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Reliable Sources of Herb Information:

A Review of English-language Journals, Books, & Databases Providing Scientifically & Clinically Accurate Information on Herbs & Phytomedicines

Mark Blumenthal Founder & Executive Director American Botanical Council Editor-in-Chief, *HerbalGram* & *HerbClip* Director, ABC-AHP-NCNPR Botanical Adulterants Program

Bara Herbs Conference, Israel November 8, 2016



# ConsumerReports

SHOULD A "ROBOT" MANAGE YOUR MONEY?

## **SUPPLEMENTS**

SAFE CARS FOR TEENS

A COMPLETE GUIDE TO SAFETY

- 15 dangerous ingredients to avoid
- The truth about health claims
- Superfoods to eat instead



**15 Supplement Ingredients to Always Avoid** These supplement ingredients can cause organ damage, cardiac arrest, and cancer By Consumer Reports July 27, 2016



# Consumer Reports

## "15 Supplement Ingredients to Always Avoid"

- Aconite
- Caffeine powder
- Chaparral
- Coltsfoot
- Comfrey
- Germander
- Greater Celandine
- Green Tea Extract

- Kava
- Lobelia
- Methylsynephrine
- Pennyroyal Oil
- Red Yeast Rice
- Usnic Acid
- Yohimbe

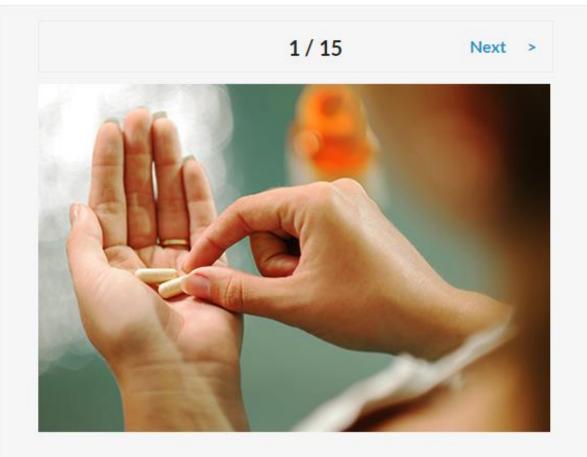
הבעלות והאחריות על המידע והתכנים המופיעים במצגת שייכים לכותב בלבד ואין חברת ברא צמחים אחראית למהימנותם או לדיוקם של תכנים אילו, והם אינם מהווים ייעוץ מקצועי או התוויה רפואית.

## **Unreliable Information**



## Herbal Supplements You Shouldn't Try

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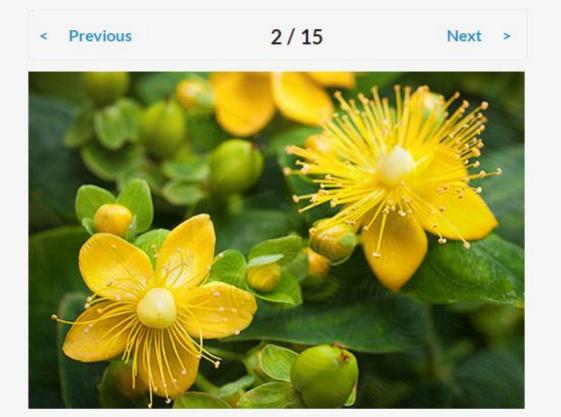
### Supplement Safety

It seems like these products should be harmless. After all, you use herbs all the time when you're cooking. But some may not be safe, especially if you have certain medical conditions or take some medications. Talk with your docto before taking any supplements.



הבעלות והאחריות על המידע והתכנים המופיעים במצגת שייכים לכותב בלבד ואין חברת ברא צמחים אחראית למהימנותם או לדיוקם של תכנים אילו, והם אינם מהווים ייעוץ מקצועי או התוויה רפואית.

## Herbal Supplements You Shouldn't Try



#### St. John's Wort

This popular supplement is often taken for depression, anxiety, and sleep problems. But it can cause side effects like headache, nausea, dizziness, and dry mouth. And it may make you more likely to get sunburned. It also can cause problems if you take certain drugs -- from heart medicines to antidepressants, and even birth control pills. And it can make chemotherapy less effective.

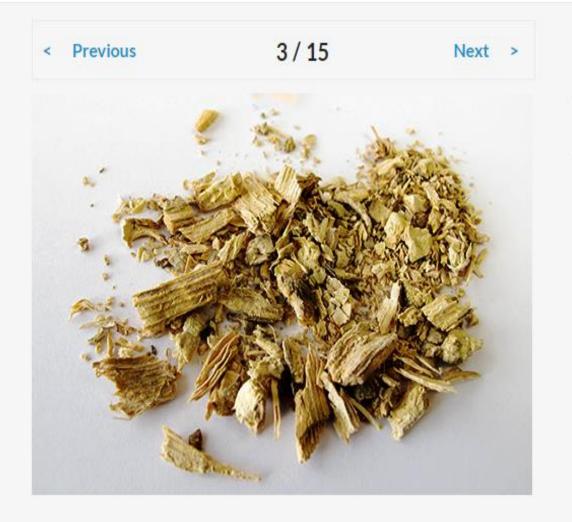


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## Herbal Supplements You Shouldn't Try



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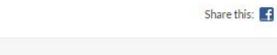
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## Kava

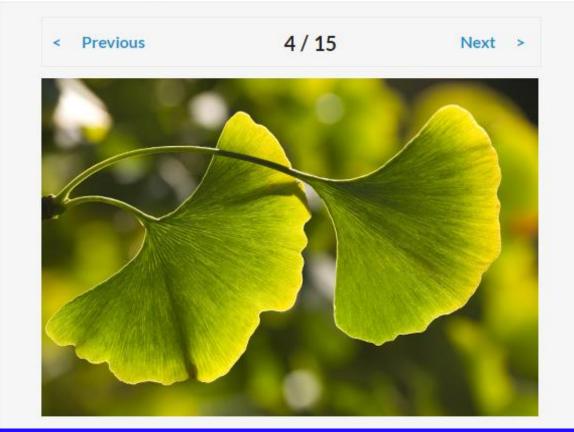
This is supposed to help with anxiety and insomnia. But it may cause liver damage, like hepatitis. So you shouldn't take it if you have liver or kidney problems. Kava also can be dangerous if you drink alcohol or take other drugs that make you sleepy.



## Herbal Supplements You Shouldn't Try



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### Ginkgo

People often take this to try to improve their memory. Some believe ginkgo biloba also helps with circulation, mental function, and altitude sickness, among other health conditions. But it can thin your blood and cause bleeding. That's especially risky if you take blood-thinning drugs.



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## Herbal Supplements You Shouldn't Try

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#### Arnica

Some people believe rubbing oil from this plant on their skin helps ease pain from bruising, as well as from swelling and aches. Others take the supplement to try to help with constipation. But eating the herb can raise your blood pressure and cause a fast heartbeat and shortness of breath. It can even damage your liver, or bring on a coma or death.



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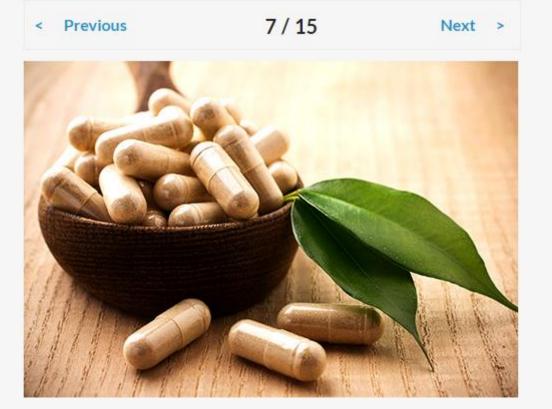
#### Ginger

People take this to try to ease nausea brought on by surgery, chemotherapy, or motion sickness. And sometimes it's used to treat arthritis or other joint pain. But ginger can cause problems with blood clotting, heart rhythms, blood pressure, and blood sugar levels. You shouldn't take it if you have gallstones or take blood thinners.



הבעלות והאחריות על המידע והתכנים המופיעים במצגת שייכים לכותב בלבד ואין חברת ברא צמחים אחראית. למהימנותם או לדיוקם של תכנים אילו, והם אינם מהווים ייעוץ מקצועי או התוויה רפואית.

## Herbal Supplements You Shouldn't Try



### Goldenseal

This remedy, which has a long history among Native Americans, is used for constipation and colds, eye infections, and even cancer. But goldenseal can affect your heart's rhythm and raise or lower your blood pressure. You should avoid it if you have heart problems.



הבעלות והאחריות על המידע והתכנים המופיעים במצגת שייכים לכותב בלבד ואין חברת ברא צמחים אחראית למהימנותם או לדיוקם של תכנים אילו, והם אינם מהווים ייעוץ מקצועי או התוויה רפואית.

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### Aloe

Rubbing this plant on a burn or wound may help it heal or feel better. But some people also take it by mouth, and that can cause an abnormal heart rhythm. It also may lower your blood sugar levels if you have diabetes.



הבעלות והאחריות על המידע והתכנים המופיעים במצגת שייכים לכותב בלבד ואין חברת ברא צמחים אחראית למהימנותם או לדיוקם של תכנים אילו, והם אינם מהווים ייעוץ מקצועי או התוויה רפואית.

## Herbal Supplements You Shouldn't Try

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### Ephedra

Also known as ma huang, this herb has been used for thousands of years in China and India to treat coughs, headaches, and cold symptoms. More recently, it's been used to help people lose weight and get energy. But studies have found it may boost the chance of heart problems and strokes, and cause a rise in heart rate and blood pressure. Doctors also warn of possibly deadly

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## Herbal Supplements You Shouldn't Try



#### Ginseng

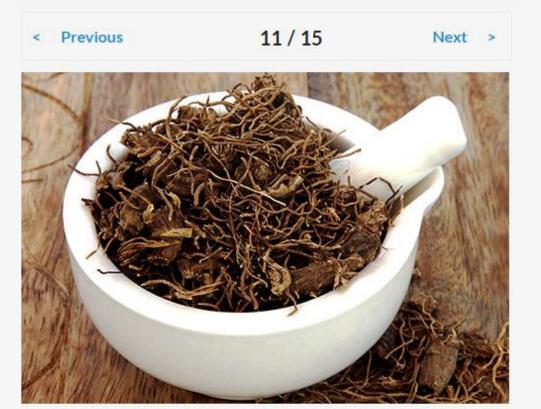
Some people take this because they hope it will slow aging. Others take it for diabetes, to boost immunity, or to help with sex. But it may lead to a drop in blood sugar, so it can cause issues for people with diabetes. You also shouldn't take it if you have high blood pressure or take blood thinners.



