CERTIFICATE OF ANALYSIS



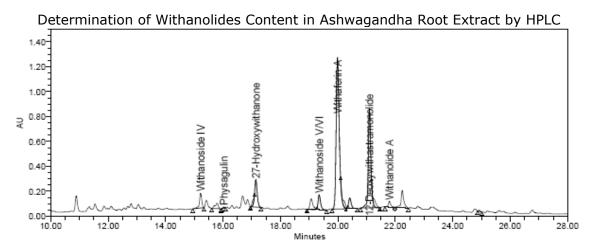
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Report Issued To:

Yaju Frans Halsstraat 62 Utrecht 3583BS Netherlands

Sample Name: A Description: P Lot #: A AL #: 2 Analysis ID: 1 Received: 1

Ashwagandha Root Extract Powdered extract; Fine powder ASH220809 22353PZM_2 192323 12/19/22



Ret. Time		Prep 1	Prep 2	Average	Average Dried		
(min)	Compound Name	(%)	(%)	(%)	Basis (%)	Specification	Result
15.2	Withanoside IV	0.807	0.830	0.819	0.863	N/A	N/A
19.3	Withanoside V & VI	0.911	0.894	0.902	0.952	N/A	N/A
20.0	Withaferin A	3.684	3.690	3.687	3.889	N/A	N/A
21.2	Withastramonolide	1.980	2.066	2.023	2.134	N/A	N/A
21.8	Withanolide A	0.108	0.170	0.139	0.146	N/A	N/A
22.2	Withanone	ND	ND	ND	ND	N/A	N/A
25.1	Withanolide B	ND	ND	ND	ND	N/A	N/A
	Total	7.490	7.650	7.570	7.985	5%	Pass

Chromatographic Conditions:

Method:	USP 43 - Powdered Ashwagandha Root Extract
Column:	AP224 Luna 5 µm C18(2) 100A (250 x 4.6 mm)
Temperature:	27°C
Flow Rate:	1.5 mL/min
Injection Volume:	20 µL
UV Detection:	227 nm
Mobile Phase:	1 mM Phosphate Buffer in 0.05% H3PO4
	Acetonitrile
HPLC Instrument:	Alliance_5

Sample Preparation:

Transferred approximately 100 mg sample into a 10 mL volumetric flask. Added 7 mL methanol, vortexed 30 seconds, and sonicated for 20 minutes at 45 °C. Let cool to room temperature and filled to volume with methanol. Mixed by inversion and filtered through a 0.45 µm PES syringe filter into an HPLC vial, discarding the first few mL's of filtrate.

Report Summary:

Report Summary	
Conclusion:	This " Ashwagandha Root Extract " test sample contains an average of 9% total withanolides on the dried basis.
Note:	ND = Not Detected
OOS Reference:	Ν/Α
Loss on Drying:	7.56%
Empower Reference:	01723 Withanolides

Analysis Date : 01/18/23

Analyzed By: C Decasiano

Authorized By: Diana Jimenez, Lead Analytical Chemist

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