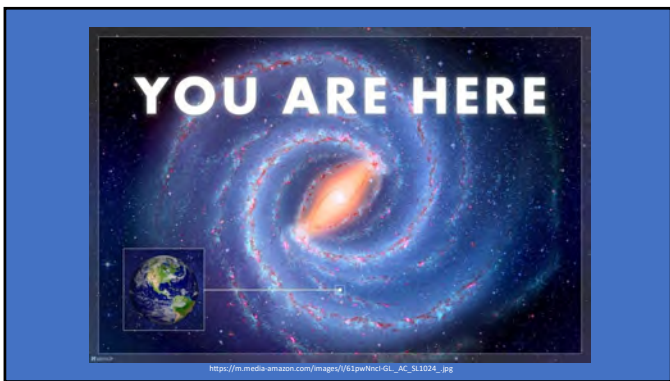
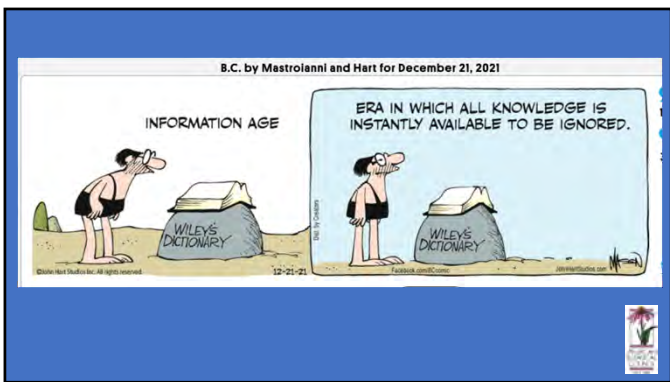



HerbalGram at 40
Enhancing Respect & Credibility
for Herbal Medicine
A Brief History of the Nonprofit
Research & Educational
Publications & Programs of ABC

Mark Blumenthal
 Founder & Executive Director, ABC
 Medicines from the Earth
 Asheville NC
 June 2-4, 2023

Many of the 'slides' in this PowerPoint presentation are images without text

- Unlike many PowerPoint presentations that are comprised of mainly text-heavy slides, this presentation relies chiefly on visual imagery, photographs, etc.
- The presenter provides an audio track that tends to reflect the visual imagery.







Key ABC Programs, Projects, & Publications

- Botanical Adulterants Prevention Program
- ADOPT AN HERB PROGRAM
- Sustainable Herbs Program
- HERBAIGRAM
- HerbClip
- HerbMedPro™



BREAKING NEWS



- 40th Anniversary *HerbalGram*
- 35th Year for ABC
- 9000th HerbClip
- Ca 75 Herbs Adopted on HerbMedPro
- 80 BAPP Peer-reviewed publications by May 2023
- ABC Members >80 countries
- 25 Years at ABC at Historic Case Mill Homestead

HERBAIGRAM

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HERBAL eGRAM

AMERICAN BOTANICAL COUNCIL

Donate Forward to a Friend Shop Herbal Library Update Profile

Volume 19, Issue 4, April 2022

features and news

Herb Expert Christopher Hobbs Donates 1636 Edition of Gerard's Historic Herbal to ABC
By Tyler Smith

In December 2021, herbalist, author, and researcher Christopher Hobbs, PhD, LAc, donated a 1636 edition of John Gerard's *The Herbal or Generall Historie of Plantes* to ABC. Commonly known as Gerard's *Herbal*, the text is one of the most famous and influential English herbals — a term that refers to books that contain descriptions and other information about selected medicinal plants. In keeping with ABC's educational mission, the nonprofit plans to preserve and display the 386-year-old book at its



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Herbal News & Events

AMERICAN BOTANICAL COUNCIL

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May 3, 2022 username: mark@herbgram.org & password: Set or reset my password now

abc in the media
Superior Says: New Science Will Help Rebuild Bilberry Market Suffering from Adulteration, Misinformation
 April 26, 2022 - [NutraIngredients-USA](#)

abc talks
Innovation **Complementary Medicines Australia Innovation Seminar**, May 2, 2022, Sydney, Australia. Mark Blumenthal, ABC's founder and executive director, will be the keynote speaker on "The History of Garlic in Medicine" at this international conference focused on complementary medicine. [More information.](#)

Upcoming conferences & events
NEW 16th Annual HerDay Virtual and Live, May 7, 2022. [Congress of the Italian Society of Phytotherapy](#)

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HerbClip

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PDF (Download)

- Turmeric (Curcuma longa, Zingiberaceae)
- Curcumin
- Autoimmune Diseases
- Rheumatic Diseases

Date: 06-15-2019 HCR 061951-420

Re: Clinical Review of Curcumin in Autoimmune and Rheumatic Diseases
 Wang M, Abdal U, Mohan C. Curcumin in autoimmune and rheumatic diseases. *Nutrients*. May 2019;11:1004. pii: E1004. doi:10.3390/11051004.

Turmeric (*Curcuma longa* syn *C. domestica*, Zingiberaceae) rhizome has been used medicinally for thousands of years. The curcuminoid constituents of turmeric have demonstrated anti-inflammatory, anti-oxidant, and anti-diabetic properties. Curcumin is the most abundant curcuminoid constituent of turmeric, followed by demethoxycurcumin (DMC) and bisdemethoxycurcumin (BDMC). In the biomedical literature (and in this article), the term curcumin is often used as a generic name for any type of medicinal turmeric preparation, including turmeric rhizome powder and a wide range of curcuminoid extracts. The purpose of this review article was to examine randomized, controlled trials (RCTs) of "curcumin" in the treatment of autoimmune and rheumatic diseases.

PubMed was searched using the following keywords: (curcumin or curcuminoid or curcumi) AND (psoriasis/psoriasis or type 2 diabetes or ulcerative colitis or lupus erythematosus or rheumatoid arthritis or multiple sclerosis). The inclusion criteria were as follows: (1) full text English language publication, (2) randomized trial, (3) included a control group, and (4) quantifiable daily oral dose of curcumin. A total of 32 RCTs met the inclusion criteria. The time period searched was not reported; however, with the exception of one study published in 2002, the included RCTs were published between 2008 and 2018.

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265 Herbs

* Abstracts organized by type of research

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Scientific Name: *Gingko biloba*
 Family Name: Ginkgoaceae
 Common Name: Ginkgo

Evidence for Efficacy (Human Data)
 Clinical Trials (44)
 Observational Studies/Cohort Studies (82)
 Traditional and Folk Use (81)

Evidence of Activity
 Animal Studies (88)
 Pharmacodynamics (64)
 Analytical Chemistry (23)
 Pharmacokinetics (24/25) (19)
 Safety (85)
 Literature Reviews (58)

Other Information
 Pictures & Distribution Maps (8)
 Cultivation, Conservation & Ecology (81)
 National List(s) (10)

History of Record
 ORIGINAL RESEARCH BY: Steing Buss, PhD 1998
 MAJOR REVISION BY: Monique V. Yim, PhD 2007
 LATEST UPDATES BY: Pauli Auerbach, MS April 2022

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Scientific Name: *Gingko biloba*
 Family Name: Ginkgoaceae
 Common Name: Ginkgo

Evidence for Efficacy (Human Data)
 Clinical Trials

According to a meta-analysis of 28 randomized controlled trials, ginkgo biloba extract modulates platelet reactivity more effectively than the control treatment of aspirin in stroke in terms of their clinical efficacy and neurological function improvement, whereas ginkgo biloba is superior only in terms of clinical efficacy, and ginkgo biloba is equivalent to the control. (2019)

A review explores the positive results obtained with the commercial Ginkgo biloba preparation EGb 7610, as well as Ginkgoe A, in the treatment of mild to moderate Alzheimer's disease. (2019)

A systematic review and meta-analysis of 28 controlled trials regarding the efficacy and acceptability of 12 medicinal herbs for the treatment of anxiety reported Ginkgo biloba as efficacious according to multiple Anxiety State (HAM-A) scores despite small trial sample sizes and poor transparency. (2019)

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Front Pharmacol. 2022 Mar 18;13:821937. doi: 10.3389/fphar.2022.821937. eCollection 2022.

The Efficacy and Safety of Ginkgo Terpene Lactone Preparations in the Treatment of Ischemic Stroke: A Systematic Review and Meta-Analysis of Randomized Clinical Trials

Huan Zhao ¹, Qiang Guo ², Baoli Li ³, Min Shi ¹

Affiliations + expand
 PMID: 35392576 PMCID: PMC8982077 DOI: 10.3389/fphar.2022.821937
 Free PMC article

Abstract
 Background: This meta-analysis aimed to assess the efficacy and safety of ginkgo terpene lactone

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 Frontiers
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PAGE NAVIGATION

HerbMedPro™ ADOPT-AN-HERB PROGRAM

Ca. 70 companies adopting ca. 80 herbs

BIOITALYS	Asian Ginseng	7.natural	Licorice
NATIA	Lavender	Valensia	Saw Palmetto
VERDURE BIOPHARM	Pomegranate	NATUROPHRICA	Arnica
KSM-66	Ashwagandha	HERBARE™ ESSENTIALS	Coffee Fruit
REI	Hibiscus	TeaWolf	Guayusa
SPI	Bacopa	FACTIVES FACTORY	Hops
biotropics	Ginkgo	Natac	Birch
bi	Kesum		Olive
	Tongkat Ali		Grape
	Monk Fruit		Cranberry

ABC AHP NCNPR
Botanical Adulterants
Prevention Program

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AHP
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AMERICAN BOTANICAL COUNCIL
SINCE 1988

Sustainable
Herbs
Program
AMERICAN BOTANICAL COUNCIL

*The origins & history of ABC and its programs:
HTA, AHPA & HRF*

Before HerbalGram there was "Herb News" for the Herb Trade Association (1976 – 1981)

HERB NEWS December 1979 VOL. 11, NO. 2
The Herb Trade Association Publication

HERB NEWS
COMING SOON IN THE FALL '90 EDITION:
• 3rd International Ginseng Conference Held in Korea
• Vice-President Mondale Dedicates National Herb Garden
• Gov. Brown Signs Bill Allowing Acupuncturists to Prescribe Herbs
• 4th Annual Herb Symposium Held in Santa Cruz
• Perspectives On Herb Safety!