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## Herbal Supplements You Shouldn't Try

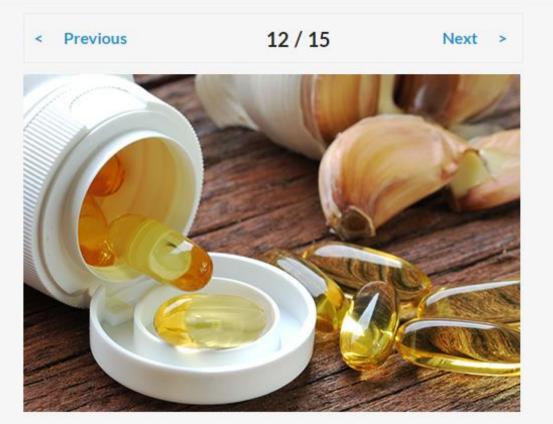


#### **Black Cohosh**

This supplement is often used for menopause symptoms like hot flashes and night sweats. Some women also try it to help with PMS. But it may cause low blood pressure, especially in large amounts. And it should be off limits for anyone with liver problems, because there's a chance it can cause inflammation or failure.



## Herbal Supplements You Shouldn't Try



#### Garlic

Some people believe it helps with high blood pressure and can treat cold symptoms. Studies show it can lower your cholesterol a bit, too. It's safe for most people, but garlic can thin your blood. That can increase your risk of bleeding if you take blood-thinning medications for heart problems.



הבעלות והאחריות על המידע והתכנים המופיעים במצגת שייכים לכותב בלבד ואין חברת ברא צמחים אחראית למהימנותם או לדיוקם של תכנים אילו, והם אינם מהווים ייעוץ מקצועי או התוויה רפואית.

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## Herbal Supplements You Shouldn't Try

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### Licorice Root

Some people use this to treat coughs, stomach ulcers, bronchitis, infections, and sore throat. But it can raise your blood pressure and cause issues with heart rhythms, so you shouldn't take it if you have heart problems. It also can cause problems for people with kidney disease.

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## Herbal Supplements You Shouldn't Try





#### Stinging Nettle

This is thought to help with allergies and arthritis, kidney and bladder stones, and urinary tract infections. Some people use it on their scalps to fight dandruff. But nettle can make your body hold on to water, so you shouldn't take it if you retain fluid because of heart or kidney problems or if you take diuretics.



## Herbal Supplements You Shouldn't Try

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#### Feverfew

This supplement is most commonly taken to try to prevent migraines. Some people also take it for arthritis and allergies. But it has both potassium and phosphorous, and people who have kidney disease should be careful with those minerals. Feverfew also may cause a problem with blood clotting, so it may be an issue for people with heart disease or blood disorders.



## This Presentation Attempts to be Relatively Comprehensive but Cannot be Exhaustive

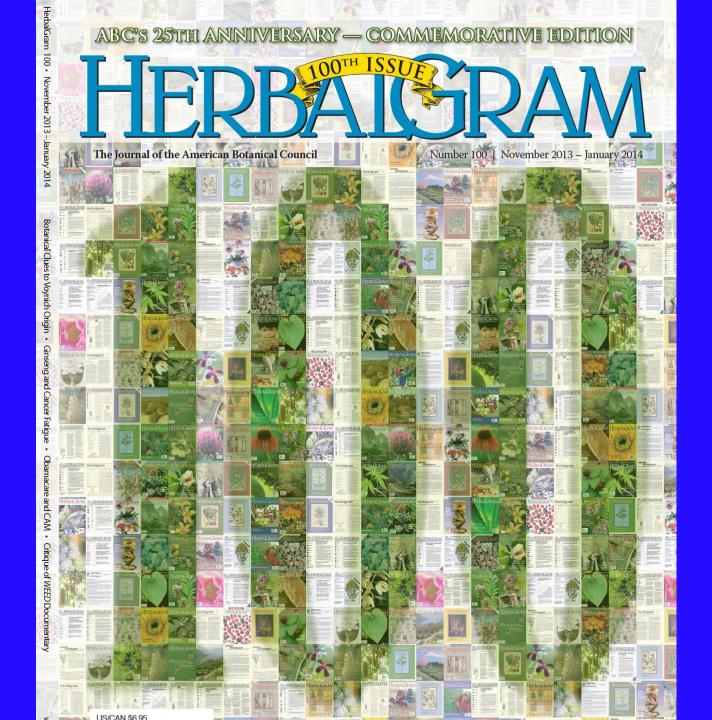
- The research & educational resources, journals, websites, etc. mentioned in this presentation are meant to portray a *comprehensive* review of available reliable sources, but the presenter emphasizes that this presentation cannot be claimed to be *exhaustive*.
- The presenter apologizes in advance for any inadvertent omission of a resource that might have qualified for inclusion.



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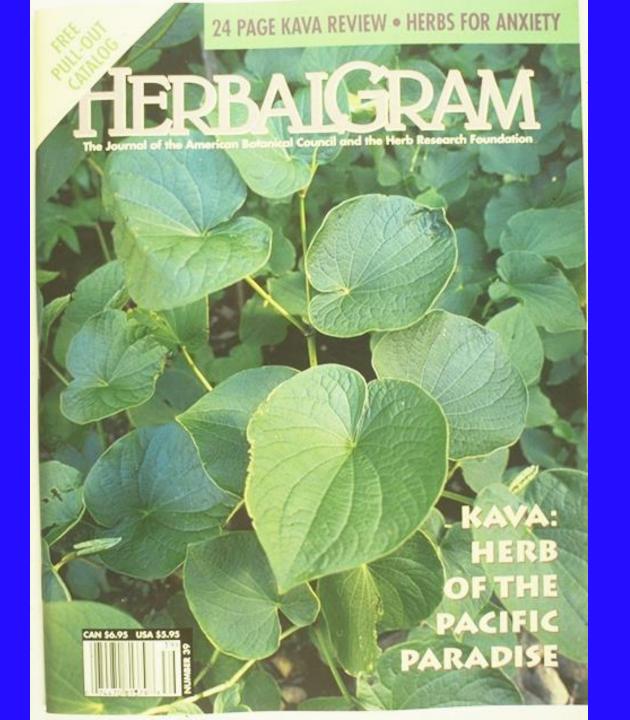
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Ginseng Evaluation Program Part 1: Standardized Phase Report

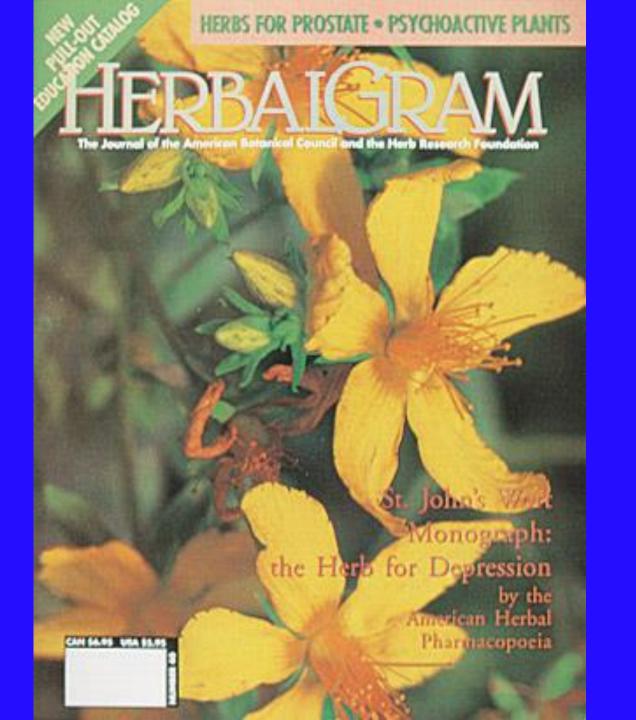


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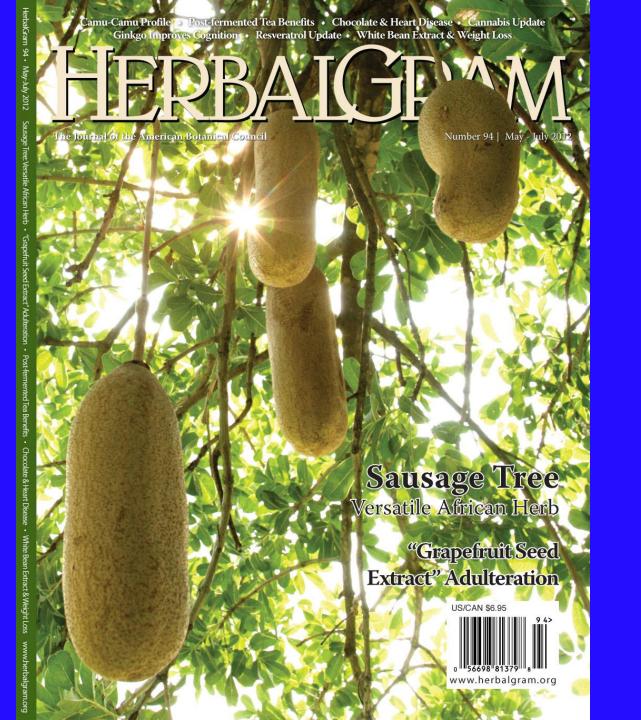
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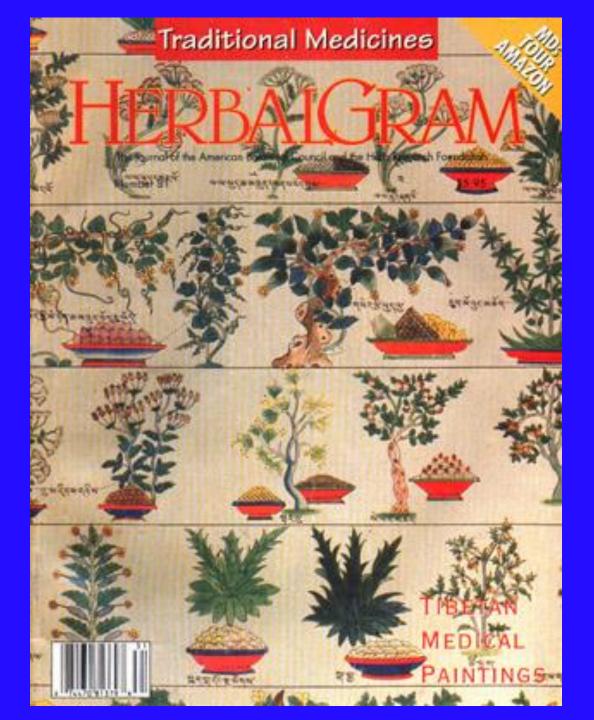




