



Alkemist Labs Verified Botanical Reference Material by HPTLC Fingerprint - Certificate of Authenticity

Botanical Nomenclature: *Ephedra sinica* Stapf. [Ephedraceae] Analysis by: L. Tang, J. Mares, N. Alvarez, K. Tran
Common name: Ephedra Method: Plant Drug Analysis, Wagner, H., 1996
Plant Part: Herb

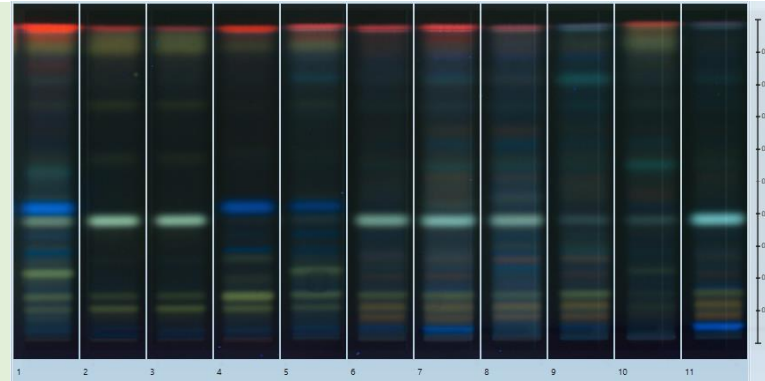


Plate Image 1: Derivatized with Natural Products and Polyethylene Glycol Reagent, UV 366 nm

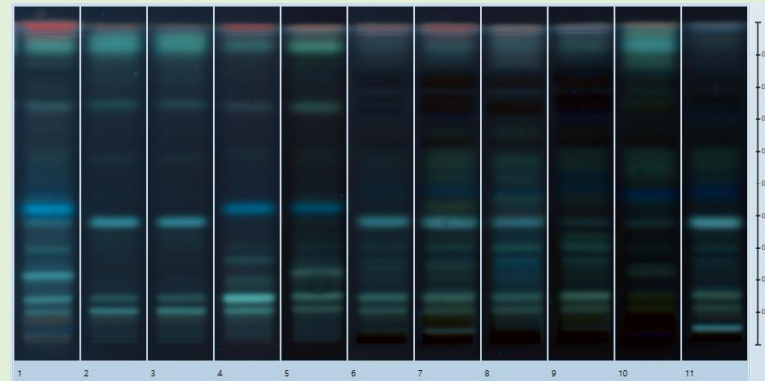


Plate Image 2: Derivatized with 10% Sulfuric Acid Reagent, UV 366 nm

Plate Images 1-2 Track Assignment

Track	Sample	Part	Sample#	µL
1	<i>Ephedra sinica</i>	Herb	Lot# RK-3-28-1-ES	0.5
2	<i>Ephedra sinica</i>	Stem	GD12817AHP1	3
3	<i>Ephedra sinica</i>	Stem	GD08416AHP2	3
4	<i>Ephedra americana</i>	Stem	GD21518HH1	3
5	<i>Ephedra americana</i>	N/A	ANB26409INCA2	3
6	<i>Ephedra nevadensis</i>	Herb	YB00504WB2	3
7	<i>Ephedra nevadensis</i>	Herb	YB22409AB	3
8	<i>Ephedra nevadensis</i>	Stem	YB12817AHP1	3
9	<i>Ephedra sp.</i>	Stem	LGG08416AHP1	3
10	<i>Ephedra torreyana</i>	Stem	LGF12817AHP1	3
11	<i>Ephedra viridis</i>	Stem	JCE08416AHP1	3

Method Testing Parameters

Sample Preparation:
 0.3g+3mL 100% grain Ethanol, sonicate/heat at 50°C for 30 min.
Mobile Phase:
 Ethyl Acetate/Acetic Acid/Formic Acid/Water (10/0.9/0.9/2; v/v/v/v)
Derivatization Reagents:
Natural Products:
 2.5 g 2-aminoethyl diphenylborinate in 250 mL Methanol
Polyethylene Glycol:
 12.5 g Polyethylene Glycol 4000 in 250 mL Ethanol
10% Sulfuric Acid:
 50 mL Sulfuric Acid in 450 mL Ethanol.

Comments and Conclusions: The extracted sample solution in track 1 shows a fingerprint similar to the extracted botanical reference material solutions of *Ephedra americana* (tracks 4, 5) with respect to number, position, color and intensity of bands. The above conclusion may be a function of the natural variance found in botanicals. The growing and drying conditions, age, seasonal variations, geographic location, etc. all play a role in the phytochemical fingerprint of botanicals as well as their extracts; hence, chromatographic variations are expected. **This test sample Lot # 0 RK-3-28-1-ES (Lane 1) has characteristics of a customized extract derived from *Ephedra sp.*, (possibly *Ephedra americana*?).**



Analyzed by: Khanh Tran
 Examined, Reviewed & Authorized by: Sidney Sudberg, Chief Scientific Officer

Report Date: 07/31/23

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