HERB NEWS
MAGAZINE REPORT
CALENDAR OF EVENTS
DISCOVERY NEWS

HerbalGram 40th Anniversary #1 - #137

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DISCOVERY NEWS

HERB NEWS
Herbalgram™

MARK BLUMENTHAL, Editor
ROB McCALEB, Associate Editor
SUMMER 1983

HERB TRADE ASSOCIATION DEFUNCT

The Herb Trade Association (HTA) held its last meeting of the Board of Directors in August 1981 in San Diego. Since that time, there has been little attempt to keep the organization alive and operative by members of the Board. Members of the Herb Trade and Natural Food Industry have known for about a year that HTA had closed its doors.

HERB NEWS IN HIBERNATION AFTER HTA CLOSING

With the closing of the HTA, the HERB NEWS Magazine, formerly the official publication of

Rob McCaleb

Former Research Director,
Celestial Seasonings

Co-Founder & President --
Herb Research Foundation




Barbara "BJ" Johnston

Managing Editor,
HerbalGram – 17 years




ABC Logo – Why Echinacea?

- Native to North America
- Most widely used medicinal plant by Native Americans of Central Plains
- Strong folkloric background
- Strong scientific & clinical support – EU
- Conservation issues: at least 1 spp. is federally listed as endangered – *E. tennesseensis*.
- Beautiful; strong aesthetic appeal
- Easy to grow for gardens



ABC Echinacea logo stained glass window, made by ABC Advisory Board Member Dennis V.C. Awang, PhD -- early 1990s



Ziggy


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By Tom Wilson

OH, WE'RE JUST HERE TO CHECK UP ON OUR CONTROL GROUP!



HerbalGram Generated Many Research & Educational Publications / Programs



Key ABC Programs, Projects, & Publications

- Botanical Adultservants Prevention Program
- ADOPT AN HERB PROGRAM
- Sustainable Herbs Program
- HERBAIGRAM
- HerbClip
- HerbMedPro™

ABC Educational Programs & Avenues for Reaching Public – ca 2001

- HerbalGram & HerbalEGram
- HerbClip
- Classic Botanical Reprints
- Commission E & ABC Clinical Guide to Herbs & other books
- ABC Book Catalog
- German Commission E Monographs
- Third-party literature for Industry
- Special publications (eg, NRF 60th B'day conf)
- Web-based information
- Media Education Campaign
- "Herbal Minute" -- Healing Quest Public TV series
- Professional CE for Pharmacists
- Pharmacy from the Rainforest Ethnobotany Ecotours
- Safety Labeling for herbal supplements (Nature's Resource®)
- Quality Control Issues -- Ginseng Evaluation Program
- Herbal Information Course for retail clerks
- Mark's speeches at professional & consumer conferences, trade shows etc.
- Herbal Education Gardens
- Internship program for PhDs & RDS

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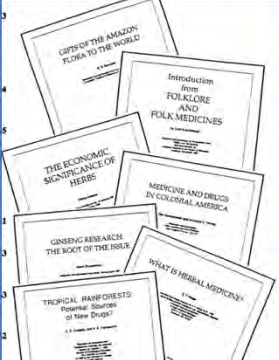
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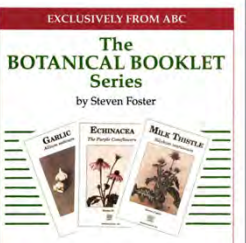
Selected ABC Classic Botanical Reprints, Vol 2



ABC Botanical Booklet Series

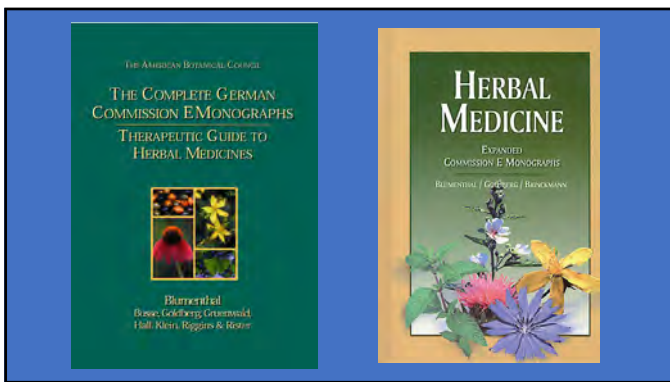
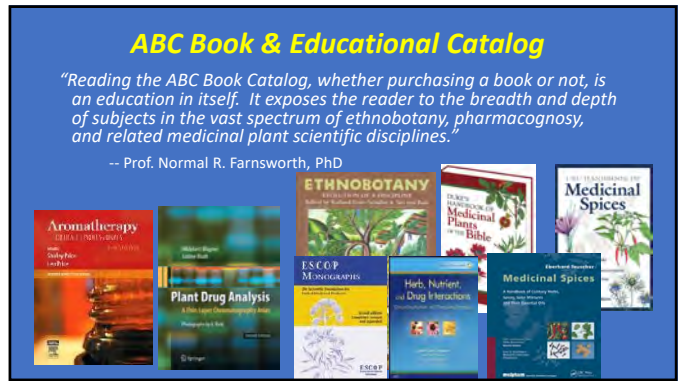
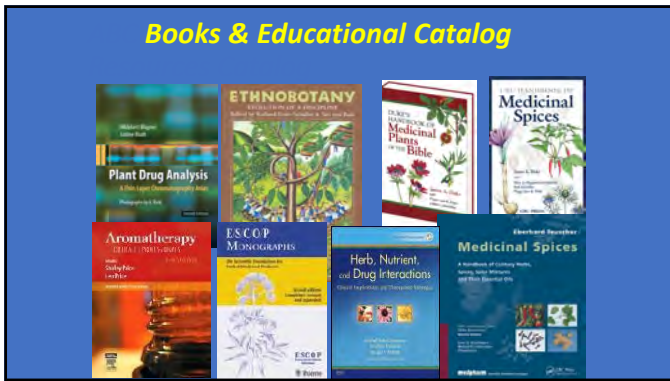
EXCLUSIVELY FROM ABC

The BOTANICAL BOOKLET Series
by Steven Foster



- Started as backgrounders for media
- 8-page booklets
- 16 herbs:
 - Aloe, Black Cohosh, Chamomile, Echinacea, Eleuthero, Feverfew, Garlic, Ginkgo, Asian Ginseng, American Ginseng, Goldenseal, Milk Thistle, Peppermint, Garlic, St. John's Wort, Valerian
- Geo range, history, chemistry, pharmacology, clinical research & uses, etc.
- 10,000 copies of each printed.

The American Botanical Council is proud to offer the Botanical Booklet Series. These eight-page booklets with beautiful illustrations and color photographs of each plant provide concise, authoritative, and accurate information on major medicinal plants. Written by botanical author Steven Foster, the clear, precise style is suitable for all levels of consumers, retail outlets, pharmacists, physicians, nurses, nutritionists, teachers, researchers, and writers. Affordability priced. These booklets are individually available from ABC.

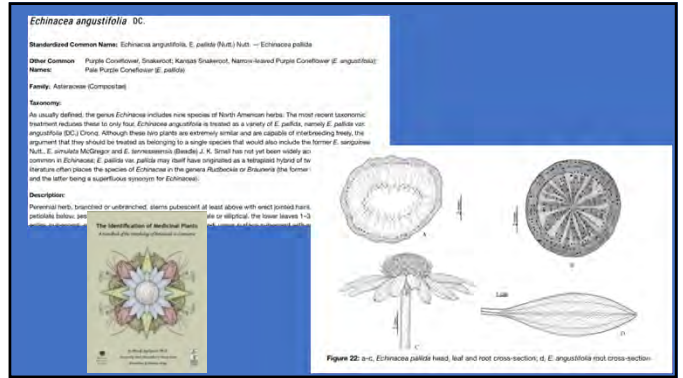
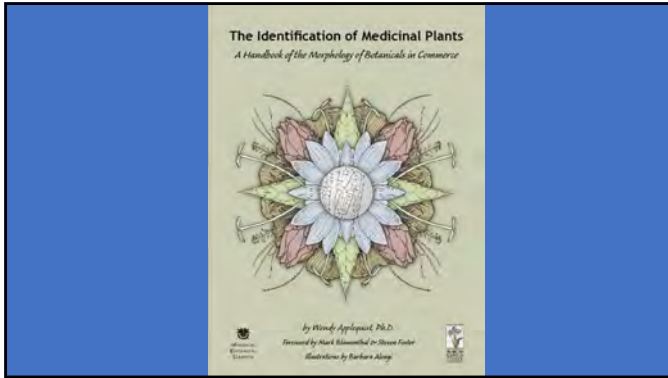


