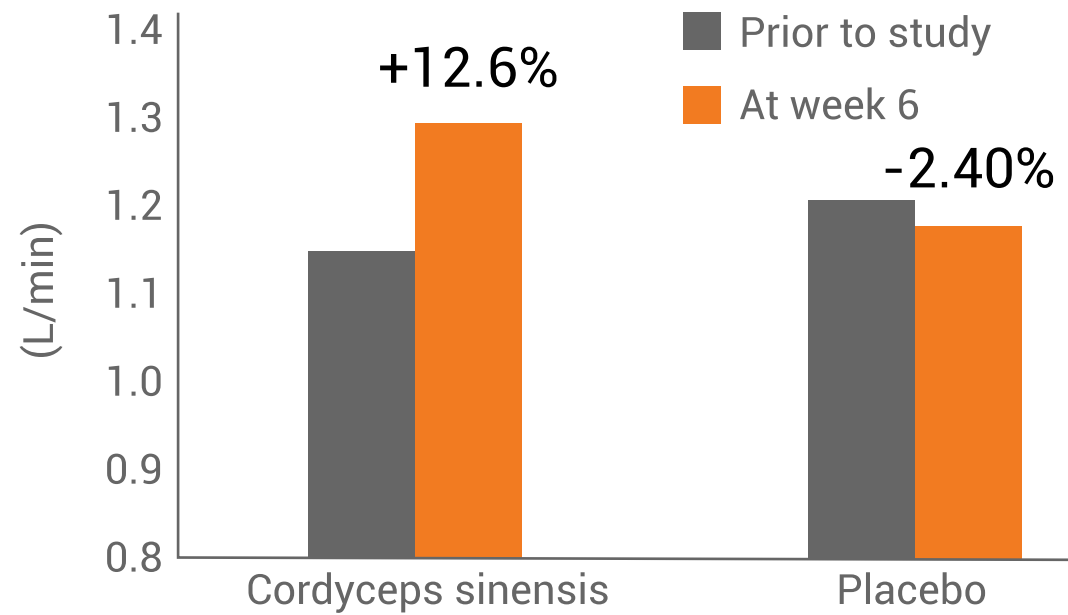
	# of trials
<b>Pulmonary function</b>	<b>20</b>
<b>Cardiovascular function</b>	<b>4</b>
<b>Free radical scavenging</b>	<b>4</b>
<b>Anti-fatigue</b>	<b>2</b>

Conducted at hospitals in China

## *CORDYCEPS INCREASES OXYGEN UPTAKE IN THE LUNGS*



## *CORDYCEPS IMPROVES TOLERANCE DURING ANAEROBIC CONDITIONS*



## *RESPIRATORY FUNCTIONS (CHRONIC BRONCHITIS)*

<b>Course of Treatment</b>	<b>Group</b>	<b>Significantly Effective (%)</b>	<b>Effective (%)</b>	<b>Non-effective (%)</b>	<b>Total Effective (%)</b>
<b>One Month</b>	Control (Vitex oil pellet 77 cases)	9.0	31.0	59.7	40.1
	Fermented Cordyceps (117 cases)	49.57	33.3	17.0	82.9

## ON WEAK ELDERLY PEOPLE

RANDOMIZED, 59 PARTICIPANTS, 33 IN TREATMENT GROUP FOR 3 MONTHS

Symptom	Group	n	Very Effective (n)	Effective (n)	Not Effective (n)	Total Effective Rate
Intolerant to Cold	<b>Cordyceps</b>	28	19	5	4	<b>89.3%</b>
	<b>Placebo</b>	20	0	1	19	<b>5%</b>
Dizziness	<b>Cordyceps</b>	24	19	1	4	<b>83.3%</b>
	<b>Placebo</b>	23	2	4	17	<b>26%</b>
Tiredness	<b>Cordyceps</b>	26	21	3	2	<b>92.3%</b>
	<b>Placebo</b>	27	0	4	23	<b>14.3%</b>
Tinnitus	<b>Cordyceps</b>	14	1	10	3	<b>78.5%</b>
	<b>Placebo</b>	15	2	2	11	<b>25.6%</b>