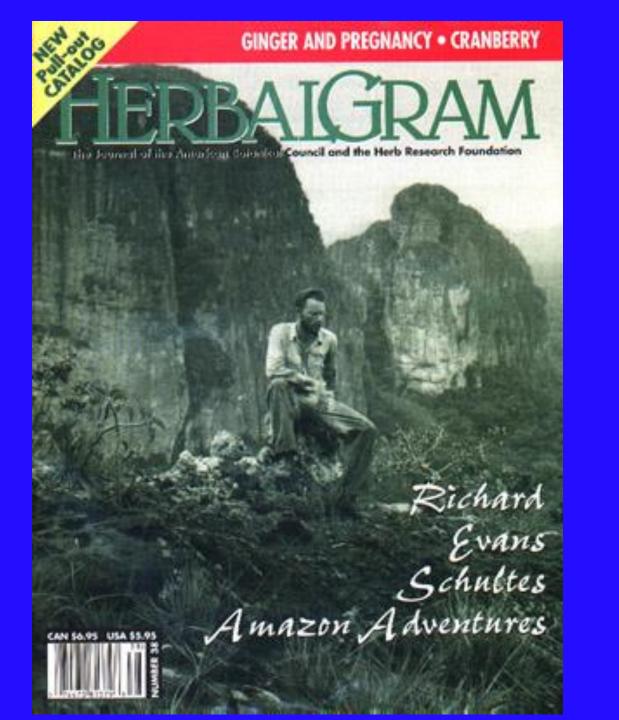




## Ethnobotany & Traditional Medicine









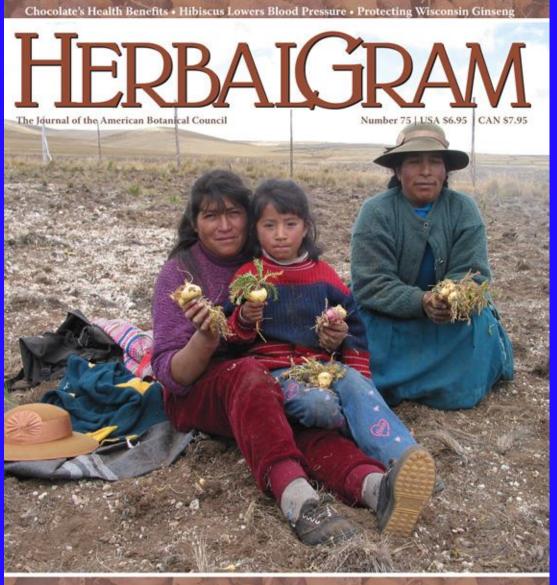
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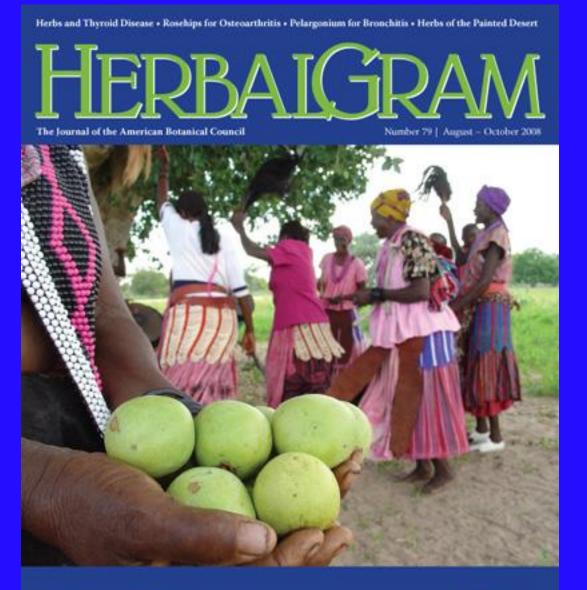
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## Tea's Silk Road Journey to Tibet





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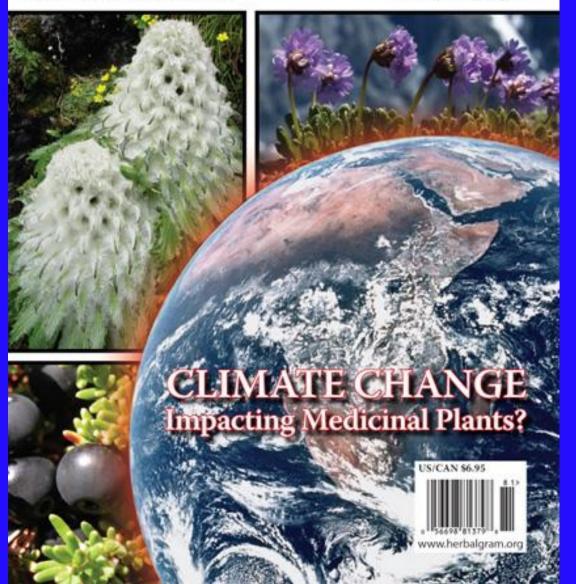


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## Replacing Animal-Based Remedies with Plants



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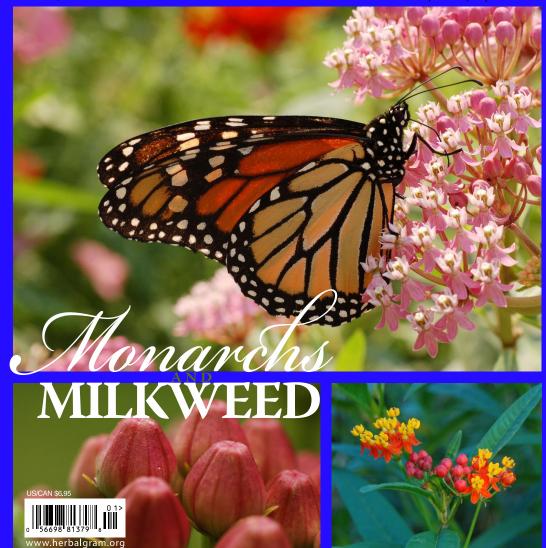


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Number 101 February - April 201





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New treatment possibilities for a global health priority?

By Lindsay Stafford

e Thymus sulgaris 310 Steven Foster

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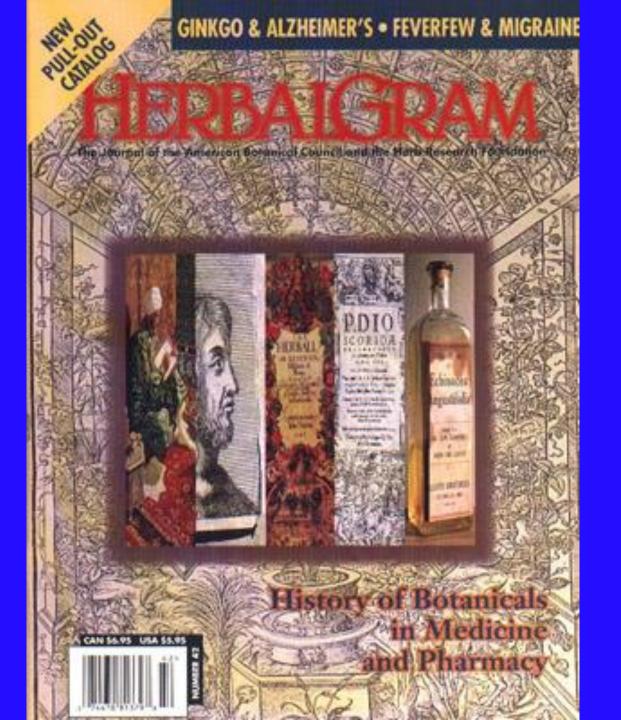
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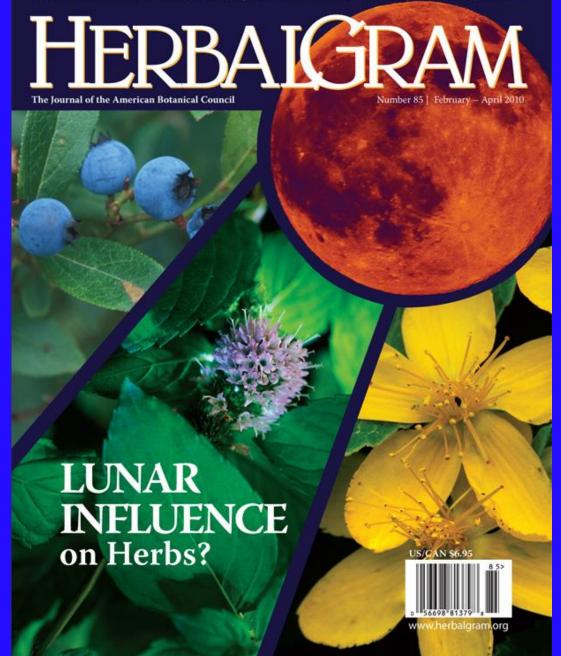
## Articles on Unusual Topics of Historic & Cultural Interest





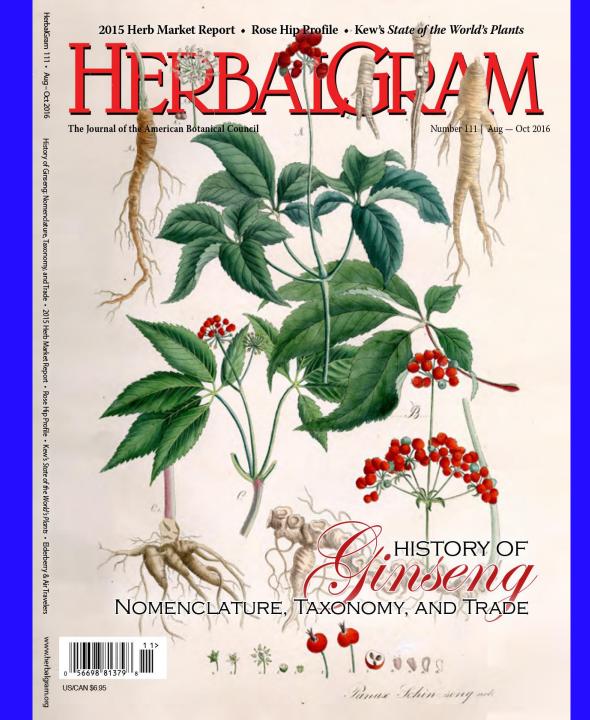


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- Aloe Vera (Aloe vera, Xanthorrhoeaceae)
- Diabetes
- Systematic Review/Meta-analysis

#### Date: 10-14-2016 HC# 091661-554

#### Re: Aloe Vera Shows Promise in Lowering Blood Glucose and Reducing Other Symptoms of Prediabetes

Zhang Y, Liu W, Liu D, Zhao T, Tian H. Efficacy of aloe vera supplementation on prediabetes and early nontreated diabetic patients: a systematic review and meta-analysis of randomized controlled trials. *Nutrients*. June 23, 2016;8(7). pii: E388. doi: 10.3390/nu8070388.

Diabetes is characterized partly by elevated blood glucose and is a serious disease that may lead to potentially devastating health complications. Standard medications for diabetes often cause adverse side effects; thus, botanicals may be an effective and less expensive option for lowering blood glucose. Aloe vera (*Aloe vera*, Xanthorrhoeaceae) is used to treat many health concerns, but the research on its potential use for diabetes is conflicted. This systematic review and meta-analysis focused on randomized clinical trials (RCTs) investigating potential hypoglycemic activity of aloe vera.

