

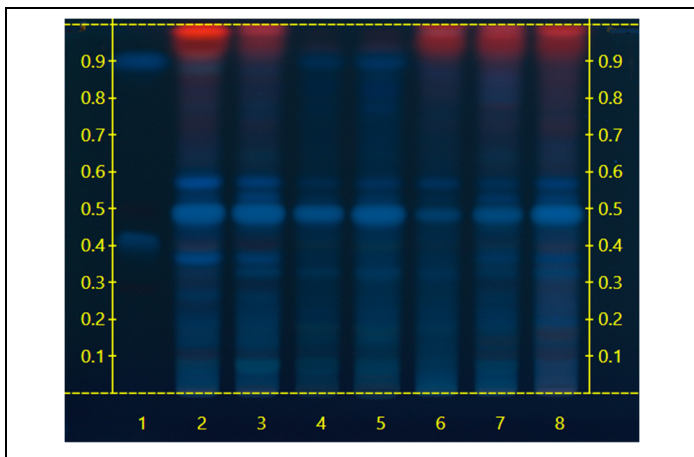
Certificate Issued To:
Lost Empire Herbs
8301 NW 101st Ter.
Kansas City, MO 64153-2321
United States



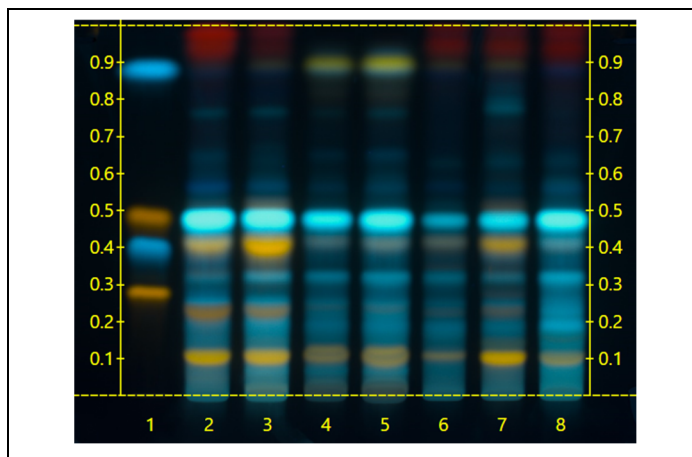
Work performed at:
Alkemist Labs
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Certificate of Analysis: Blue Vervain Tincture (BV220E)
High Performance Thin-Layer Chromatography with Photo-Documentation

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Company Name: Lost Empire Herbs
Title: Blue Vervain Tincture
Plant Part: Tops
Sample Received: 03/20/23
Sample Packaging: Light Sensitive Glass Bottle or Jar
Form of Botanical: liquid extract
Appearance: Liquid (glass dropper bottle)
Lot Number: (BV220E) → Lanes 4(2µl), 5(4µl)
Sample: 23079WUH_1
Latin Name: *Verbena hastata* L. [Verbenaceae]
Reference Sample: Lane 2(4µl) (NC25418HH1) *Verbena hastata* (aerial part); Lane 3(4µl) (NC22306BSI2) *Verbena hastata* (entire); Lane 6(4µl) (OT32914KAN1) *Verbena officinalis* (aerial part); Lane 7(4µl) (OT10409SW) *Verbena officinalis* (herb); Lane 8(4µl) (ACB22306BSI2) *Verbena urticifolia* (herb (leaf, flower, stem, root)); held at Alkemist Labs, Garden Grove, CA.

Analyst: A.Foults, D.Robinson, J.Mares, K.Chopra, K.Montoya, K.Tran, L.Tang, M.Fox, N.Alvarez, N.Hoang, N.Afendikova, N.Waldstreicher, P.Hoang, S.Kabbaj, S.Sudberg 196466

Sample Preparation: Spray directly onto plate
Stationary Phase: Silica gel 60, HPTLC plates
Mobile Phase: ethyl acetate: Acetic acid: formic acid: water [10/0.9/0.9/2]
Detection: (1) UV 366 nm
(2) Natural Product + Polyethylene Glycol, 366nm (Reich, E., 2007)

Reference Standard: Lane 1(2µl) Rutin (A0348926, ACR), Hyperoside (28 0702/0, XSYN), Chlorogenic Acid (89629608, SigAl), Caffeic acid (03, XSYN), Methanol (0000255740, VWR)

Reference Source: Herbal Drugs and Phytopharmaceuticals, Max Wichtl, 3rd ed., 2004; Method developed in-house @ Alkemists Pharaamceuticals, Inc.
IDT-SOP-72-01

Comments & Conclusions: Lanes 4, 5 are the test sample Blue Vervain Tincture (BV220E) Lanes 2, 3, 6, 7, 8 are the reference samples used for comparison. This test sample, Blue Vervain Tincture (BV220E), is consistent with the chromatographic profile of the reference samples of *Verbena hastata* used above. **This test sample Blue Vervain Tincture (BV220E) has characteristics of a customized extract derived from *Verbena hastata* Tops.**

NOTE: The above conclusion may be a function of the natural variance found in botanicals &/or the extraction process used to create specific extracts. The growing and drying conditions, age, seasonal variations, geographic location, extraction solvents, etc. all play a role in the phytochemical fingerprint of botanicals as well as their extracts; hence, chromatographic variations are expected.

Examined, Reviewed & Authorized by: Syhem W Kabbaj, HPTLC Production Supervisor, Alkemist Labs

Report Date: 03/23/23

ISO/IEC 17025



Note: Any unidentified lanes in the above chromatograms are confidential and may represent internal studies or other test samples not related to BV220E. This report applies to the sample investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. This report is for the exclusive use of the party who requested the report and not for public dissemination or use by third parties, including for promotional purposes, without the prior written permission of Alkemist Labs, Inc. This report provides technical results for a specific sample and the report shall not be altered, modified, supplemented or abstracted in any manner. Any violation of these conditions renders the report and its results void. © 2023 Alkemist Labs, Inc. All Rights Reserved