# STRAIN IDENTIFICATION BY HPTLC

Certificate Issued To:

**NuLiv USA, Inc.**  
**1050 W Central Ave. Building C**  
**Brea, CA 92821**



**Alkemists Pharmaceuticals**

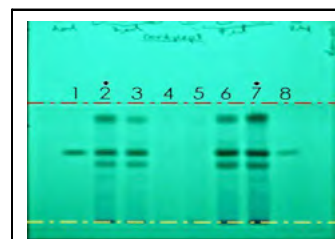
Natural Product Consulting & Quality Control  
 1260 Logan Ave B3  
 Costa Mesa, CA 92626  
 714-754-HERB (4372)  
 714-668-9972 (FAX)  
 E-mail: [phytolab@alkemist.com](mailto:phytolab@alkemist.com)  
 Web Site: [www.alkemist.com](http://www.alkemist.com)

**Certificate of Analysis: Cordyceps Sinensis Mycelia Powder (0102019)**

**High Performance Thin-Layer Chromatography with Photo Documentation**

(1)

(2)



Company Name:	NuLiv USA, Inc.
Title:	Cordyceps Sinensis Mycelia Powder
Latin Name:	Cordyceps sinensis, (Berk.) Saccardo
Your Lot #:	0102019
Our Lot #:	UH26901NLV
Sample Received:	09-26-01
Sample Examined:	10-02-01
Examiner:	SS
Source:	China
Form of Botanical:	powder
Plant Part:	mycelia
Appearance:	dark tan powder
Sample Prep:	0.5g + 5 ml 50% EtOH heated on a dry block incubator for 1 hr., decanted
Reference Sample #:	Lanes 3(2 µl) & 6(4 µl) Cs-4 from Pharamanex (UH23501NLV); lanes 4(2 µl) & 5(4 µl) Cordyceps sinensis mycelia (UH28101FPM)
Stationary Phase:	(1) Silica gel 60, F <sub>254</sub> , 10 x 10 cm HPTLC plates
Mobile Phase:	(1) CHCl <sub>3</sub> :ethyl acetate:isopropanol:H <sub>2</sub> O:NH <sub>4</sub> OH [8.0/2.0/6.0/0.3/0.2]
Detection:	(1) Ninhydrin Spray Reagent → visible light
R <sub>f</sub> Values:	<b>(1) Lanes 2(2 µl) &amp; 7(4 µl) test sample (0102019) = 0.08, 0.20, 0.24, 0.30, 0.38, 0.44, 0.54, 0.59</b>
Stationary Phase:	(2) Silica gel 60, F <sub>254</sub> , 10 x 10 cm HPTLC plates
Mobile Phase:	(2) CHCl <sub>3</sub> :ethyl acetate:isopropanol:H <sub>2</sub> O:NH <sub>4</sub> OH [8.0/2.0/6.0/0.3/0.2]
Detection:	(2) Ninhydrin Spray Reagent → UV 254 nm
R <sub>f</sub> Values:	<b>(2) Lanes 2(2 µl) &amp; 7(4 µl) test sample (0102019) = 0.36, 0.48, 0.59, 0.88</b>
Reference Std:	Lane 1 (2 µl) adenine ~200 ng/µl, R <sub>f</sub> = 0.58; & lane 8 (2 µl) adenosine ~ 150 ng/µl, R <sub>f</sub> = 0.59 from Sigma-Aldrich
Reference Source:	Pharmacopoeia Sinica 1990 Edition, Vol. 1

**Comments & Conclusions:**

Yellow line = sample origin @ 8mm, red line = solvent front @ 58mm. Lanes 2 & 7 are the test sample Cordyceps Sinensis Mycelia Powder (0102019). Lanes 3, 6 & 4, 5 are the reference samples used for comparison. As per the reference cited above & the internal references used for comparison, this test sample is characteristic of Cordyceps Sinensis Mycelia Powder. **The chromatographic profile demonstrated above confirms the identity of Cordyceps Sinensis Mycelia Powder (0102019).**