Pharmacy CE Courses

- America’s 1st CE course for pharmacists
- Administered to thousands of pharmacists in US in late 1990s
- Underwritten & promoted by Pharmavite and other mainstream channel DS companies
- Accredited by Texas Pharmacy Foundation and American Council on Pharmacy Education

- * Therapeutic monographs on 29 of top-selling herbs in US
- * CE accredited for pharmacists, physicians, dietitians, and naturopaths
- * Provided brand names of clinically-tested herb products (ABC, 2000)

English translation & revision of leading book for German medical & pharmacy students (2004)



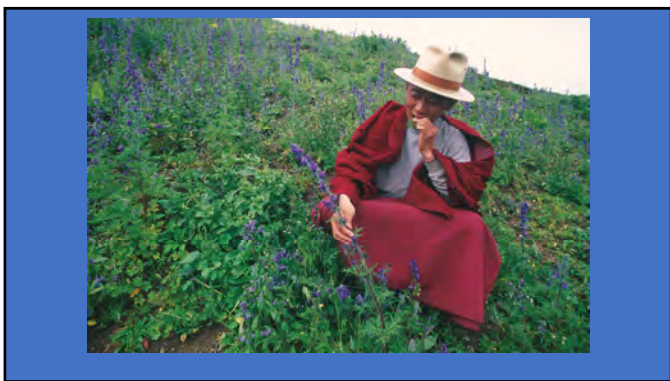
ABC's Significant Role in Media

- ABC receives over 150 inquires & requests for interviews and/or information from media per year.
- ABC mentioned in > 68 articles in media in 2009.



ABC's "Pharmacy from the Rainforest"
Ethnobotany Ecotours
CE-accredited tours for Pharmacists & Physicians

- Peruvian Amazon
- Machu Picchu in Peruvian Andes
- Belize
- Costa Rica
- Kenya
- South Africa
- Germany




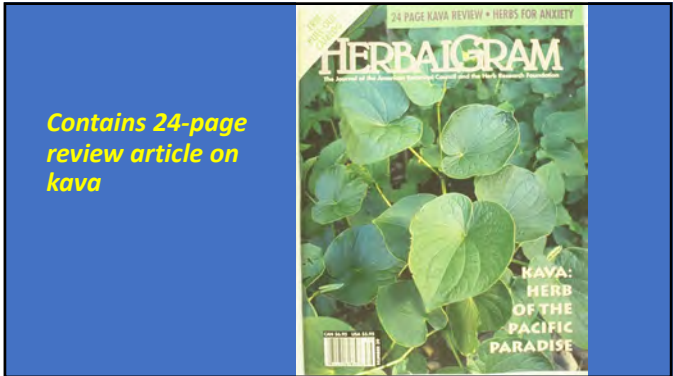
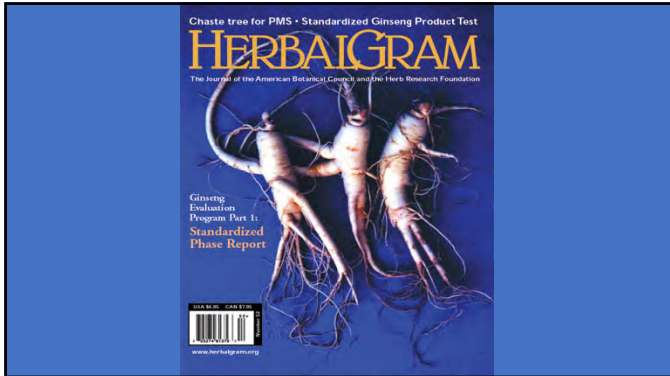


HG by the Covers

Steven Foster
1957 - 2022

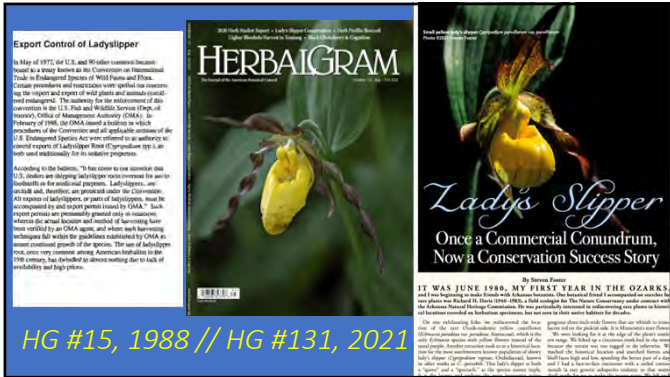
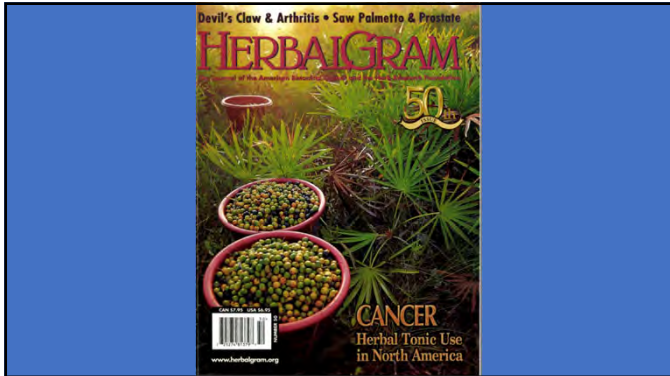
- Herbal author
- 1st book on echinacea (1991) since JU Lloyd's book in 1923
- Leading herbal photographer
- Consultant to growers, industry, et al.
- ABC Trustee & current President of ABC BOT



Contains 24-page review article on kava







Indigenous Medicine, Ethnobotany, & History



First Medical Book in New World
Badianus Manuscript

NEW WORLD MEDICINAL PLANTS

The Badianus Manuscript

The First Herbal from the Americas

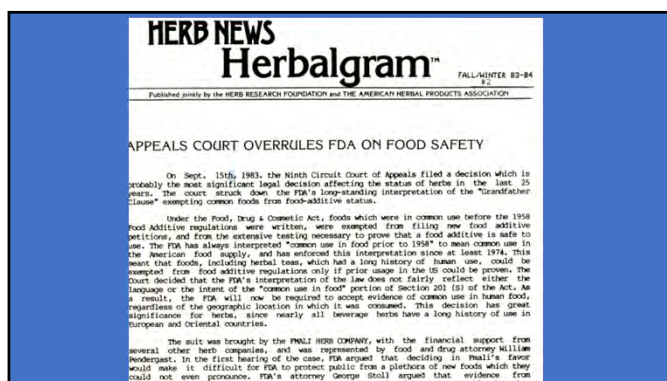
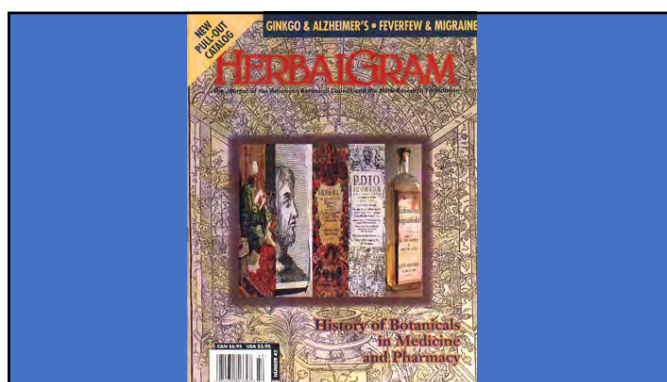
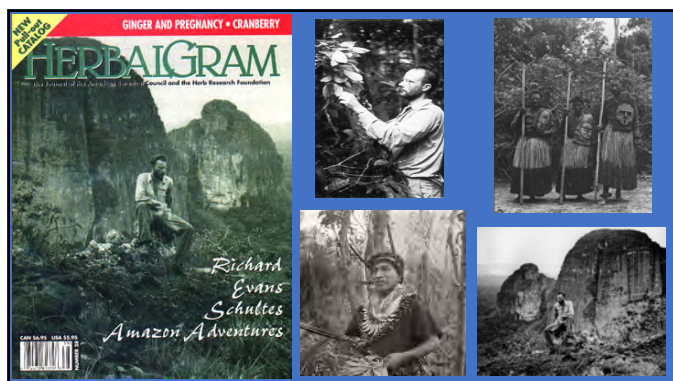
by Susan Foster

In 1552, sixty years after Columbus arrived in the New World, and thirty-one years after the conquest of Cortez and the fall of Tenochtitlan in 1521, the first herbal from the Americas was produced at the Santa Cruz College of Tlalcohuac, Mexico. The manuscript was written in the native Aztec language, Nahuatl, by Martín de la Cruz, an Aztec physician of the College, who learned the value of medicinal plants from the old men of his race (Gates 1939). It was translated into Latin by Juan Badianus, an Indian from Xoxtimilco.

About the Illustrations

Page 10 - HerbalGram No. 27 - 1992





MEDIA WATCH

By Mark Blumenthal

Echinacea Highlighted as Cold and Flu Remedy "Move over, Vitamin C!"



The medicinal plant, often called "purple coneflower," has been highlighted as a natural remedy for colds and flu. The article notes that echinacea is a member of the Asteraceae family and is native to North America. It is a perennial herb with a thick, fibrous root and several upright stems topped with clusters of small, purple flowers. The article discusses the historical use of echinacea and its potential benefits for immune support.