The authors searched PubMed, Embase, and Cochrane Central Register of Controlled Trials, from each database's origin to January 28, 2016. The search terms used were extensive, including "hyperglycemia," "impaired glucose tolerance," "diabetes mellitus," and "aloe vera," among others. Publications in any language were considered. The American Diabetes Association and World Health Organization criteria for prediabetes and type 2 diabetes mellitus were used. Studies included were RCTs, with or without lifestyle interventions, used aloe vera alone, included patients that were not using hypoglycemic medication and did not have heart disease or other serious health problems, and had glucose and/or lipid status as primary outcomes. The studies were alone, included on quality, with the terms "adequate, inadequate, and unclear," to describe randomization, allocation E-C









PDF (Download)

- Ashwagandha (Withania somnifera, Solanaceae)
- Sexual Function
- Female Sexual Dysfunction

#### Date: 10-14-2016 HC# 031662-554

#### Re: Ashwagandha Improves Sexual Function in Premenopausal Women

Dongre S, Langade D, Bhattacharyya S. Efficacy and safety of ashwagandha (*Withania somnifera*) root extract in improving sexual function in women: a pilot study. *Biomed Res Int*. October 4, 2015;2015;284154. doi: 10.1155/2015/284154.

Many factors can lead to a lack of sexual function and desire in women, including stress or physical problems. Botanicals may be useful to alleviate these. Ashwagandha (*Withania somnifera*, Solanaceae) is used as an adaptogen, and the root extract has been shown to be efficacious in treating sexual problems. This randomized, double-blind, placebo-controlled study investigated whether a high-concentration ashwagandha root water extract (HCARE) (KSM-66<sup>®</sup>; Ixoreal Biomed; Los Angeles, California) would alleviate stress or modulate hormones to affect female sexual dysfunction (FSD).

This study took place in India and enrolled women diagnosed with FSD and meeting criteria for hypoactive sexual desire disorder (HSDD), female sexual arousal disorder (FSAD), female orgasmic disorder (FOD), or "combined genital and subjective arousal disorder." Patients enrolled scored <26 on the Female Sexual Function Index (FSFI, an index of function items, where an elevated score is indicative of better sexual function) and >11 on the Female Sexual Distress Scale (FSDS, a scale addressing worry and distress about sex, where a lower score shows lower distress). Patients were 21-50 years old, in a heterosexual partnership for a year or more, and had a history of sexual activity. Additional inclusion criteria were the agreement to have sex twice per week with attempts at orgasm, the use of condoms, and ability to speak, read, and write fluent English. Those who had underlying untreated endocrine disease; had experienced painful sex within the past year; appeared to be experiencing sexual distress or exploitation; were pregnant, lactating, infertile, or in menopause; suffered from psychiatric conditions or drug abuse; used hormonal contraceptives or had taken other drugs or supplements for sexual



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- Boswellia (Boswellia serrata, Burseraceae)
- Betaine
- Myo-inositol
- Breast Density

#### Date: 10-14-2016 HC# 031655-554

#### Re: Eumastós<sup>®</sup> Supplement Decreases Breast Density in Women with Extremely Dense Breasts on Mammogram

Pasta V, Gullo G, Giuliani A, et al. An association of boswellia, betaine and myo-inositol (Eumastós<sup>®</sup>) in the treatment of mammographic breast density: a randomized, double-blind study. *Eur Rev Med Pharmacol Sci.* 2015;19(22):4419-4426.

Breast cancer risk is increased 4- to 6-fold in women with radiologically dense breast tissue. It is proposed that "a treatment strategy to reduce the mammary density may bring about very relevant clinical outcomes in breast cancer prevention." Eumastós® (Lo.Li. Pharma s.r.l.; Rome, Italy) is a blend of myo-inositol, betaine, and boswellic acid (from boswellia [*Boswellia serrata*, Burseraceae] resin). Myo-inositol modulates inflammatory, metabolic, and endocrine pathways involved in disease pathogenesis, including cancer. Betaine and boswellia also have anti-inflammatory activity and exert protective effects against cancer. The authors hypothesized that Eumastós may reduce breast density by exerting synergistic effects on inflammatory, metabolic, and endocrine processes. The purpose of this randomized, double-blind, placebo-controlled study was to investigate the effect of Eumastós on breast density in women with high breast density.

Premenopausal women (n = 76, aged 22-51 years) with high breast density participated in this 6-month study conducted in Rome, Italy. Excluded patients had breast treatments 4 months prior to the trial, breast cancer, bloody nipple discharge, premalignant lesions (carcinoma in situ), or other diseases. Patients received either placebo or Eumastós twice daily for 6 months. The placebo contained 2.1 mg vitamin B6, 0.3 mg folic acid, 2.1 mg vitamin B2, 0.003 mg vitamin B12, and 100 mg N-acetylcysteine. The Eumastós supplement contained the







PDF (Download)

- Tea Tree (Melaleuca alternifolia, Myrtaceae) Oil
- Hinoki False Cypress (Chamaecyparis obtusa, Cupressaceae)
- Acne

#### Date: 10-14-2016 HC# 091631-554

#### Re: Trial Finds Lactobacillus-fermented Hinoki False Cypress More Effective than Tea Tree Oil in Treating Acne

Kwon HH, Yoon JY, Park SY, Min S, Suh DH. Comparison of clinical and histological effects between *Lactobacillus*-fermented *Chamaecyparis obtusa* and tea tree oil for the treatment of acne: an eight-week doubleblind randomized controlled split-face study. *Dermatology*. October 2014;229(2):102-109.

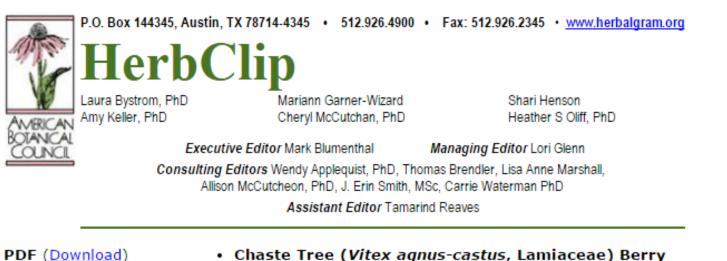
Acne is an extremely common skin condition, particularly among adolescents. Although prescription medications can be effective in treating mild to moderate acne, they may cause adverse effects such as burning and antibiotic resistance. Tea tree (*Melaleuca alternifolia*, Myrtaceae) essential oil (TTO), obtained by steam distillation of the tree's leaves and twigs, is often used to treat acne and is reported to have efficacy similar to benzoyl peroxide, but also similar adverse effects. Used as a perfume, cosmetic, and disinfectant, hinoki false cypress (*Chamaecyparis obtusa*, Cupressaceae) contains compounds that have anti-inflammatory and antimicrobial activities. These authors performed a double-blind, randomized, controlled, spilt-face study to compare *Lactobacillus*-fermented *C. obtusa* (LFCO) and TTO for the treatment of mild to moderate acne and attempt to identify therapeutic mechanisms.

The study was conducted at Seoul National University Hospital in Seoul, South Korea, between January and July 2013. Thirty-four patients (11 males and 23 females) aged  $25.9 \pm 5.6$  years with mild to moderate acne enrolled in the study. Exclusion criteria included pregnancy, mental illness, use of oral isotretinoin within 6 months, and use of any other acne medication within 6 weeks. Baseline evaluation revealed a mean Leeds acne grading score of  $4.0 \pm 1.2$  on a scale of 0 to 10;  $30.6 \pm 10.6$  inflammatory lesions; and  $62.5 \pm 52.5$  noninflammatory lesions. The patients were instructed not to use any systemic, topical, or light-based acne treatments during the study.









- Chaste Tree (Vitex agnus-castus, Lamiaceae) Berry
- Flax (Linum usitatissimum, Linaceae) Seed
- Cyclic Mastalgia

#### Date: 10-31-2016 HC# 041663-555

#### Re: Clinical Efficacy of Chaste Tree Berry and Flaxseed on Cyclic Mastalgia

Mirghafourvand M, Mohammad-Alizadeh-Charandabi S, Ahmadpour P, Javadzadeh Y. Effects of Vitex agnus and flaxseed on cyclic mastalgia: a randomized controlled trial. Complement Ther Med. February 2016;24:90-95.

In menstruating women, cyclical breast pain can be distracting and affect quality of life. Chaste tree (Vitex agnuscastus syn. V. agnus, Lamiaceae) berries have been used traditionally for reproductive system and menstruation problems. Previous studies have shown the potential for chaste tree berry to modulate hormone activity, as well as alleviate cyclical breast pain. Flax (Linum usitatissimum, Linaceae) seed contains phytoestrogens and has also been shown to be effective in reducing breast pain and other menstrual discomforts. This randomized, triple-blind, placebo-controlled trial investigated the efficacy of chaste tree berry and flaxseed in alleviating cyclic breast pain.

Included women, recruited in Tabriz, Iran, were 18-45 years old, and had cyclical breast pain. Those with chronic illness or who were taking medications were excluded. Included patients underwent a physical breast exam, and those with normal breasts were allowed to participate. Patients were instructed on filling out the Cardiff daily pain chart during their menstrual cycle (lower scores indicate less pain, and those scoring above 7 were included in the trial).

Included patients were randomly assigned to a group receiving chaste tree berry with a flaxseed placebo, a group receiving flaxseed with a chaste tree berry placebo, or a control group given a placebo of both. Those in the flavegod group took 25 g of powdered flavegod (plant material was presured from a local market and ground into





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PDF ( <u>Download</u> ) • Tea Tree ( <i>Melaleuca alternifolia</i> , Myrtaceae) Oil • Oral Fungal Infections • Clotrimazole							

#### Re: Efficacy of Tea Tree Oil for Oral Fungal Treatment

HC# 041662-555

Date: 10-31-2016

Maghu S, Desai VD, Sharma R. Comparison of efficacy of alternative medicine with allopathy in treatment of oral fungal infection. *J Tradit Complement Med*. March 18, 2015;6(1):62-65.

Tea tree (*Melaleuca alternifolia*, Myrtaceae) oil is traditionally used for pain, wounds, and colds. The oil contains several bioactive compounds, such as monoterpenes and sesquiterpenes, and has been shown to possess antiviral, antibacterial, and antifungal activities. Some previous studies have reported that tea tree oil can alleviate fungal infections; however, investigations have been rather limited. This randomized, single-blind, and observational study evaluated the efficacy of tea tree oil (manufacturer not provided in article) in comparison with clotrimazole (a standard antifungal drug) and a conservative approach in patients with oral fungal infections.