Authorized by: Sidney Sudberg, Director, Alkemists Pharmaceuticals

Report Date: 01-15-02

# STRAIN IDENTIFICATION BY MICROSCOPY

## Certificate Issued To:

NuLiv USA, Inc.  
1050 W Central Ave. Building C  
Brea, CA 92821



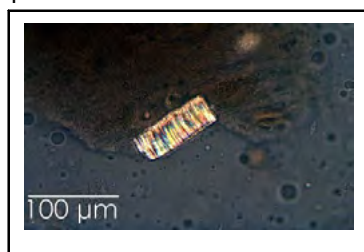
## Alkemists Pharmaceuticals

Natural Product Consulting & Quality Control  
1260 Logan Ave B3  
Costa Mesa, CA 92626  
714-754-HERB (4372)  
714-668-9972 (FAX)  
E-mail: [phytolab@alkemist.com](mailto:phytolab@alkemist.com)  
Web Site: [www.alkemist.com](http://www.alkemist.com)

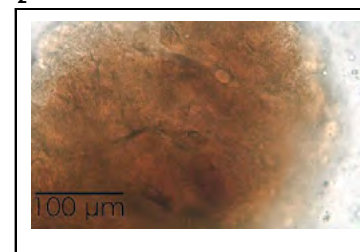
## Certificate of Analysis: Cordyceps sinensis mycelia powder (0102019)

### Microscopy with Digital Photo-Documentation

1



2



Company Name:	NuLiv USA, Inc.
Title:	Cordyceps sinensis mycelia powder
Latin Name:	Cordyceps sinensis (Berk.) Sacc. [Clavicipitaceae]
Form of Botanical:	powder
Plant Part:	mycelia
Your Lot #:	0102019
Our Lot #:	UH26901NLV
Reference Sample #:	Cordyceps sinensis (UH32501NLV) Cs-4 from Pharmanex
Sample Received:	09-26-01
Sample Examined:	09-26-01 – 01-08-02
Examiner:	EMS
Appearance:	tan brown powder
Magnification:	(1) 400X
Chemical Reagents:	(1) acidified chloral hydrate glycerol solution
Sample Findings:	(1) oblong sclereids
Magnification:	(2) 400X
Chemical Reagents:	(2) acidified chloral hydrate glycerol solution
Sample Findings:	(2) large cluster of brown resin like material
Reference Source:	Internal Reference Samples

### Comments & Conclusions:

This sample is representative of Cordyceps fungus based on an internal microscopic reference and the consistent characteristic cellular structure of a fungus. The characteristic cellular structures identified in this sample are the oblong sclereids with the reaction to acidified chloral hydrate glycerol solution seen in micrograph (1) above & in micrograph (2) we see the large cluster of brown resin like material, with the reaction to acidified chloral hydrate glycerol solution. **These characteristic cellular structures confirm the identity of Cordyceps sinensis mycelia (0102019).**

Authorized by: Sidney Sudberg, Director, Alkemists Pharmaceuticals

Report Date: 01-09-01

# *STRAIN IDENTIFICATION BY COLONY, SPOROPHORE, CONIDIOPHORE, & CONIDIUM*



Characteristics of Cordyceps strain:

**Colony:** The colony's color was white to milk white and its surface was cotton wadding type when cultured on the PDA agar plate at 25°C for 2 weeks.

**Sporophore:** This strain forms its sporophore after cultured 2 to 4 weeks on the PDA agar plate at 25°C. In the beginning, the color of sporophore was white, then turned to yellowish or orange gradually.

**Conidiophore:** Conidiophore was grown on the top of the sporophore or mycelium. It is clear, bottle shaped, 5-9 x 2-2.5µm in size.

**Conidium:** Conidium was grown on the top of the Conidiophore and looked like a string. Conidium was clear, round, or egg-shaped, and the size of the conidium was 1.7-2.6 x 2.2-2.8µm.