"It works as an anti-inflammatory; it works as an anti-infectious agent. I see patients getting better from colds and ear infections often without taking antibiotics."
— Jay Gordon, M.D.

In fact, sometimes, with respect to better products and conventional medicine, the opposite may be true. "It's not cancer-fighting," says Dr. Gordon, "but it's a natural anti-inflammatory. It's a natural anti-infectious agent. I see patients getting better from colds and ear infections often without taking antibiotics."

Dr. Gordon, a board-certified internist and a member of the American Medical Association, is a frequent speaker at national and international conferences on integrative medicine. He is also the author of the book "The Power of Echinacea: The Natural Remedy for Colds, Flu, and Inflammation." The book is available at www.echinacea.com.

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The Native American Medicinal Plant Note Cards



Purchase of these materials is an opportunity for you to make a contribution—small and with no money. Every time you send a card you are participating in the process of education and sharing information about the value of plants and their importance to health care. Each note card is a beautiful, informative, and artistic piece of art.

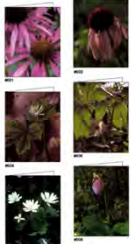
The authors of these materials are an expert on the subject of Native American medicinal plants. The authors are Dr. Steven Foster and Dr. Susan Foster. The authors are also the authors of the book "The Native American Medicinal Plant Note Cards." The book is available at www.native-american-herb.com.

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Native American medicinal plant note cards — now available from the American Botanical Council!



In this series of twelve designer cards, botanical Steven Foster's color photographs are complemented by a brief description of the traditional use and geographic range of each plant.

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SPECIAL REPORT

Introduction


For the purpose of this special report, HERBALGRAM would like to report on the progress of the assessment of herbal medicines in developing countries.

GUIDELINES FOR THE ASSESSMENT OF HERBAL MEDICINES

Programme on Traditional Medicines

World Health Organization

Geneva, 1991



SPECIAL REPORT

In both developing and developed countries, consumers and health care providers need to be supplied with up-to-date and authoritative information on the benefits, the safety, and possible harmful effects of all herbal medicines.


Assessment of quality, safety, and efficacy not intended as a replacement for clinical research.

The WHO Expert Committee on Traditional Medicines (ECTM) was established in 1985. The ECTM is a technical advisory body to the WHO. The ECTM's mandate is to provide technical advice to the WHO on the assessment of traditional medicines. The ECTM's work is to provide technical advice to the WHO on the assessment of traditional medicines. The ECTM's work is to provide technical advice to the WHO on the assessment of traditional medicines.

Asian Cancer Therapies • Manuka Oil • Ginger • Nausea

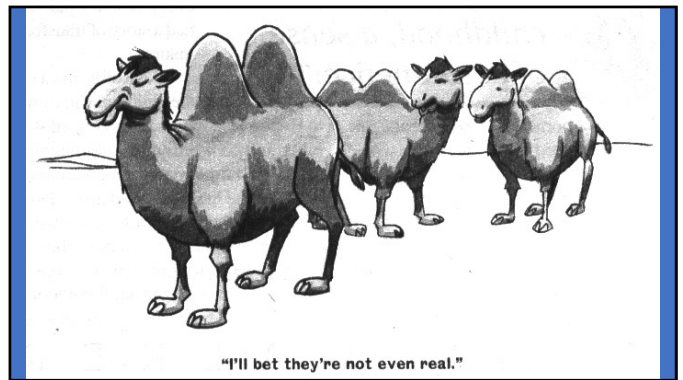
HERBALGRAM

The Journal of the American Botanical Council and the Herb Research Foundation



A Closer Look at Aromatic and Medicinal Plant Structures

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"Wild Red American Ginseng"

- Sold in health food stores in SW, late 1970s
- No botanical relationship: Polygonaceae, not Araliaceae
- No chemical relationship to true American ginseng, *Panax quinquefolius*
- No traditional use similar to true American ginseng
- In opposite areas of *P. quinquefolius* native growth

Herb Trade Association
 4302 Airport Boulevard
 Austin, Texas 78722
 512.454.8626

POLICY STATEMENT #1
Canaiige
 MAY 1979

For months, the Herb Trade Association has received several inquiries from health food retailers requesting clarification on some products labeled "Wild Red American Ginseng," "Wild Red Desert Ginseng," etc. Apparently, many retailers and consumers have unfortunately confused these products with true American ginseng (*Panax quinquefolius*). Consequently, the issue has been raised regarding which plants and plant products should be labeled as "ginseng."


Research was initiated by the HTA standards committee to determine the taxonomic validity of labeling this plant material in question as "ginseng" — which most literature refers to as Canaiige (*Rumex crispus* L.). This research was not intended to be a determination of the precise pharmacology of this plant, nor was it the scope of this research to assess relative risks and benefits associated with the use of Canaiige. The research was initiated to try to answer one question: Should Canaiige be marketed, promoted, and labeled as "ginseng?"

Several questions were considered:

1. Is Canaiige botanically related to American Ginseng (*Panax quinquefolius* L.), Korean and Chinese ginseng (*Panax ginseng* C.A. Mey.), or Japanese ginseng (*Panax japonicum*, C. A. Mey.)?

True ginseng belongs to the Family Araliaceae, whereas Canaiige belongs to the genus *Rumex* (Family Polygonaceae) — two entirely separate and unrelated plant families. Regarding the confusion men-

First industry warning about economic adulteration – Echinacea (1985)




HERB TRADERS BEWARE!
by botanist and author Stephen Foster

Communications from a number of Midwest wildcrafters indicate that *Parthenium integrifolium*, commonly known as wild quinine, prairie dock, or Missouri snakeroot, (the latter two names are applied to other species as well), is being harvested in Missouri and other states, then sold as dried root of *Echinacea purpurea*. When cut and sifted, the *Parthenium* root has an uncanny resemblance to *E. purpurea* root, though it does not possess *Echinacea*'s characteristic flavor or fragrance. *Parthenium* roots weigh on the average four to five times more than *Echinacea* roots, hence its attraction to unscrupulous traders.

Though *Parthenium* and *Echinacea* are both in the Aster family (Asteraceae), there is no historical precedence for confusion of the two. References to *Parthenium* are non-existent in the popular herb literature, and little information is available on *Parthenium* in the historical or ethnobotanical literature. According to Virgel Vogel in *American Indian Medicine*, fresh leaves of *Parthenium* were used by the Pawnee as a poultice on burns. In his

1st Published Report of "Substitution" of Scullcap w/ Germander
HG Vol 2 #3 (1985)




SCULLCAP SUBSTITUTION

The common herb scullcap is supposed to be *Scutellaria laterifolia*. However, several herb suppliers reported recently that at least some of the product in commerce is not in the genus. This has now been verified by microscopic analysis of commercial samples, and by identification of seeds. The plant in commerce is actually a species of *Teucrium*, related to germander. The exact species has not yet been identified. Several species of *Teucrium* are used as tonics, while scullcap is considered by its users to be a mild sedative. It is one of the expressed goals of the American Herbal Products Association (AHPA) to help establish identity standards for herbs, so confusion regarding different species and families will be less likely.

HG #22, 1990

Special Report
BLACK PEARLS LOSE LUSTER
Prescription Drugs Masquerade as Chinese Herbal Arthritis Formula
by Bob McCaleb and Mark Blumenthal


Summary: Since the late 1970s a Chinese arthritis remedy, posing as an all natural herbal product, has been illegally imported into the United States. Sold under several names ("Chaling Tonic", Black Pearls, Miracle Herb), the product has been tested by government agencies and the Herb Research Foundation and shown to contain various prescription drugs that are not listed on the label. Although many users claim relief, regulatory officials claim the product is only given a potential health benefit and that they are illegal under current food and drug laws. Nevertheless, many users claim the product provides effective relief, while some sellers are attempting to invoke "freedom of choice" in health care as a defense of the product.



Building Trust in a World of Wonders: Black Pearls is a Chinese medicine marketed as a natural product. Despite containing a prescription drug, it has been sold in the United States since the late 1970s. The U.S. Food and Drug Administration (FDA) is currently reviewing the product. The FDA has issued a warning to consumers to be cautious of products that claim to be natural but contain prescription drugs. The product is sold under several names, including "Black Pearls", "Miracle Herb", and "Chaling Tonic".

ABC Ginseng Evaluation Program

- 1st major commercial herb product testing program ever conducted
- Ca 500 "ginseng" products tested
- Validated analytical method (now USP)
- Testing at UIC & Univ Ottawa
- American ginseng (*Panax quinquefolius*)
- Asian ginseng (*P. ginseng*)
- Eleuthero (*Eleutherococcus senticosus*)
- Standardized ginseng



Chaste Tree for PMS - Standardized Ginseng Product Test
HERBALGRAM
The Journal of the American Herbal Products Association / Herb Research Foundation
Ginseng Evaluation Program Part I: Standardized Ginseng Report

MARKET REPORT

US Sales of Herbal Supplements Increase by 8.6% in 2019
CBD, mushroom, and elderberry supplements continue to drive sales

By Tyler Smith,^a Georgia May,^b Veronica Eckl,^b and Claire Morton Reynolds^c

^a American Botanical Council, Austin, Texas
^b SPINS, Chicago, Illinois
^c Naturopathic Business Journal, Boulder, Colorado



MARKET REPORT

Herbal Supplement Sales in US Increase by Record-Breaking 17.3% in 2020
Sales of immune health, stress relief, and heart health supplements grow during COVID-19 pandemic

By Tyler Smith,^a Farhana Majid,^b Veronica Eckl,^b and Claire Morton Reynolds^c

^a or herbal supplements, as well as sales in three major channels (mass market, natural and health food, and direct sales) and sales by product type (single-herb supplements vs. combination formulas). SPINS recorded sales data for the 49 top-selling herbal and fungal ingredients.