Patients with oral candidiasis (*Candida* spp. yeast infection) were recruited from Jaipur Dental College (Kukas, India). Symptoms were reddening, burning, inflammation, and presence of the fungus. Those with diagnosed candidiasis who were male or female, available for follow up, and aged 20-60 years old were included in the study. Excluded were those who were taking antifungal drugs; had tested positive for HIV; had serious disease; were receiving radiation treatment; and had adverse side effects from tea tree oil. Included patients were randomly assigned into a group taking tea tree oil, a group taking clotrimazole, and a group participating in "conservative management." The study duration was 3 weeks, and evaluation was made for redness, burning







- Coffee (Coffea arabica, Rubiaceae)
- Biliary Tract Cancer

#### Date: 10-31-2016 HC# 031644-555

#### Re: Green Tea May Reduce Risk of Biliary Tract Cancer

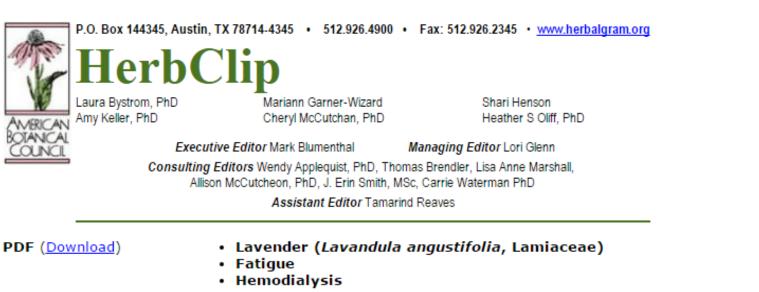
Makiuchi T, Sobue T, Kitamura T, et al. Association between green tea/coffee consumption and biliary tract cancer: a population-based cohort study in Japan. *Cancer Sci.* January 2016;107(1):76-83.

Biliary tract cancers (BTC), including gallbladder cancer (GBC) and extrahepatic bile duct cancer (EHBDC), are highly lethal, if uncommon. Their etiologies, especially related to diet, are little understood, but chronic inflammation is among their causes. While numerous epidemiological studies suggest a protective effect of green tea (*Camellia sinensis*, Theaceae) against colorectal, lung, stomach, esophageal, breast, and prostate cancers, the evidence is not conclusive. Epigallocatechin-3-gallate (EGCG), a polyphenol especially abundant in green tea, may be critical in any protective effect. Coffee (*Coffea arabica*, Rubiaceae) also has been studied for its effect on cancer risks, with both anti- and pro-cancer effects reported in epidemiological studies. Previous studies of green tea, EGCG, or coffee in relation to BTC have been small, mostly retrospective case-control studies, with inconsistent results. In vitro studies have reported that EGCG inhibits growth of gallbladder and bile duct cancer cells.

The authors studied associations between green tea/coffee consumption and risk of BTC, and of each type of BTC, in Japan. Japanese people drink green tea frequently, usually in two common forms, and coffee less frequently. *Sencha* is the first seasonal pick of green tea leaves. *Bancha/Genmaicha* is a blend of leaves from the third or fourth picking (*Bancha*) and with roasted brown rice (*Oryza sativa*, Poaceae). While descriptions of the forms of green tea are precise, those for coffee (canned versus other than canned) are less so. The Japan Public Health Center-based Prospective Study is a long-term cohort study primarily of non-communicable diseases in







Date: 10-31-2016 HC# 041613-555

#### Re: Aromatherapy with Lavender Essential Oil Does Not Reduce Fatigue in Patients Undergoing Hemodialysis

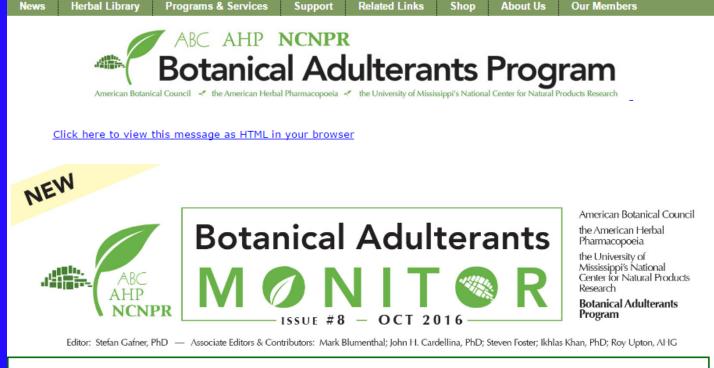
Bagheri-Nesami M, Shorofi SA, Nikkhah A, Espahbodi F, Ghaderi Koolaee FS. The effects of aromatherapy with lavender essential oil on fatigue levels in haemodialysis patients: A randomized clinical trial. *Complement Ther Clin Pract.* 2016;22:33-37.

- Patients with renal disease often experience fatigue after hemodialysis. Although non-pharmacological treatments have been investigated for improving fatigue in patients undergoing hemodialysis, no studies have evaluated the effects of aromatherapy using lavender (*Lavandula* spp., Lamiaceae) essential oil. The aim of this randomized controlled study was to evaluate the efficacy of aromatherapy with lavender essential oil for alleviating fatigue in patients undergoing hemodialysis.
- The study was conducted at 2 hospitals affiliated with the Mazandaran University of Medical Sciences in Sari, Iran. Patients were included in the study if they were undergoing dialysis for at least 6 months, were 18 years and older, and had an uncompromised sense of smell. Patients were excluded from the study if they had a history of allergies and respiratory diseases; were kidney transplant candidates; were pregnant; and/or had a drug addiction.
- Patients were divided into 2 groups (n=30 for both). Those in the experimental group inhaled lavender essence (*L. angustifolia*; Barij Essence Pharmaceutical Company; Kashan, Iran) at a concentration of 5% (diluted 1:20 in almond [*Prunus dulcis*, Rosaceae] oil) for 10 minutes 3 times a week during dialysis sessions for 4 weeks, while the other group had routine care (without aromatherapy). In the experimental group, patients were instructed to be advected for 40 minutes a setter ball eacked in 2 drane of 5% (alwarder essential cit was attached to be advected for 10 minutes a setter ball eacked in 2 drane of 5% (alwarder essential cit was attached to be advected for 10 minutes a setter ball eacked in 2 drane of 5% (alwarder essential cit was attached to be advected for 10 minutes attached to a set to be advected for 10 minutes attached to a set to be advected for 10 minutes attached to a set to be advected for 10 minutes attached to a set to be advected for 10 minutes attached to a set to be advected for 10 minutes attached to a set to be advected for 10 minutes attached to a set to be advected for 10 minutes attached to a set to be advected for 10 minutes attached to a set to be advected for 10 minutes attached to a set to be advected for 10 minutes attached to a set to be advected for 10 minutes attached to a set to be advected for 10 minutes attached to a set to be advected for 10 minutes attached to a set to be advected for 10 minutes attached to a set to be advected for 10 minutes attached to a set to be advected for 10 minutes attached to a set









#### Dear Reader

The ABC-AHP-NCNPR Botanical Adulterants Program (BAP) has just published the first in a series of two extensive papers by Steven Foster on the adulteration of ginseng (*Panax ginseng* and *P. quinquefolius*, Araliaceae) as the cover story in <u>HerbalGram 1</u> <u>11</u>. This first part explains the history of ginseng taxonomy, nomenclature, and trade as a basis for understanding adulteration. Issues with ginseng adulteration observed in the current marketplace will be discussed in the second paper.

... <u>MORE</u>

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

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Arnica, Black Cohosh, and Goldenseal

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Ginkgo Adulteration, Part 1: Publication Suggests Many Ginkgo Supplements Are of Low Quality

**Reviewed:** Booker A, Frommenwiler D, Reich E, Horsfield S, Heinrich M. Adulteration and poor quality

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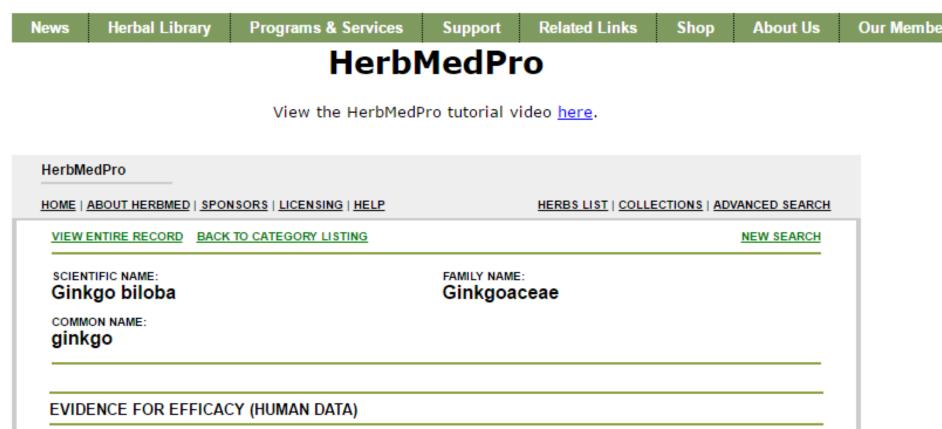
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### Clinical Trials

- PubMed In a prospective, experimental pilot study, a recommended standard intake of 1260 mg Ω-3 polyunsaturated fatty acids (fish oil) daily but not echinacea, ginkgo biloba, ginseng, St. John's wort, valeriana or garlic decrease platelet aggregation and clot formation in healthy volunteers. Bagge 2016
- PubMed A randomized double blind placebo-controlled trial, on the effect of Ginkgo biloba EGb 761 on cognitive function in elderly adults with subjective memory impairment is presented. The conclusions show possible beneficial effect of EGb 761. <u>Beck 2016</u>
- PubMed A systematic review of 8 articles (n=563) on pharmacological treatments for postviral



### [Review] Ginkgo biloba for tinnitus

PDF (Size 204 K)

Abstract

Plain language summary

Background

Objectives

- Criteria for considering studies for this review
- Search methods for identification of studies
- Methods of the review

### [Review] Ginkgo biloba for tinnitus

M Hilton, E Stuart

Cochrane Database of Systematic Reviews 2008 Issue 1 Copyright © 2008 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd. DOI: 10.1002/14651858.CD003852.pub2 This version first published online: 19 April 2004 in Issue 2, 2004 Date of Most Recent Substantive Amendment: 25 February 2004

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Abstract

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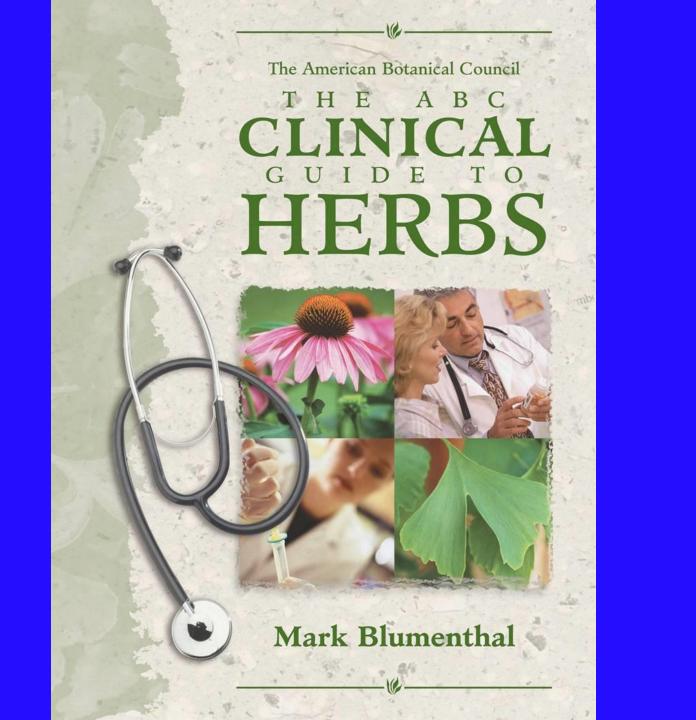


