

March 2006
Volume 4, Issue 3

The Herbal Dispatch

Contents:

MSU Medicinal Botanicals Program offering Monthly Workshops	1
Appalachian Plant Profile: Crane's Bill	2
The use of complementary and alternative medicines among patients with locally advanced breast cancer - a descriptive study	2
Pleurisy Root (<i>Asclepias tuberosa</i> L.)	3
Courses in Herbal Sciences	3
Evolutionary Aspects of Omega-3 Fatty Acid Intake	4
Calcium plus Vitamin D Supplementation and the Risk of Fractures	4
Acupuncture: Theory, Efficacy, and Practice	5
Effect of needle puncture and electro-acupuncture on mucociliary clearance in anesthetized quails	5
Spring Herb Conference	6

The Herbal Dispatch

A monthly publication of the Medicinal Botanical Program

The goal of this newsletter is to inform readers of the Program's educational, research and outreach activities and events; and of results of the latest research on the chemistry, cultivation, processing and preventive and therapeutic use of herbs, botanicals and vegetables

The views expressed in The Herbal Dispatch are those of the individual authors and do not necessarily reflect those of MSU or the Medicinal Botanical Program staff

Mario R. Morales
Editor/Publisher

The Medicinal Botanicals Program
Mountain State University (304) 929-1630

ISSN 1548-6052 (Print)
ISSN 1548-6044 (Electronic)

MSU Medicinal Botanicals Program offering Monthly Workshops

To raise awareness of herbalism in West Virginia, the Medicinal Botanicals Program started a series of monthly workshops in January 2006. The first workshop, **Anti-cancer Properties of Selected Herbs**, was presented by Dr. Jorge Ferreira, USDA, ARS, AFSRC, and Dr. Charles Arnett on Jan 28, 2006. Dr. Ferreira's efforts have concentrated on evaluating *Artemisia annua* as a natural medicine to rid small ruminants (goats) of intestinal parasites. He discussed *Artemisia annua* as a potential anti-cancer source. Dr. Charles Arnett talked about the use of herbs to combat HIV, malaria, and snake bites. He practiced medicine in Nigeria for 15 years and has experience treating infectious diseases in children and young adults with artemisia and other herbs.

The second workshop, **Herbal Bath and Body Products**, was presented by Melissa Dennison on February 18, 2006. Ms. Dennison is an organic grower who operates a farm in Clem, WV, for production of vegetables and herbs. The workshop was very informative and had excellent attendance (30 people). Participants from North Carolina, Ohio and all regions of West Virginia, including the eastern panhandle, came to learn the fine art of making natural skin care products. Participants enjoyed learning how to make herbal soaps,



shampoos, lip balms and medicinal salves.

The third workshop, **Introduction to Aromatherapy**, was presented by Terri Johnson on March 18, 2006. Ms. Johnson has been a gardener for 25 years. The workshop guided participants through the aromatherapy experience, learning about pure essences of plants, flowers and their healthy effects, natural aromatic ways to ease stress, and how to create skin care and home products. They also learned how to select and grow plants, and design an aromatherapy garden. Attendance was excellent with 35 participants.

We would like to keep organizing workshops that attract large groups of people. To accomplish this, we need your help. Please provide us with topics that can be of

interest to the majority, and the name of speakers able to attract large audiences. Thank you.

Events in 2006

- Workshops (dates and titles are tentative):
- April 22: Introduction to Herbal Medicine
 - May 20: Making Plant Medicine
 - June 17: Herb Walk (focusing on identification)
 - July 15: Herbal Soap (repeated due to overwhelming demand)
 - August 19: Ginseng Harvesting
- Conferences
- May 5-6: 1st Spring Herb Conference
 - September 15-16: 5th Annual Medicinal and Aromatic Plant Symposium

Contact:
Dean Myles, Coordinator
Phone: 304-929-1687/1630

Appalachian Plant Profile: Crane's Bill

By Dean Myles, Coordinator
Medicinal Botanicals Program
Mountain State University

Geranium maculatum is a perennial herb known as crane's bill or wild geranium. Wild geranium is native to Appalachia and can be found growing west to Kansas [1]. Wild geranium grows between 1-2 feet tall and has leaves with 5 deep lobes [2]. The flowers have 5 petals that range from pink to lavender in color. Wild geranium flowers from late April through late June. A seed pod develops from the distinctive crane's bill in the center of each flower. Wild geranium prefers moist hardwood forest with light to deep shade, but can be found growing in many different habitats, especially woodland edges. Wild geranium is a wonderful spring flower that can be incorporated into the woodland or semi-shade garden easily.