Year	2019	2020	2021
Sales (\$ billion)	\$5,069	\$5,937	\$6,960




US Sales of Herbal Supplements Increase by 9.7% in 2021

Near-record retail sales growth continues to be driven largely by pandemic-related wellness concerns, including immune and digestive health, mood support, and energy

By Tyler Smith,^a Haleigh Resetar,^b and Claire Morton^c

HerbalGram #136

22 Top-Selling Herbal Supplements -- 2021 US Mainstream Multi-Outlet Channel*

1. Elder berry	12. Garlic
2. Psyllium	13. St. John's wort
3. Apple Cider Vinegar	14. Wheat Grass
4. Horehound	15. Beta-sitosterol
5. Turmeric/Curcumin	16. Valerian
6. Cranberry	17. Ginkgo
7. Ashwagandha	18. Saw palmetto
8. Ivy leaf	19. Flax Seed &/or Oil
9. Ginger	20. Black Cohosh
10. Fenugreek	21. Pycnogenol®
11. Echinacea	22. Pumpkin



Source: SPINS (Chicago, IL) Report data from HerbalGram's 2021 Herb Market Report (Issue 136; 2022)
*Coded by primary ingredient

Yellow = Confirmed or strongly suspected as subject to adulteration and/or frequently mislabeled.

22 Top-Selling Herbal Supplement -- 2021 US Natural Channel*

1. CBD (Cannabidiol)	12. Oregano
2. Turmeric/Curcumin	13. Spirulina
3. Elderberry	14. Apple Cider Vinegar
4. Ashwagandha	15. Echinacea
5. Grass (Wheat or Barley)	16. Cranberry
6. Quercetin	17. Saw Palmetto
7. Mushrooms / Fungal Products	18. Chlorophyll / Chlorella
8. Aloe Vera	19. Garlic
9. Flax	20. Maca
10. Milk Thistle	21. Valerian
11. Psyllium	18. Nigella / Black Seed





Source: SPINS (Chicago, IL) Pre-print data from HerbalGram's 2021 Herb Market Report (Issue 136; 2022)
*Coded by primary ingredient

YELLOW = confirmed or strongly suspected as subject to adulteration and/or frequently mislabeled.

Herb Adulteration in US Dietary Supplement Market - 2021

Based on the preceding 2 slides:

Although there are many high quality, authentic herbal products in the US market, ca. **36% - 55%** of the herbal ingredients in the 22 **top-selling herbal DS** sold in the mainstream and natural food retail channels, respectively, in the US in 2021 are **subject to adulteration &/or mislabeling.**





-- Draft in Press --

Estimating the Extent of Adulteration of Botanical Raw Materials, Extracts, Essential Oils, and Finished Botanical Preparations -- Its Challenges and Limitations

- A review of all of the published analyses of 5 of the top-selling herbs in the US market to begin the process of attempting to develop meaningful conclusions re the extent of adulteration in the market.

Ensuring Proper IDENTITY is Job #1 in any QC system!






01 13 foodtechnology
Advancing Food & Health Through Sound Science
FOOD FRAUD
streamlining innovation daily ingredient solutions

AMERICAN BOTANICAL COUNCIL
SINCE 1988

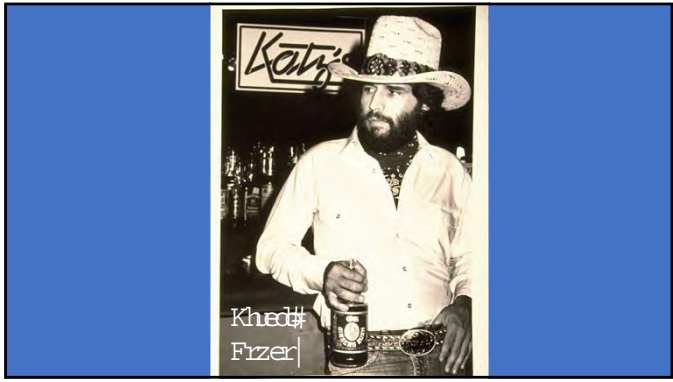
ABC AHP NCNPR
Botanical Adulterants
Prevention Program

NCNPR
THE UNIVERSITY OF MISSISSIPPI

AHP
AMERICAN HERBAL PHARMACOPOEIA®

"Thou shall not commit adulteration."

7th Commandment.
Exodus 20:14.



The botanical supply chain is global; adulteration is a global challenge.

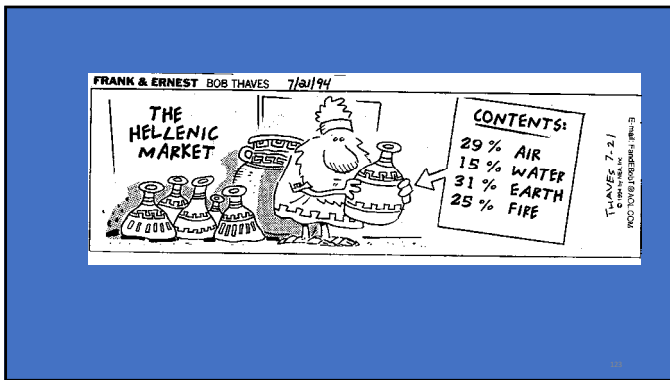
www.freegreatpicture.com





USP Expert Panel on Food Ingredient Intentional Adulterants

Definition of intentional or EMA (Economically Motivated Adulterated) of food ingredients:
“the fraudulent addition of nonauthentic substances or removal or replacement of authentic substances without the purchaser’s knowledge for economic gain of the seller”



A BRIEF HISTORY OF ADULTERATION OF HERBS, SPICES, AND BOTANICAL DRUGS

BY STEVEN FOSTER

Adulteration of Skullcap with American Germander

By Steven Foster

Summary
 Skullcap (*Scutellaria laeviflora*, Lamiaceae), a native American plant, has been used by herbalists and medical practitioners—primarily as a mild nerve sedative—throughout the history of American herbalism. In the early 1980s, it was erroneously implicated as being a possible source of liver toxicity, mostly in combination herbal products. By the early 1990s, it became clear that suspected adulteration or substitution of members of the genus *Erigeron* were the source of the alleged toxicity (the likely implicated adulterant). Various herbal industry and scientific research groups have published methods for the authentication of skullcap. A paper published in 2011 suggests that the adulteration problem still exists. Various papers related to the toxicity of *Erigeron* species and authentication of skullcap are reviewed.

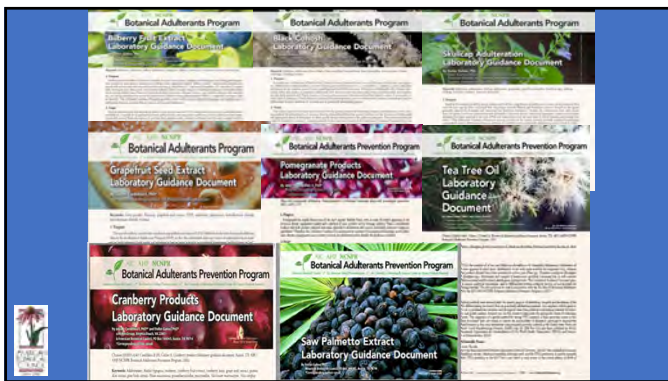
Dr. Stefan Gafner Promoted as New Director of BAPP



Botanical Adulterants Prevention Program		
Published	Being Researched Written, In Edits, &/or Peer-Review	Planned/ Proposed
<ol style="list-style-type: none"> 1. Aloe vera 2. Arnica flower 3. Ashwagandha root 4. Bilberry fruit extract 5. Black cohosh root & rhizome 6. Black seed (Nigella) seed & oil 7. Boswellia tree resin 8. Cranberry fruit extract 9. Eleuthero rhizome 10. Ginkgo leaf extract 11. Goldenseal root & rhizome 12. Grape seed extract 13. Lavender flower oil 14. Maca root 	<ol style="list-style-type: none"> 15. Milk thistle extract 16. Olive Oil 17. Oregon herb & oil 18. Pomegranate fruit & extract 19. Rhodiola rosea root/rhizome & extract 20. Saffron 21. Saw palmetto fruit (revision #3) 22. Skullcap herb 23. St. John's wort herb 24. Synthetic antimicrobials: "Grapefruit Seed Extract" 25. Tea tree leaf oil 26. Turmeric root/rhizome & extracts / curcumin 	<ol style="list-style-type: none"> 1. CBD 2. Eucalyptus oil 3. Ginger root 4. Ginseng, American root 5. Ginseng, Asian root 6. Kava rhizome 7. Mint oil 8. Muira puama bark 9. Sandalwood bark oil 10. Sea buckthorn 11. "Fortified" herbal extracts: caffeine, vitamin C, et al.