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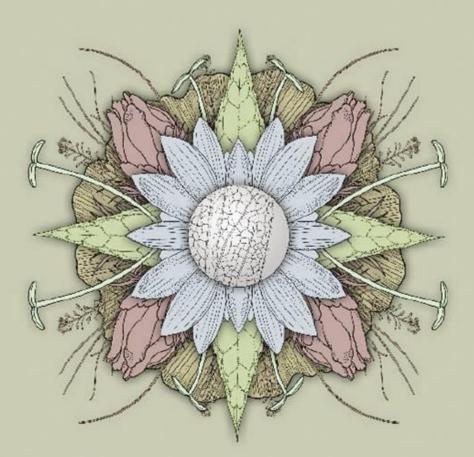
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Medical Disclaimer

Design & Composition

### NOMENCLATURE

### **Botanical Nomenclature**

Vaccinium macrocarpon Aiton

#### **Botanical Family**

Ericaceae

### Pharmacopoeial Nomenclature

Fructus macrocarponii

### Pharmacopoeial Definition

Cranberry fruit consists of the fresh or dried whole, crushed, or powdered mature fruits of *Vaccinium macrocarpon* Aiton conforming to the methods of identification and standards provided.

### **Common Names**

Wampanoag:	Ibimi; sasumuneash [sassamenesh] (Algonquin)	
United States:	Cranberry (standardized common name); American cranberry, large cranberry (McGuffin et al. 2000)	
Spain	Arandáno	
France	Canneberge	
Germany	Moosbeere (großfrüchtige), Kranbeere	
Italy	Mirtillo rosso	

### HISTORY

The fruit of cranberry, or more specifically, the juice of cranberry, is by far the most popular and widely used botanical preparation for the prevention and treatment of urinary tract infections. Cranberry juice is popularly used among health practitioners, is given freely to residents of nursing care facilities, and is one of the most commonly used home remedies among consumers. Indigenous to North America, cranberry was consumed broadly by numerous Native Americans as a food and medicine, including by the Wampanoag, the first East Coast tribe encountered by the English (pilgrims) in Massachusetts. Cranberry's popular use as a food, especially as a sauce-considered integral to a uniquely North American holiday, Thanksgiving-is well known. In 1789, the fruit was so in demand that over-harvesting by early European immigrants forced the New Jersey legislature to restrict the harvesting of unripe berries (Eck 1931).

### Nomenclatural History

The genus name of cranberry is believed to derive from the Latin vaccinus, meaning dun-colored, while the species name is from the Greek makro, or large, and karpós, meaning fruit. The common name cranberry is thought to be a derivation of the early name craneberry, which reportedly has two origins; the first a botanical reference regarding the stamens that resemble the beak of a crane; the second, due to the reported fondness of marsh cranes for the berry. Regardless of which is true, writings of the middle 1600s variably use the names cranberry, cramberry, and craneberry.

#### Native American Use

Native Americans living in northern regions commonly consumed various species of Vaccinium, including Vaccinium macrocarpon, V. oxycoccos, and V. vitis-idaea (also known as mountain cranberry or lingonberry) for their tart flavor and nutritive value. According to the oral history of the Wampanoag of Cape Cod, Massachusetts, the originating location of the first colonial Thanksgiving, cranberries (sasumuneash or ibimi) were cooked in stews. The name ibimi refers to the bitter or sour taste of the fruits (Whitman-Salkin 2013). The Ojibwa, Iroquois, Huron, Mi'kmaq (Micmac), Anticosti, Anishinaabe (Chippewa, Ojibwa), Algonquin (Moerman 2014), Cree, Malecite (Kuhnlein and Turner 1991), Potawatomi, Gitksan, Menomini (Smith et al. 1997), Coast Salish, Nlaka'pamux (Thompson) (Turner et al. 1990), Dena'ina, and Nuu-chah-nulth (Nootka, including Hesquiaht) (Turner and Efrat 1982), and Ditidaht (Nitinaht) (Turner et al. 1983) were all known to have eaten the Vaccinium fruits (Kuhnlein and Turner 1991).



#### Figure 1 Historical illustration of cranberry

Source: Vaccinium macrocarpon. Amanda Almira Newton 1913. US Department of Agriculture Pomological Watercolor Collection. Rare and Special Collections, National Agricultural Library, Beltsville, MD 20705.

American Herbal Pharmacopoeid® • Cranberry Fruit • 2016 1

an excellent product, which is one of the most popular dehydrated items used by the armed forces (Dunn 1945)."

Recent History of Cranberry Use and Study

Numerous studies from 1959 to the 1980s continued to support the health benefits of cranberry juice, primarily for the urinary tract, as well as for other indications. One of the earliest formal investigations of the antibacterial activity of a dilute cranberry juice (1 part juice, 2 parts water) occurred in 1959 (Bodel et al. 1959). These researchers suggested that hippuric acid was the mechanism behind the ongoing folkloric use of cranberries in urinary tract infections and also reported on the successful prophylactic treatment of chronic pyelonephritis.

In subsequent studies, focus was placed on the antibacterial effects of cranberry in relationship to urinary tract health. A variety of mechanisms were reported, including the ability of cranberry to decrease urinary pH, which both increased the efficacy of other antibacterial agents (Brumfitt and Percival 1962) and was beneficial in preventing and treating some renal problems (Sternlieb 1963); inhibition of growth of E. coli (Kraemer 1964); antifungal activity (Swartz and Medrek 1968; Ujvary et al. 1961); reduction of urinary ionized calcium in patients with kidney stones (Light et al. 1973); and antiviral activity (Borukh et al. 1972; Konowalchuket and Speirs 1978; Ibragimov and Kazanskaia 1981). While many of these reports lacked the methodological strength of formal modern clinical studies, they clearly suggest a trend for benefit and clinical relevance.

A number of critical reviews of the cranberry literature, including meta-analyses, have been conducted (e.g., Jepson and Craig 2007, 2008). Cochrane Reviews of 2007 and 2008 (Jepson and Craig 2007, 2008) supported the efficacy of cranberry for the prevention of urinary tract infections, while later analyses by the same group (Jepson et al. 2012), that included the same studies as the earlier positive review, reported a lack of efficacy. Clearly, the overwhelming trend of the previous meta-analyses and individual studies supports efficacy. Numerous other health benefits and actions of cranberry have been investigated including for ulcer prevention, periodontal disease, cancer prevention, viruses, and cardiovascular disease risk factors, among others.

Cranberry ("juice preparation") was included in the 19th edition of the United States Pharmacopeia-National Formulary (1999). The American Herbal Pharmacopeia developed a Cranberry Fruit Monograph and Therapeutic Compendium in 2002. Today, medical herbalists, a myriad of health care professionals, and consumers commonly use cranberry as a beverage, dietary supplement, and medicine.

### **IDENTIFICATION**

#### **Botanical Identification**

Vaccinium macrocarpon Aiton. Trailing, often ascending, evergreen shrub to 5–20 cm tall; rhizomatous. Stem: Slender, glabrous to hairy, rooting at nodes. Leaf: Simple, alternate, subsessile; blade narrowly elliptic to elliptic, rarely oblong, (5-) 7–10 (-18) mm long, (2-) 3–4 (-5) mm wide; adaxially green, abaxially glaucous; margin entire, slightly revolute. Inflorescence: Flowers solitaty in leaf axils of current year's shoots; bracteoles 2, greenish white, 1–2 mm wide; pedicels 2–3 cm, recurved, jointed to the flower. Flower: Bisexual, radially symmetric with a nectariferous disc surrounding the style; calyx 4-lobed, the lobes being

relatively small; corolla white to pink, cup-shaped, 4-lobed with lobes much longer than cup, and strongly reflexed at anthesis; stamens 8, filaments with stiff hairs along margins, anthers dehiscent by apical pores; ovary inferior, style 1, stigma capitate. Fruit: Berry, 4-loculed, globose, 9–20 mm in diameter; glabrous; red to crimson, dark burgundy. or almost black; several- to many-seeded. Seed: Hard, reddish to yellow-orange 1–2.7 mm long x 0.5–1 mm in diameter; ovate to elliptic with an acute apex; beak laterally bent; surface finely striated or longitudinally wrinkled. Chromosome number: n = 12.

Distribution: Bogs, swamps, wet shores; restricted to acidic soils and peat. Flowers late spring-early summer. Native to eastern North America from Newfoundland south to North Carolina and west to central Minnesota. Cultivated and/or escaped in other parts of North America and in Britain and Europe, especially Germany, Switzerland, parts of Eastern Europe, and the Netherlands, Chile, China, and New Zealand (Aiton 1789 Joriginal citation]; Vander Kloet 2009).

### Macroscopic Identification

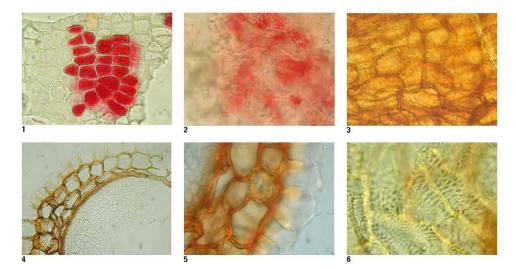
### Fresh Fruit

Surface view: Berry globose to ellipsoidal; 9 to 20 mm in diameter; red, crimson, burgundy to almost black; glabrous, with a smooth lustrous surface.

Transverse section: Mesocarp and endocarp are off-white to dull-red. The mesocarp has large air pockets (up to 2 mm thick). The fruit is 4-locular, with each locule containing 1 to 5 seeds. Each seed is narrowly ovoid to elliptic with an acute apex, 1 to 2.7 mm long and approximately 1 mm wide, with a lustrous rose to red or orange-yellow testa that is longitudinally wrinkled. The endosperm is opaque white. Note: The fresh ripe berry of different cultivars will vary somewhat in shape, size, texture, and color.

### Dried Fruit

Surface view: Globose to ellipsoidal; 7 to 11.5 mm wide and 10 to 15 mm long; dark red to almost black, with a smooth but deeply wrinkled, slightly lustrous surface. At the fruit apex is the dried, slightly raised nectariferous disc, 1.5 to 2 mm across, with a shallow depression in its center inside of which is a small protuberance from the remains of the style.