The strain used in the fermentation for production of NuLiv Science trademarked Cordyceps, CordycepsPrime™, was verified to be identical to *Paecilomyces hepiali* species. The tests were performed and reported by the Institute of Microbiology, the Chinese Academy Sciences, Peijing, China on September 23, 1998. The document number: (98) wei-jian 98130. The authentic copy of the certificate is in Chinese.

## *NUTRITIONAL CONTENT*



- **Adenosine > 0.27% (HPLC)**
- **D-mannitol (Cordycepic acid) > 8% (HPLC)**
- **Polysaccharides 10% or higher**
- **Ergosterol**
- **Amino acids 16.8%**
- **Mineral (Trace element—selenium)**
- **Vitamin B1, B2, C, B12, A, E, D, K,  $\beta$ -Carotenes**

## COMPARISON OF WILD CORDYCEPS AND CORDYCEPSPRIME™



Phyto Compound	Cordyceps (wild)	CordycepsPrime™
Mannitol (Cordycepic acid)	5.6~7.1%	≥8%
Adenosine	0.034~0.047%	≥0.27%

# HPLC PROFILE FOR ADENOSINE AND MANNITOL IN CORDYCEPSPRIME™

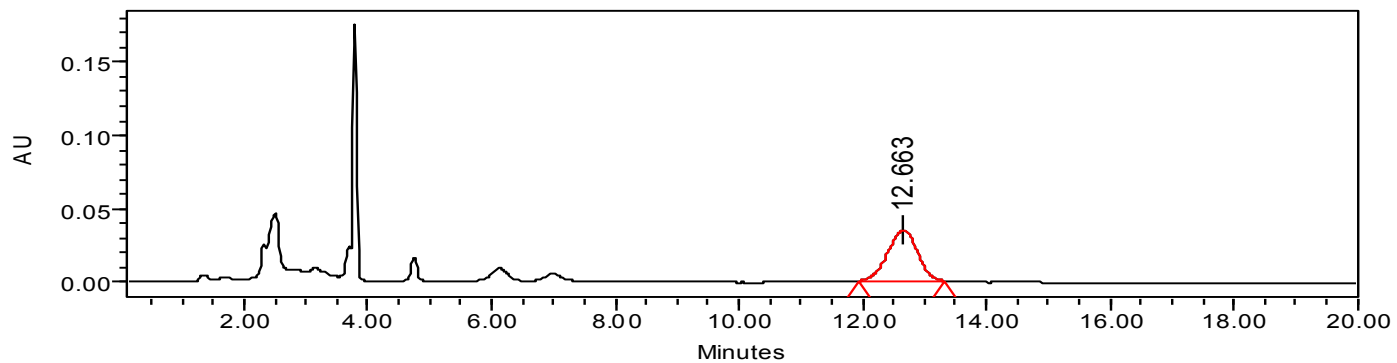


Fig. 1 HPLC-UV profile for determining adenosine in CordycepsPrime™ (at 12.663 min)