Botanical Adulterants Bulletins -- Outline

- 1. General Information**
Nomenclature, Taxonomy, Plant Part & Form, General Uses, etc.
- 2. Market**
 - Importance in the trade
 - Supply sources
 - Raw material forms
 - Market dynamics
- 3. Adulteration**
 - Known adulterants
 - Sources of information supporting confirmation of adulteration
- Accidental or intentional adulteration
- Frequency of occurrence
- Possible therapeutic issues
- Analytical methods to detect adulteration
- Perspectives
- 4. Conclusions**
- 5. References**



Laboratory Guidance Documents

Published	Being Written, in Edits, or Peer Review	Planned/ Proposed
<ol style="list-style-type: none"> 1. Arnica flower 2. Bilberry fruit extract 3. Black cohosh root & rhizome 4. Boswellia tree resin 5. Cranberry fruit extract 6. Ginkgo leaf extract 7. Grape seed extract (GSE) 8. Olive Oil 9. Pomegranate fruit & extract 	<ol style="list-style-type: none"> 10. Skullcap herb 11. Saw palmetto fruit extract (Sept 2019) 12. St. John's wort herb & extracts 13. Synthetic antimicrobials sold as "Grapefruit Seed Extract" 14. Tea tree leaf oil root/rhizome & extracts 	<ol style="list-style-type: none"> 1. Ashwagandha root 2. Cordyceps fruiting body 3. Rhodiola rosea root/rhizome & extract 4. Maca root

Total Publications – June 2, 2023

• Botanical Adulterant Prevention Bulletins	26
• Laboratory Guidance Documents	16
• Articles on adulteration (<i>HerbalGram</i> etc.)	10
• “Botanical Adulterants Monitor” newsletters	27
• Best Practices SOP for Disposal / Destruction for Irreparably Defective Articles	1
Total	80

ALL PUBLICATIONS ARE FREE ACCESS:
www.herbalgram.org/resources/botanical-adulterants-prevention-program/

ISSUE #25 – APRIL 2022

Editor: Stefan Galner, PhD — Associate Editors & Contributors: Mark Blumenthal, Miro Caraffino, PhD; Shama Khan, PhD; Roy Lippin, MSc

Dear Reader

Since the inception of the Botanical Adulterants Monitor in 2014, this first Botanical Adulterants Monitor in which botanical expert and colleague Steven Foster, who died on January 15, 2022, didn't have the opportunity to provide comments on its content. For me, his knowledge of the history of plants and their supply chain (or value network) often helped me understand the current market situation and to put reports of botanical dietary supplement quality issues into context. One such example is the adulteration of skullcap (*Scutellaria lateriflora*) with germander (*Teucrium*) species, which, according to most of the published literature, is a case of accidental misidentification. Steven looked at it from a harvester's point of view, explaining that "there is no accidental misidentification of *Teucrium canadense* as *Scutellaria lateriflora*. That is a myth. One can easily harvest a pick-up truck load of *T. canadense* in a morning, whereas one would be hard-pressed to harvest a few pounds of any *Scutellaria* spp. from any wild habitat anywhere in the United States in a day. The adulteration of *Scutellaria lateriflora* with *Teucrium canadense* is pure-and-simple 'under the radar' economic adulteration." His keen insight and pointed comments will be missed.

... READ MORE

Stefan Galner, PhD
 Chief Science Officer, ABC
 Technical Director, ABC-AHP-NCNPR Botanical Adulterants Program

ABC-AHP-NCNPR Botanical Adulterants Program

Science Update

Saw Palmetto Extract Laboratory Guidance Document

By Stefan Galner, PhD
 American Botanical Council, PO Box 14436, Austin, TX 78714
 Contributing authors: [unreadable]

Saw palmetto adulteration

1,2: Saw palmetto (ethanol extract)
 3,4: saw palmetto (CO₂ extract)
 5-8: Commercial samples of Chinese origin

Image provided by Pilar Pais (Euromed SA, Barcelona, Spain)

Saw Palmetto - Isotopic Fingerprinting

Multivariate statistical analysis of ¹⁸O/¹⁶O, ¹³C/¹²C and ²H/¹H ratios

- authentic saw palmetto
- saw palmetto from Chinese suppliers
- ★ chicken fat
- ★ lamb fat
- ◆ pig fat
- ◆ beef fat

Image courtesy of Indeno, SpA, Milano, Italy

BULLETIN

Turmeric (*Curcuma longa*) Root and Rhizome, and Root and Rhizome Extracts

By Ezra Bejar, PhD
 American Botanical Council, PO Box 14436, Austin, TX 78714
 *Corresponding author: emil

Keywords: *Curcuma longa*, turmeric, adulteration, turmeric root, turmeric rhizome, turmeric powder, curry, turmeric oleoresin, curcuminoids, curcumin


Chinese: 姜黄 (姜黄, 姜黄油, 姜黄粉); 姜黄根; 姜黄根茎; 姜黄根茎提取物

Assessment of *Curcuma longa* extract for adulteration with synthetic curcumin by analytical investigations.

Girme A¹, Saste G¹, Balasubramaniam AK¹, Pawar S¹, Ghule C¹, Hingorani L¹

Author information ▶

Journal of Pharmaceutical and Biomedical Analysis, 03 Sep 2020, 191:113603
DOI: 10.1016/j.jpba.2020.113603 PMID: 32957065




Acta Hort. 1287. ISHS 2020. DOI 10.17660/ActaHortic.2020.1287.3
XXX IHC – Proc. Int. Symp. on Advances in Production and Processing of Medicinal and Aromatic Plants
Eds.: B. Patil et al.

Botanical ingredient adulteration – how some suppliers attempt to fool commonly used analytical techniques

S. Gafner^{1*}, M. Blumenthal¹, S. Foster², J.H. Cardellina II³, I.A. Khan⁴ and R. Upton⁵

¹American Botanical Council, Austin, TX 78714, USA; ²Steven Foster Group, Eureka Springs, AR 72632, USA; ³ReevesGroup, Virginia Beach, VA 23451, USA; ⁴NCNPR, University of Mississippi, University, MS 38677, USA; ⁵American Herbal Pharmacopoeia, Scotts Valley, CA 95067, USA.

Abstract
As the global market for herbal medicines and dietary/food supplements has increased, so have reports of undisclosed ingredients being added to botanical raw materials, extracts, essential oils, and finished consumer products. Reports include accidental misidentification of botanical materials due to human error. More often, however, adulteration is carried out for financial gain, also referred to as economically motivated adulteration (EMA), where raw materials, extracts, intentionally substituted, diluted, or "spiked" with undisclosed ingredients. This reflects a significant challenge to the global marketplace and, in some cases, impacts consumer safety. In Botanical Council (ABC), the American Herbal Pharmacopoeia (AHP), and the American Herbal Pharmacopoeia (AHP) Botanical Adulterants Prevention Program.



JOURNAL OF NATURAL PRODUCTS
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ABC AHP NCNPR Botanical Adulterants Prevention Program

Botanical Ingredient Forensics: Detection of Attempts to Deceive Commonly Used Analytical Methods for Authenticating Herbal Dietary and Food Ingredients and Supplements

Stefan Gafner*, Mark Blumenthal, Steven Foster, John H. Cardellina, II, Ikhlās A. Khan, and Roy Upton

Cite This: <https://doi.org/10.1021/acs.jnatprod.2c00929> Read Online

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ABSTRACT: Botanical ingredients are used widely in phyto-medicines, dietary/food supplements, functional foods, and cosmetics. Products containing botanical ingredients are popular among many consumers and, in the case of herbal medicines, health professionals worldwide. Government regulatory agencies have set standards (collectively referred to as current Good Manufacturing Practices, cGMPs) with which suppliers and manufacturers must comply. One of the basic requirements is the need to establish the proper identity of crude botanicals in whole, cut, or

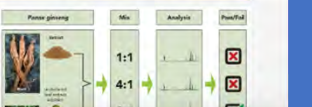


Table 1. Adulteration Schemes for Important Medicinal Plant Extracts

Scientific Name	Common Name and Part	Analyte(s)	Adherent	Methods at Risk of Being Deceived
<i>Actaea racemosa</i>	Black cohosh root	Triterpenoids	Other <i>Actaea</i> spp.	HPTLC, HPLC-UV/vis
<i>Outouga</i> spp.	Hyperborean leaf and flower	Flavonoids	Ratio-rich extracts	HPTLC, HPLC-UV/vis, HPLC-MS, IR, NIR, Raman, NMR
<i>Curcuma longa</i>	Turmeric root	Whole extract	Undisclosed excipients	HPTLC, HPLC-UV/vis, HPLC-MS
<i>Curcuma longa</i>	Turmeric root	Curcumin	Synthetic curcumin	HPTLC, HPLC-UV/vis, HPLC-MS, IR, NIR, Raman, NMR
<i>Echinacea angustifolia</i>	Narrow-leaved echinacea root	Echinacoside	Other <i>Echinacea</i> spp.	HPTLC, HPLC-UV/vis
<i>Echinacea</i> spp.	Echinacea herb and root	Whole extract	Undisclosed excipients	HPTLC, HPLC-UV/vis, HPLC-MS
<i>Ginkgo biloba</i>	Ginkgo leaf	Flavonoids	Ratio-rich extracts	HPTLC, HPLC-UV/vis, HPLC-MS, IR, NIR, Raman, NMR
<i>Ginkgo biloba</i>	Ginkgo leaf	Whole extract	Undisclosed excipients	HPTLC, HPLC-UV/vis, HPLC-MS
<i>Hydratacra</i> spp.	Goldenrod root	Berberine	Capsule extract, Oregon grape extract, barberry extract	HPTLC, HPLC-UV/vis
<i>Panax ginseng</i>	Asian ginseng	Ginsenosides	Ginseng leaf extract, <i>Panax quinquefolius</i> extract	HPTLC, HPLC-UV/vis, HPLC-MS
<i>Panicum polyanthemum</i>	Panicum herb	Flavonoids	Ratio-rich extracts	HPTLC, HPLC-UV/vis, HPLC-MS, IR, NIR, Raman, NMR
<i>Rhodiola rosea</i>	Rhodiola root	Coumarol alcohol glycosides, salicylates	Other <i>Rhodiola</i> species	HPTLC, HPLC-UV/vis
<i>Sambucus nigra</i>	European elder berry	Aurones	Black rice extract	UV/vis, HPTLC, HPLC-UV/vis
<i>Sorbus nigra</i>	Star potted fruit	Fatty acids	Vegetable oils	HPTLC, GC-FID, GC-MS
<i>Silybum marianum</i>	Milk thistle fruit	Flavonolignans	Extracts from exhausted milk thistle and other sources	HPTLC
<i>Vaccinium macrocarpon</i>	Cranberry fruit	Anthocyanins	Black rice extract, hibiscus extract	UV/vis
<i>Vaccinium macrocarpon</i>	Cranberry fruit	Proanthocyanidins	Grape seed extract, peanut skin extract, pine bark extract	HPTLC, HPLC-UV/vis, IR, NIR, Raman, NMR
<i>Vaccinium myrtillus</i>	Bilberry fruit	Anthocyanins	Black rice extract, blueberry extract, raspberry extract	UV/vis