### Figure 4b Microscopic characters of cranberry fruit and seed (photographic images)

- 1. Powdered exocarp showing red pigment.
- 2. Powdered mesocarp.
- 3. Testa epidermis (surface view).
- 4. Testa (transverse view).
- 5. Detail of testa (transverse section).
- 6. Reticulately thickened cells of the testa (surface view).

### COMMERCIAL SOURCES AND HANDLING

All commercial supplies of cranberry come from cultivated sources. Cranberry is grown almost entirely in northern North America, though it has been introduced to England, Europe, and parts of Asia and South America. The major producers are, in decreasing order of predominance: Wisconsin, Massachusetts, Canada (British Columbia and Quebec), New Jersey, Oregon, and Washington. Other growing regions include Delaware, Maine, Michigan. New York, Rhode Island, other Provinces of Canada (New Brunswick, Prince Edward Island, Newfoundland, Nova Scotia, Ontario) (Dorff 2014), and Chile. In 2013, the total US crop of cranberries was approximately 8.9 million barrels (one barrel holds 45 kg [100 lb] of fresh fruit) (USDA-NASS 2014) harvested from approximately 43,900 acres. There is a plethora of information regarding cranberry cultivation available online, predominantly from national authorities, state agricultural extension services, and cranberry associations, and includes best practices guidance for cultivation and integrated pest management practices (see Burgess 2007; McManus et al. 2011, among others).

### Cultivation

In the wild, cranberries are adapted to the relative lack of available nutrients in their preferred sandy soils. Cranberry bogs initially developed from glacial deposits thousands of years ago, forming in *kettle holes*, which are basins lined with deposits of impermeable materials such as clay, which subsequently filled with organic matter and water. These unique biosystems gave rise to unique species, including the cranberry. Some bogs are thought to have formed more than 10,000 years ago.

Native soils in which cranberry vines grow are low in organic matter, with little clay. Since soils lose nutrients with every harvest, 3 organic fertilizers-nitrogen, phosphorus, and potassium-are often utilized. However, fertilization of cranberry plants is low in comparison with other crops (e.g., corn or soybeans). Cranberries are grown in beds that have been drained, cleared, and leveled, often with a layer of sand applied prior to planting selected vine cuttings. Cranberries require acidic soil with an optimal pH of 4 to 5.5 (Delahaut and Mahr 1998; Roper and Planer 1996; Salett 1998). The first commercial harvest may occur 3 years after planting, though it takes 5 to 7 years before full production potential is reached. A well-maintained bog can produce a viable crop annually for 60 to 100 years or more (Roper and Planer 1996; Salett 1998; WSCCA 2002). The average yield per acre nationwide 2014 was 211.6 barrels, with Wisconsin showing the highest yield per acre at 246.1 barrels (USDA-NASS 2015).

Inadequate fruit set is a major limiting factor on yields (Baumann and Eaton 1986; Birrenkott et al. 1991; Hagidimitriou and Roper 1994). Low pollination rates are one of the major reasons for inadequate fruit set (Samulis 1999). Cranberries are grown in a habitat where there are many different natural pollinators. However, growers have



## **AHP Cranberry Mono Outline**

### NOMENCLATURE

- Botanical Nomenclature
- Botanical Family
- Pharmacopoeial Nomenclature
- Pharmacopoeial Definition
- Common Names
- HISTORY
- IDENTIFICATION
  - Botanical Identification
  - Macroscopic Identification
  - Microscopic Identification

- COMMERCIAL SOURCES
   AND HANDLING
  - Cultivation
  - Irrigation
  - Collection
  - Handling and Processing
  - Drying
  - Storage
  - Qualitative Differentiation
  - Adulterants
  - Sustainability
  - Prepartions

הבעלות והאחריות על המידע והתכנים המופיעים במצגת שייכים לכותב בלבד ואין חברת ברא צמחים אחראית למהימנותם או לדיוקם של תכנים אילו, והם אינם מהווים ייעוץ מקצועי או התוויה רפואית.



American Herbal Pharmacopoeia®

## **AHP Cranberry Mono Outline**

### CONSTITUENTS

- Macro Consituents
- Anthocyanins
- Proanthocyanidins (PACs)
- Flavonols
- Organic Acids
- Volatile Oils
- Sugars and Complex Carbohydrates
- Vitamins
- Seed Oil

### • ANALYTICAL

- High Performance Thin Layer Chromatography (HPTLC) for the Identification of Cranberry Fruit and Detection of the Anthocyanin Cyanidin-3-O-glucoside and the Flavonoid Hyperoside
- High Performance Liquid Chromatography (HPLC) for the Quantitation of Anthocyanins in Freeze-Dried Cranberry Powder, Cranberry Juice, Cranberry Cocktail, and Cranberry Extract Powder
- 4-(dimethylamino)cinnamaldehyde (DMAC) for Quantification of Soluble Proanthocyanidins (PACs) in Cranberry Juice, Concentrated Juice, and Juice Extract Powders
- Limit Tests

הבעלות והאחריות על המידע והתכנים המופיעים במצגת שייכים לכותב בלבד ואין חברת ברא צמחים אחראית למהימנותם או לדיוקם של תכנים אילו, והם אינם מהווים ייעוץ מקצועי או התוויה רפואית.



## **AHP Cranberry Mono Outline**

### THERAPEUTICS

- Pharmacokinetics
- Effects of Cranberry on Urinary Tract Infections and Urinary Tract Health
- Other Urinary Tract Effects
- Effects on Cardiovascular Health Cranberry Polyphenols: Effects on Cardiovascular Risk Factors
- Anticancer Properties of Cranberry
- Affects of Cranberry on Helicobacter pylori

- Affects of Cranberry on Gut Health
- Affects of Cranberry on Oral Health
- Potential Antiviral Effects of Cranberry
- Other Effects
- Conclusion
- Indications Supported by Clinical Trials
- Actions
- Indications Supported by Modern Research
- Dosages

כנים המופיעים במצגת שייכים לכותב בלבד ואין חברת ברא צמחים אחראית Substantiation.Structure כנים אחראית Substantiation.Structure כנים אילו, והם אינם מהווים ייעוץ מקצועי או התוויה רפואית.



## **AHP Cranberry Mono Outline**

### SAFETY PROFILE

- Adverse Effects
- Contraindications
- Precautions
- Interactions
- Pregnancy, Mutagenicity, and Reproductive Toxicity
- Lactation
- Carcinogenicity
- Influence on Driving
- Overdose
- Treatment of Overdose
- Toxicology
- Classification of the American Herbal Products Association (AHPA)

הבעלות והאחריות על המידע והתכנים המופיעים במצגת שייכים לכותב בלבד ואין חברת ברא צמחים אחראית למהימנותם או לדיוקם של תכנים אילו, והם אינם מהווים ייעוץ מקצועי או התוויה רפואית.

- INTERNATIONAL STATUS
- TRADITIONAL WESTERN HERBAL MEDICINE SUPPLEMENT
- **REFERENCES**

## AHP 2016 Monograph Releases

## American Herbal Pharmacopoeia

Revision

### **For Release**

- **Cranberry revision**
- **Cannabis Therapeutic** Compendium





Cranberry Fruit

Vaccinium macrocarpon Aiton

STANDARDS OF ANALYSIS, QUALITY CONTROL, AND

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Research Associa

Diana Swisher MAyu American Herbal Pha Scotts Valley, CA

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and Therapeutic Compendium

American Herbal Pharmacopoeia

Aerial Parts & Dry Extract Trifolium pratense L. Standards of Analysis, Quality Control, and Therapeutics

Red Clover Blossoms,

American Herbal Pharmacopoeia and Therapeutic Compendium

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Research Associate Dura Swisher MA

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Boneset Aerial Parts Eupatorium perfoliatum L.

Boneset

- **Red clover**
- Osha

### American Herbal Pharmacopoeia Therapeutic Compendium

Cannabis Inflorescence Editors and Technical Advisors Roy Upton RH American Herbal Pharmacoporia Scotts Valley, CA Cannabis spp. THERAPEUTIC COMPENDIUM

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Osha Root



### AHP Cannabis QC & Therapeutic Compendium

# American Herbal Pharmacopoeia®

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*Cannabis Inflorescence Cannabis* spp.

Standards of Identity, Analysis, and Quality Control

### Revision 2014



## American Herbal Pharmacopoeia<sup>®</sup> Therapeutic Compendium

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### Cannabis Inflorescence Cannabis spp.

THERAPEUTIC COMPENDIUM

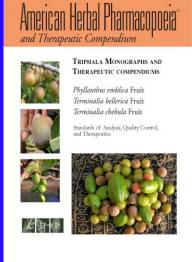


### Arizona, Berkeley, Florida, Maryland, Oregon, Washington

## AHP 2016 Monograph Development

- To Develop
  - Leonurus cardiaca
  - Triphala fruits
    - Phyllanthus emblica (amlaki)
    - Terminalis belerica (bibhitaki)
    - Terminalia chebula (haritaki)
    - Triphala combination
  - St. John's wort revision
  - Yarrow, Comfrey, Bupleurum, Chinese salvia











הבעלות והאחריות על המידע והתכנים המופיעים במצגת שייכים לכותב בלבד ואין חברת ברא צמחים אחראית. למהימנותם או לדיוקם של תכנים אילו, והם אינם מהווים ייעוץ מקצועי או התוויה רפואית.

### AHP Textbook on Botanical Microscopy

**Edited by Roy Upton Alison Graff Georgina Jolliffe Reinhard Länger Elizabeth Williamson** 

**Microscopic Characterizations Reinhard Länger Elizabeth Williamson** 

**Research Associate** Diana Eve Swisher

### American Herbal Pharmacopoeia® **BOTANICAL PHARMACOGNOSY**



### MICROSCOPIC CHARACTERIZATION **OF BOTANICAL MEDICINES**





Winner of ABC James A. Duke Excellence in Botanical Literature Award—2012

#### Microscopic Identification

5b-7

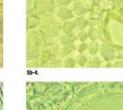
The cells of the brown cork may contain small calcium oxalate prism crystals up to 14 µm in length. Under the cork is located the primary cortex composed of rounded thinwalled parenchyma cells. The cells of the secondary cortex are more regularly arranged; secretory canals, tangentially aligned and having a diameter up to 170 µm, are frequently embedded in the cortical tissue. The diameter of the secretory canals decreases from the outer part of the secondary cortex to the cambium. The radiate structure of the secondary xylem is formed by broad, cuneiform, medullary

rays alternating with narrow rows of vessels. Vessels usually occur together in groups of 2 or 3, each bundle separated by thickened and pitted parenchyma cells from the next vessel bundle. The vessels have scalariform or reticulate secondary cell wall thickenings and may reach a diameter of up to 80 um. Starch grains are present and are ovate, spherical, or elliptical; and 3-8 µm in length.

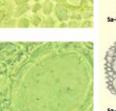
Powder: Fragments of the cork with calcium oxalate crystals; parenchyma cells; fragments of secretory canals; vessels with scalariform or reticulate secondary wall thickenings.