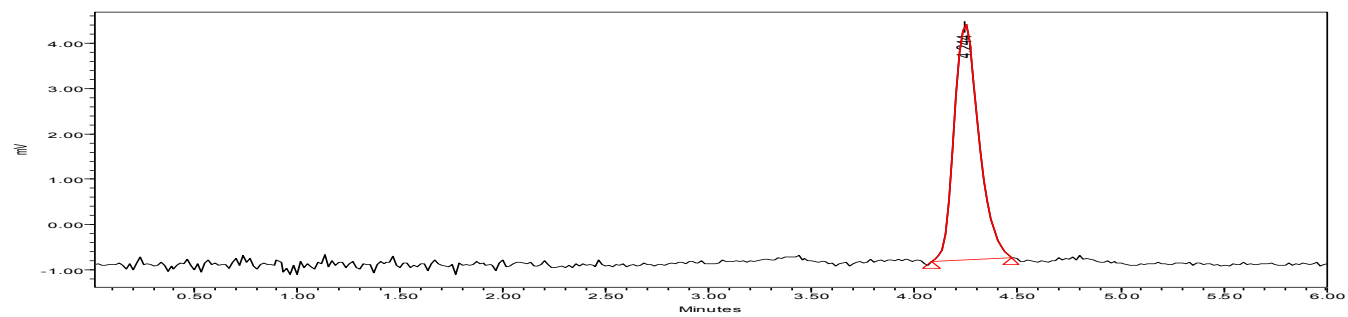
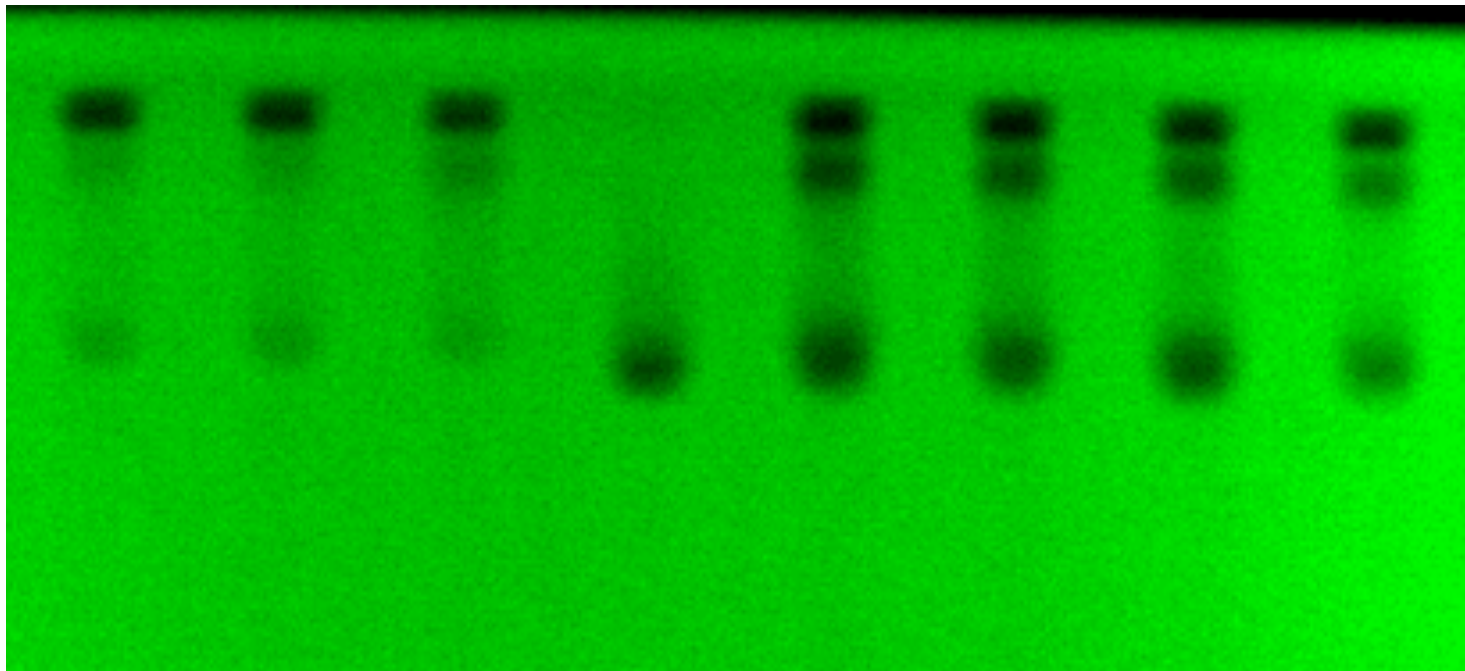


Fig. 2 HPLC-ELSD profile for determining mannitol in CordycepsPrime™ (at 4.244 min)