Most of 26 Herbs Subject to Adulteration as Documented by BAPP Do Not Pose Safety Risks


- Of the 26 herbs documented to be subject to adulteration via BAPP peer-reviewed "Botanical Adulterants Prevention Bulletins" – most of them have not been associated with cases of serious adverse effects due to adulteration – most are mainly economic violations / fraud.
- Only 3 of these herbs have been associated with any potentially serious AEs – e.g., hepatotoxicity:
 1. **Black cohosh** – Adulterated with other spp. of *Actaea* – but AEs have not been consistently reported.
 2. **Skullcap** (aka skullcap) – Adulterated with hepatotoxic germander. (*Teucrium chamaedrys*)
 3. **Turmeric** – Adulterated with synthetic curcumins with potential hepatotoxic effects.

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ABC AHP NCNPR Botanical Adulterants Prevention Program

Botanical Ingredient Forensics: Detection of Attempts to Deceive Commonly Used Analytical Methods for Authenticating Herbal Dietary and Food Ingredients and Supplements

Stefan Gafner*, Mark Blumenthal, Steven Foster, John H. Cardellina II, Ikhlās A. Khan, and Roy Upton



ABC AHP NCNPR
Botanical Adulterants Prevention Program

Botanical Adulterants Prevention Program (BAPP)
Best Practices Standard Operating Procedure (SOP)
for the Disposal / Destruction
of Irreparably Defective Articles

BAPP SOP

Contents:

1. Contract Language
2. SOP
3. 3-party confidentiality agreement (seller, buyer, 3rd-party lab)
4. Various forms for records
5. FAQs

- Consumer protection initiative
- 2 rounds public comment
- Input and support from wide range of community stakeholders from responsible members of herb industry and beyond
- New term, "irreparably defective article" – IDA
- Voluntary initiative empowers buyer to remove IDA from supply chain/network.
- Buyer has possession of IDA in quarantine
- IDA's should *not* be returned to seller.
- IDA's to be picked up by certified 3rd-party service for transport to sanitary landfill or incinerator.



Burn It!
Don't Return It!

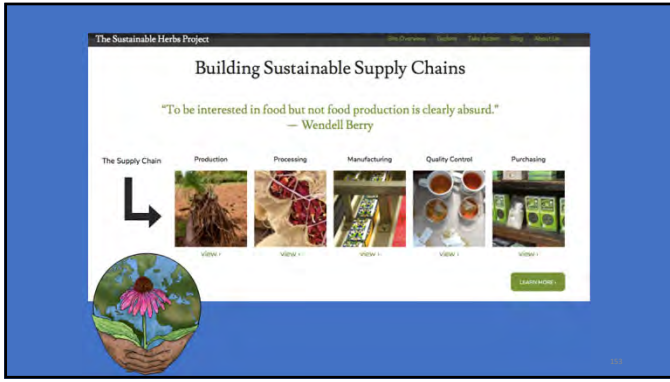
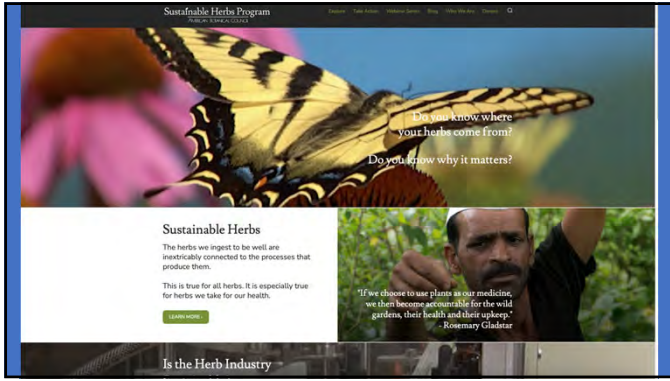


10 YEARS ABC AHP NCNPR Botanical Adulterants Prevention Program




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REGENERATIVE
HERB FARMING
IN
COSTA RICA

• 21-minute video – released March 2023.

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A Conference for Clinical Practitioners

Thursday, April 27, 2023
US: 10 am-2 pm (EDT) - UK: 3 pm-7 pm (BST)
Online via Zoom

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AMERICAN BOTANICAL COUNCIL

SHP Learning Journey in Appalachia - Sept 2023

• This event is limited to SHP underwriting companies & orgs.

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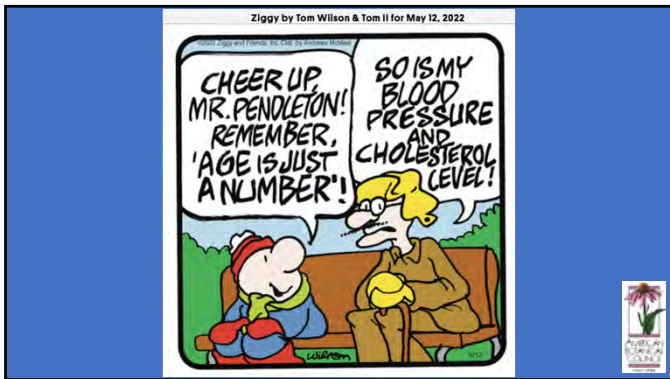
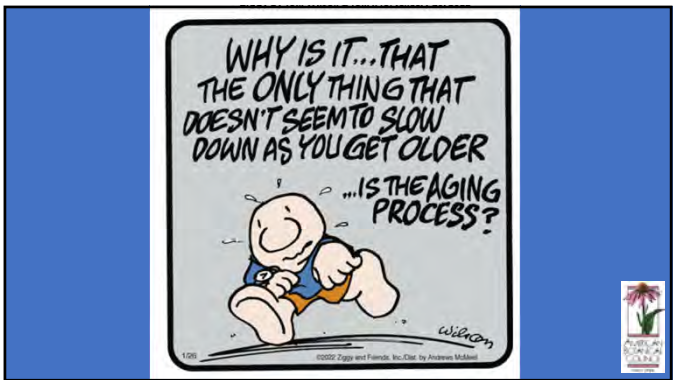
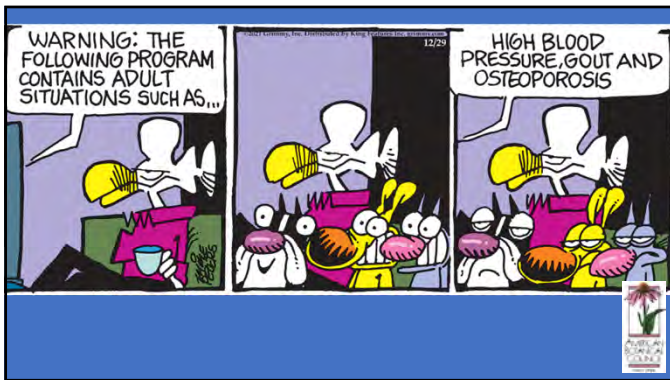
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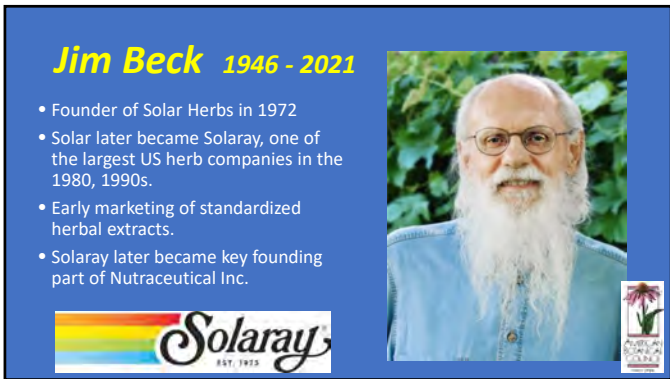
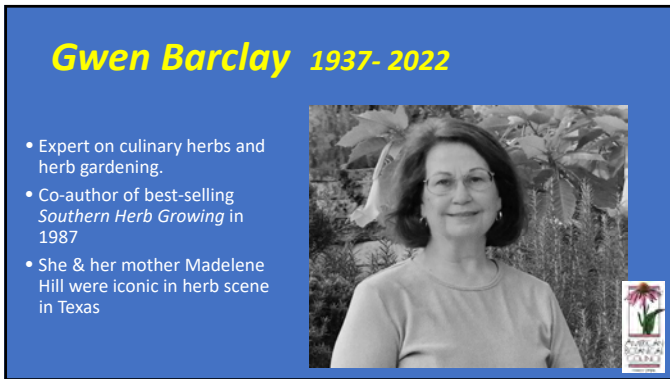
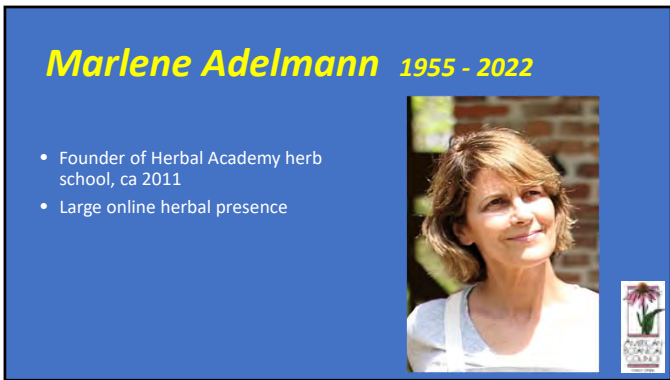
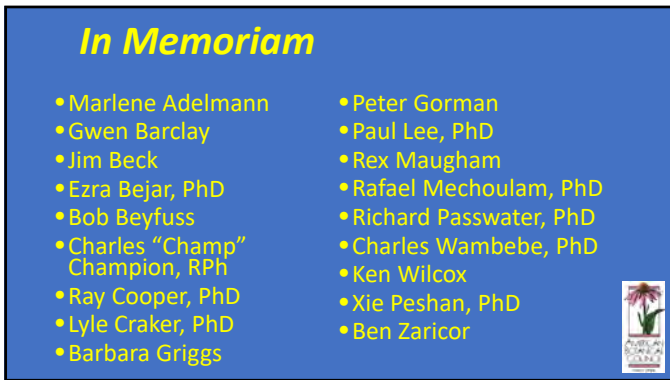
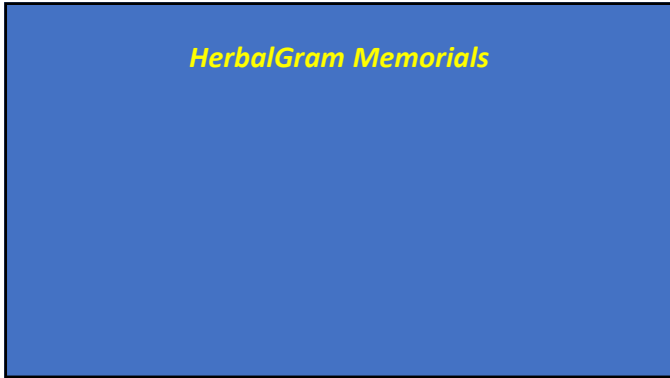
BANYAN BOTANICALS PLT HEALTH NUTRITION RASA yellow emperor YOUNG