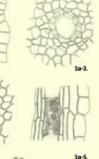


#### Figure 5b Microscopic characteristics of dang gui (Angelica

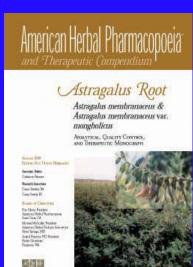
- sigensisi 1. Root (cross section)
  - Cork (cross section).
  - Cork (surface view).
  - Secondary xylem (cross section).
  - Scalariform vessels (longitudinal view).
- Secretory canal (cross section).
- 7 Secretory canal (longitudinal section).
- Microscopic images courtesy of Reinhard Länger, University of Vienna.

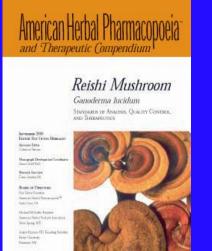
American Herbal Pharmacopoeia® • Dang Gui Root • 2003 7





## AHP TCM Monographs







Dang Gui Root Angelica sinensis (Oliv.) Diels

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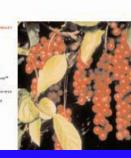
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### American Herbal Pharmacopoeia

### Schisandra Berry

Schisandra chinensis ANALYTICAL, QUALITY CONTROL, AND THERAPEUTIC MONOCRAPH



## American Herbal Pharmacopoeia

Characterization of Selected Plants That May Contain or be Adulterated With Aristolochic Acid



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Annalate Diline.

Michael McGuffin Lari Berared: PhD

Kathy Justan MS R Kreen Landor RS

## American Herbal Pharmacopoeia

Differentiation Between Star Anise (Illicium verum) and the Toxic Adulterant Shikimi (Illicium anisatum) Standards of Analysis and Quality Control

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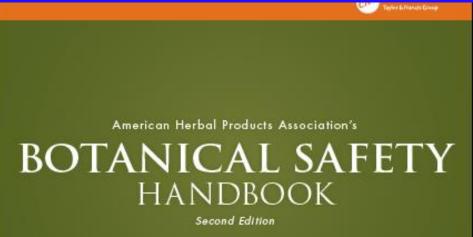




## **AHP Monographs**



## American Herbal Products Association's Botanical Safety Handlbook 2d ed.







**Edited by** Zoë Gardner Michael McGuffin

### Expert Advisory Council Roy Upton Soaring Bear David Winston Daniel Gognon Aviva Romm Tieraona Low Dog

- Easily understood classification systems to indicate the safety of>500 spp
- Potential for drug interactions
- Adverse events reported in clinical trials or case reports
- Safety-related pharmacology and pharmacokinetics of each herb
- Additional information on the use of herbs by pregnant or lactating women
- Toxicological studies and data on toxic compounds
- Extensive references for each entry

הבעלות והאחריות על המידע והתכנים המופיעים במצגת שייכים לכותב בלבד ואין חברת ברא צמחים אחראית. למהימנותם או לדיוקם של תכנים אילו, והם אינם מהווים ייעוץ מקצועי או התוויה רפואית. Scientific Journals on Herbal Medicine, Pharmacognosy, Ethnobany, etc.



ISSN 0944-7113 Phytomedicine 23 (2016) 11 pp. 1065–1274 · 15 October 2016 www.elsovier.com/locate/phymod

Special Issue Botanicals in cardiology

Guest Editor Alexander Orekhov

# PHYTO medicine

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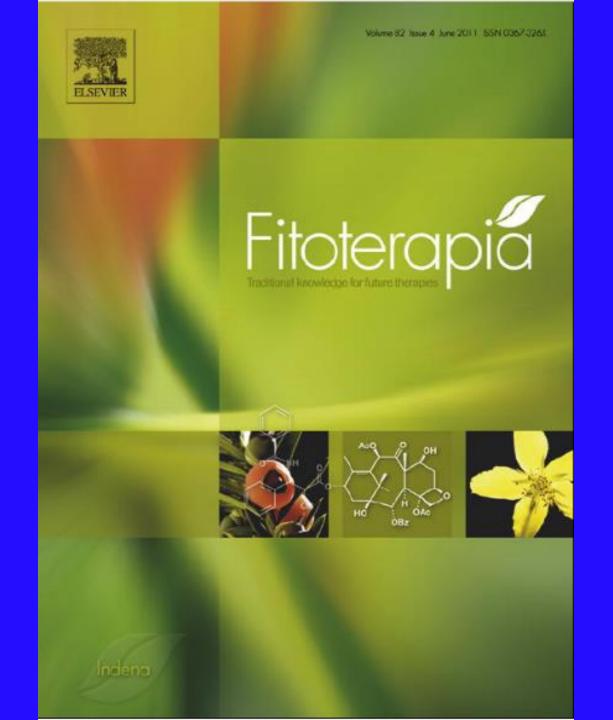


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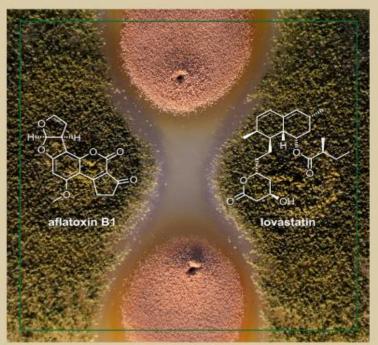
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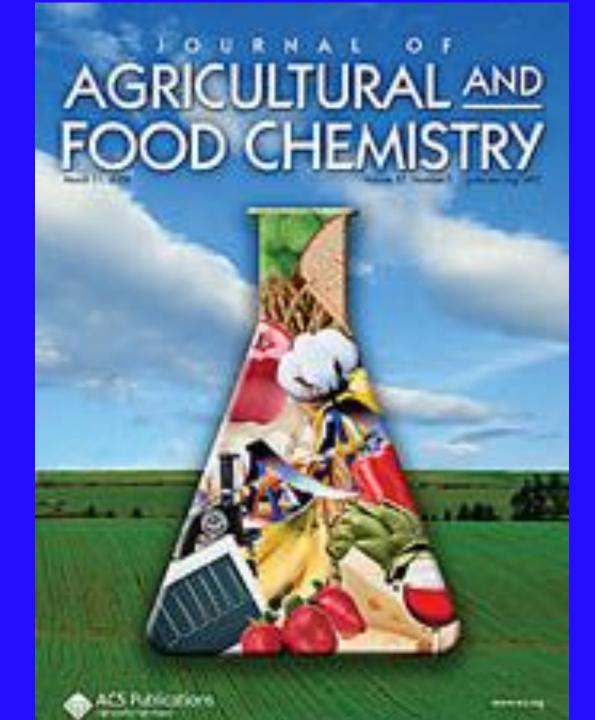


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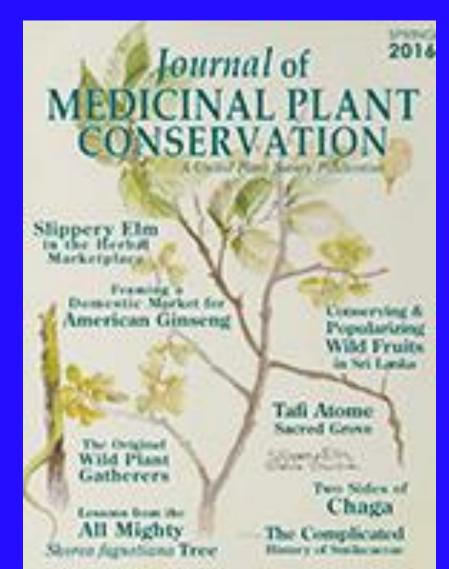
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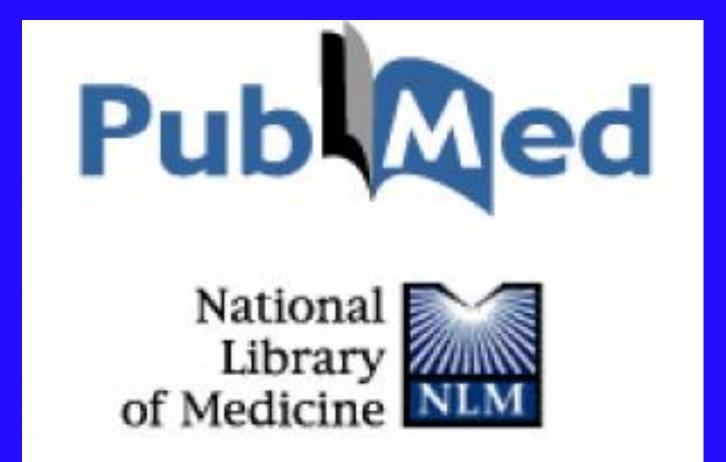
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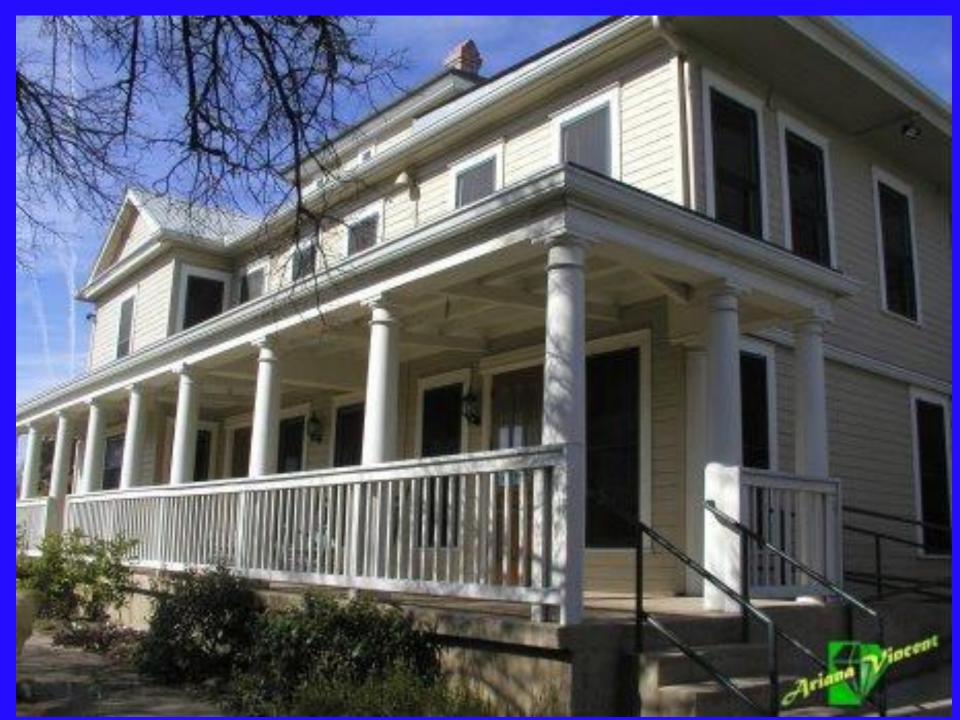


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