

Certificate of Authenticity - PIQ03272024-2797

Lost Empire Herbs

8301 NW 101st Ter., Ste #1

Kansas City, MO,

64153, USA

Contact 1: Zane Christopher **Email 1:** zane@lostempireherbs.com

Contact 2: Logan Christopher **Email 2:** logan@lostempireherbs.com

Date Received: 04-10-2024

PO #: 0007

Date Reported: 04-18-2024

Purity-IQ Global Registration Reference No: PIQ12052023-2446

IQ rating: IQ-1

Product Name: Cistanche

Date Sampled: 03/25/2024

Lot/Batch Number: BCIST6025MAR24

Product Code: CIST60

Plant Part: Root/rhizome

Metabolomic Identification Analysis

Target Species:	Metabolomic Identification Test Result:
Cistanche tubulosa	Positive identification

Definitions:

Positive identification:

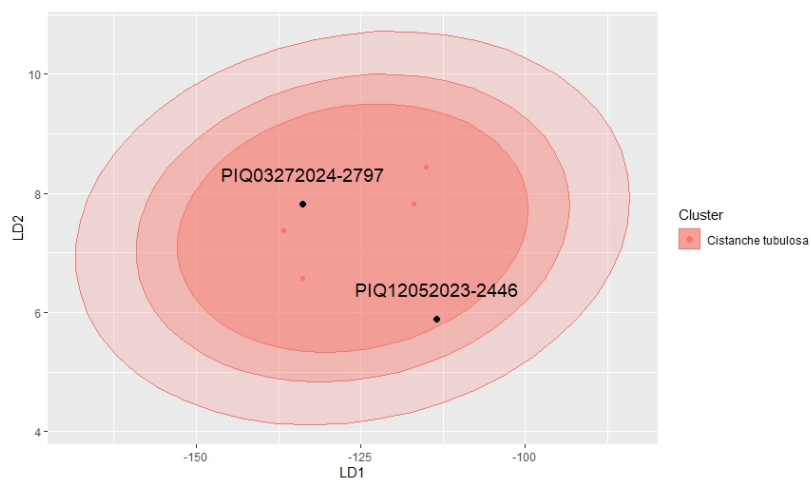
The submitted sample name, and its molecular profile agree with molecular profiles and sample names of the Purity-IQ Global Registry.

Negative identification:

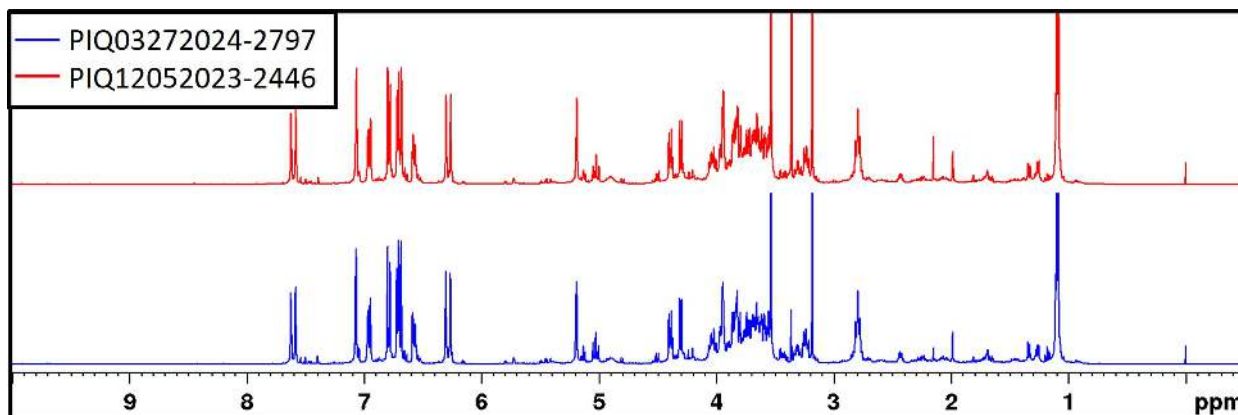
The submitted sample name, and its molecular profile do not agree with molecular profiles and sample names of the Purity-IQ Global Registry.



Metabolomic Ordination: PIQ03272024-2797



Metabolomic Spectra



IQ Rating matrix for verification of registered products

≥98% confidence interval	≥95% to <98% confidence interval	≥90% to <95% confidence interval	<90% confidence interval
IQ-1	IQ-2	IQ-3	Unrated

The confidence interval indicates the level of variation in the metabolite profile. For example, a confidence interval of ≥95% to <98% indicates that the variation in the metabolite profile is within 2–5% of the registered product sample for a specific product matrix.

Metabolomic Consistency Analysis

Sample ID	Confidence Interval	IQ Rating
PIQ03272024-2797	≥98%	IQ-1

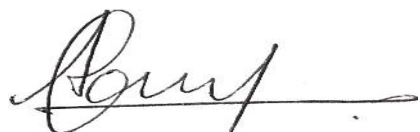
Molecular Diagnostic Test Method (PIQ-MTD-003)

Identity and consistency are assessed using Purity-IQ Nuclear Magnetic Resonance (NMR) technology. Molecular diagnostics in this test use non-targeted metabolomic analysis. The spectra collected are visually assessed and analyzed against the Purity-IQ Global Registry using several statistical methods such as principal component analysis (PCA), linear discriminant analysis (LDA), and hierarchical cluster analysis (HCA).

Non-Targeted Metabolomics Verification Analysis

Multivariate statistical verification models are non-targeted analyses comparing the whole NMR profile of a specific sample with a corresponding group of Purity-IQ Global Registry reference spectra. All spectral data points are taken into account irrespective of whether the signals are caused by already identified metabolites/molecules.

The results and conclusions presented in this report are true and accurate to the best of Purity-IQ's knowledge. However, the advanced molecular diagnostics employed can very rarely give rise to inconclusive, or incongruent results, and in such cases corroboration of this result by repeat testing, or different analytical methods may be warranted. Metabolomic identification does not attest to sample quality, nor do these diagnostic tools preclude the presence of other species or compounds not requested to be analyzed. Sample(s) received in acceptable condition. This Certificate of Authenticity pertains only to the above sample(s) analyzed. This report shall not be altered, modified, copied or reproduced, except in its entirety. © 2024 Purity-IQ Inc. All Rights Reserved.



Authorized by: Dr. Arun Krishnamurthy
NMR Spectroscopist
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