by SHP Founder & Director
Ann Armbrecht, PhD

EXPLORING THE HEALING PROMISE OF PLANT MEDICINES IN A GLOBAL INDUSTRY




The Business of Botanicals
ANN ARMBRECHT







Ezra Bejar 1958-2022

- PhD pharmacognosist & pharmacologist
- Worked in herb industry doing botanical R&D, safety, etc.
- Accomplished graphic artist
- Wrote 5 bulletins for BAPP:
 - Aloe
 - English Lavender
 - Rhodiola
 - Tea Tree
 - Turmeric
 - Rhodiola (co-author)

Bob Beyfuss 1950 - 2023

- Passionate expert on American Ginseng:
 - Wild, woodsgrown, cultivated
- Cornell Cooperative Extension Service
- Gardening tips column in local newspaper.
- Died while playing softball with friends in Florida

Charles "Champ" Champion 1930 - 2023



- 1st black pharmacist in Memphis-area hospital
- Owned pharmacy & herb store – still run by family








Ray Cooper 1949-2022

- PhD organic chemistry
- Pharmacognosist
- Author / editor of reference books on medicinal plants
- Industry experience:
 - Shaman Pharmaceuticals
 - Pharmanex / NuSkin
 - Shaklee
 - Herbalife

Lyle Craker 1941 - 2022

- Horticulturist
- Editor, *Journal of Herbs, Spices & Medicinal Plants*
- Advocated for US govt. permission to research cannabis

Barbara Griggs 1932 - 2022

- British journalist
- Author *Green Pharmacy: A History of Herbal Medicine* (1991, 1997)





Peter Gorman 1951 - 2022

- Popular journalist
- Many articles in *High Times*
- Avowed 'psychonaut'
- Spent time in Amazon reporting on psychoactive substances
- Wrote first lay press article on ayahuasca in 1986




Paul Lee 1931 - 2022

- Executive Director, Herb Trade Association
- Coined "Herbal Renaissance" – 1970s
- Community & Environmental Activist in Santa Cruz, CA area





Rex Maugham 1936 - 2021




- Founded Forever Living in 1978
- Claimed to be the world's largest aloe vera products company
- Vertically integrated: Growing, Processing, Manufacturing, Marketing
- Sold in ca 150 countries







Raphael Mechoulam PhD 1930 - 2023

- Pre-eminent Israeli cannabis researcher -- "father of cannabis research"
- Published 450 articles
- He and his group: first total synthesis of major plant cannabinoids Δ^9 -tetrahydrocannabinol (THC), cannabidiol, cannabigerol, et al.
- First isolation of the first-described endocannabinoid anandamide



Richard Passwater, PhD 1937 - 2022

- Biochemist
- Prolific popular writer on nutrition and role of nutrients, vitamins, herbs et al. in human health.
- Columnist for *Whole Foods Magazine* for >30 years.
- Wrote first articles in US on Pycnogenol®, proprietary French maritime pine bark extract.

Charles Wambebe, PhD 1946 - 2022

- Studied & helped set standards for African traditional plants
- CEO of the National Institute for Pharmaceutical Research and Development (NIPRD) in Abuja, Nigeria.
- Studied leads for botanicals extracts in HIV/AIDS & sickle-cell disease
- Editor: *African Indigenous Medical Knowledge and Human Health* (CRC Press, 2018).
- Contributor to *African Herbal Pharmacopoeia*


Ken Wilcox 1937 - 2023

- Founder, Wilcox Drug Co., Boone, NC - 1960
- Wild native American medicinal plants
- Co-founder, Botanicals International – ca 1980




Xie Peishan, PhD 1934 - 2022

- Expert in quality control on Chinese herbs
- Director, Second Department of Traditional Chinese Medicine, 1955 – 2002 (47 yrs)
- Guangzhou Institute for Drug Control
- Member, Chinese Pharmacopoeia Commission (6th-9th commissions)
- One of earliest analysts to recognize adulteration of *Ginkgo biloba* extract




Ben Zaricor 1947 - 2022

- Co-founder Fmali Herb Co. in 1972.
- First 'tri-president', Herb Trade Assn, 1977
- First non-Chinese American herb trader to start herb imports to US from PRC
- Co-founder, Botanicals International – ca 1980




ABC Members In >80 countries!


<p>Researchers</p> <ul style="list-style-type: none"> – Ethnobotanists, pharmacognosists, natural product chemists, et al. 	<p>Industry</p> <ul style="list-style-type: none"> – Growers, Importers, Manufacturers in the Herbal & Dietary supplement, natural food, cosmetic pharmaceutical industries, et al.
<p>Health professionals</p> <ul style="list-style-type: none"> – Physicians, pharmacists, nurses, dietitians, naturopaths, acupuncturists, herbalists, massage therapists, et al. 	<p>Government agencies</p> <ul style="list-style-type: none"> – FDA, FTC, PTO, Canada NHPD, Australian TGA, Brazilian ENVIA, et al.
<p>Institutions & NGOs</p> <ul style="list-style-type: none"> – Universities, medical & pharmacy schools, libraries, poison control centers, hospitals, botanical gardens & arboreta, etc., et al. 	<p>Consumers</p>



Thank to Loren Israelsen, Ken Murdock (Nature's Way) Jan Kamps & Anton Graf (Madaus)

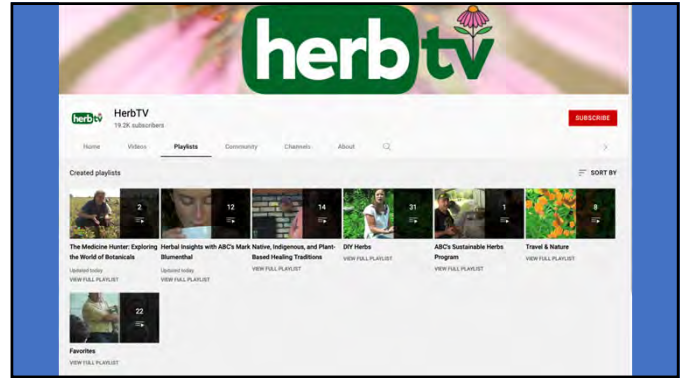


Co-Founders of ABC



Norman R. Farnsworth, PhD

- Co-founder ASP 1959
- SEB DEB 1983
- *Enfant terrible* of the pharmacognosy profession
- Force of nature



Educating the public on the rational use of herbs, teas, essential oils, phytomedicines, plant-based food concentrates, and other plant-based & fungal ingredients

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