*ADENOSINE IN CORDYCEPSPRIME™ AND OTHER CORDYCEPS*



1

2

3

4

5

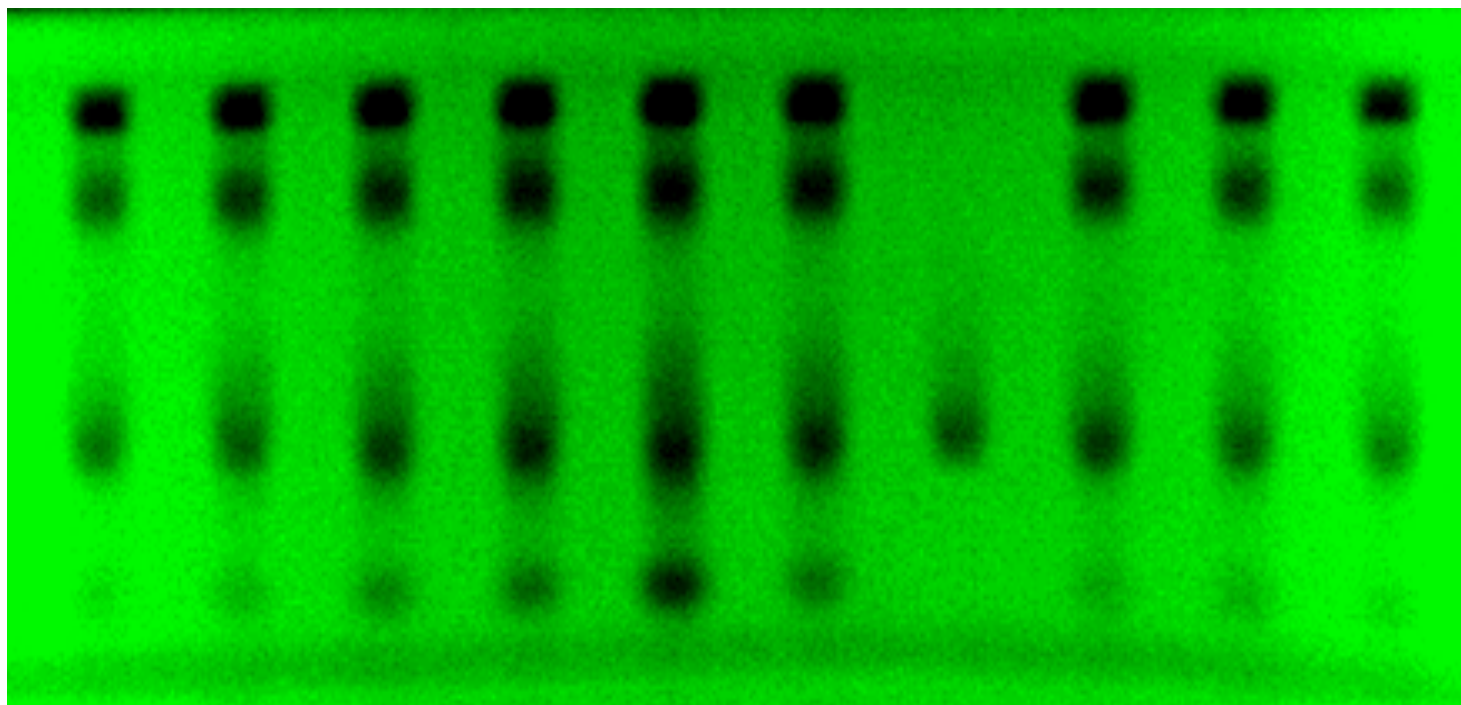
6

7

8

1, 2, 3, 8: other *Cordyceps sinensis* brands  
4: Adenosine reference standard  
5, 6, 7: CordycepsPrime™ from 3 lots

## *CONSISTENCY IN QUALITY*



1      2      3      4      5      6      7      8      9      10

7: Adenosine reference standard  
1, 2, 3, 4, 5, 6, 7, 9, 10: 9 CordycepsPrime™ lots



For questions and additional information please contact



[nulivscience.com](http://nulivscience.com)