Traditionally, the root of wild geranium was used by the Native Americans to treat open wounds and to remove canker sores [2, 3, 4, and 5]. Wild geranium root is high in tannin and is considered to be very

astringent, styptic and diuretic [2]. The Cherokee used a decoction of wild geranium and fox grapes (*Vitis labrusca*) to treat thrush in young children [3]. Today, wild geranium is used to treat diarrhea, throat irritation, and may be effective for eczema and skin blemishes [4]. Clinical trials have shown that tannins promote blood clotting, supporting its use for treating wounds [5].

Wild geranium can be propagated from seeds and root divisions and is found growing in sandy, loamy, or clay soils. The pH ranges from 4.5 to 6.5 [4]. To start from seed, collect seeds in fall. Seeds must be stratified before germination will begin [5]. Sow seeds in cold frame [4]. Once seedlings have become established, transplant into pots or into permanent location. Young plants bloom in their second or third year [5]. Root divisions are the easiest way to establish wild geranium in your garden. Simply divide a mature rhizome, insuring a bud on each division. Plant divided rhizomes one to two inches deep and mulch with good organic compost.

Wild geranium is not considered endangered or rare in its range [1]. In areas with abundant populations, rhizomes may be harvested for personal use. Please contact your state's agency concerning harvesting of wild plants or contact your local native plant program or the National Plants Database at <http://plants.usda.gov/> for this and other species status. Seeds and plants for cultivation can be purchased through reputable dealers and collected from the wild.

1. USDA Plants Database *Geranium maculatum* Accessed 3/4/06 at <http://plants.usda.gov>
2. Foster, S., Duke, J. 2000 **Medicinal Plants and Herbs Eastern/Central Ed.** Houghton Mifflin Co. NY
3. Hamel, P., Chiltoskey, M. 1975 **Cherokee Plants: Their uses-a 400 year history.** Herald Publishing Co. Sylva, NC
4. Plants for the futures, 2005 *Geranium maculatum* Accessed on

3/05/06at <http://ibiblio.org>

- 5 Sullivan, J. 1992 *Geranium maculatum*. In: Fire Effects Information System, [Online] US Dept. Agriculture, Forest Service, Rocky Mountain Research Station, Fire Science Laboratory Accessed on 3/6/06 at <http://www.fs.fed.us/database/feis/plants/forb/germac/all.html>



Please contact your state's Department of Forestry for laws and regulations concerning Crane's Bill harvest in your area.

The use of complementary and alternative medicines among patients with locally advanced breast cancer - a descriptive study

Helyer, L.K., S. Chin, B.K. Chui, B. Fitzgerald, S. Verma, E. Rakovitch, G. Dranitsaris and M. Clemons; *BMC Cancer* 2006, 6:39

Background. Complementary and alternative medicine (CAM) use is common among cancer patients. This paper reviews the use of CAM in a series of patients with locally advanced breast cancer (LABC).

Methods. Women with LABC attending a specialist clinic at a single Canadian cancer centre were identified and approached. Participants completed a self-administered survey regarding CAM usage, beliefs associated with CAM usage, views of their

risks of developing recurrent cancer and of dying of breast cancer. Responses were scored and compared between CAM users and non-users.

Results. Thirty-six patients were approached, 32 completed the questionnaire (response rate 89%). Forty-seven percent of LABC patients were identified as CAM users. CAM users were more likely to be younger, married, in a higher socioeconomic class and of Asian ethnicity than non-users. CAM users were likely to use multiple modalities simultaneously (median 4) with vitamins being the most popular

(60%). Motivation for CAM therapy was described as, "assisting their body to heal" (75%), to 'boost the immune system' (56%) and to "give a feeling of control with respect to their treatment" (56%). CAM therapy was used concurrently with conventional treatment in 88% of cases, however, 12% of patients felt that CAM could replace their conventional therapy. Psychological evaluation suggests CAM users perceived their risk of dying of breast cancer was similar to that of the non-Cam group (67% vs. 65%), however the CAM group had less severe anxiety and depression.

Conclusions. The motivation, objectives and benefits of CAM therapy in a selected population of women with LABC are similar to those reported for women diagnosed with early stage breast cancer. Psychological benefits can be demonstrated as CAM users display less anxiety and depression and are less likely to believe they will die of their breast cancer. However the actual benefit to overall and disease free survival has yet to be demonstrated, as well as the possible interactions with conventional therapy. Consequently more research is needed in this ever-growing field.

Pleurisy Root (*Asclepias tuberosa* L.)

**By David C. Carman
Grower and Collector
Princeton, West Virginia**

Being the most showy member of the milkweed family, ASCLEPIADACEAE, this perennial is also commonly known as butterfly weed, butterfly milkweed, flux root, orange swallow wort, Indian Posey, orange apocynum, white root, rubber root, wine tree, chigger flower, tuber root, wind root, silkweed, wind weed, orange root, Canada root, yellow milkweed, and orange milkweed.

Having medicinal value, in addition to being a beautiful and common wild flower, pleurisy root is easily grown from seed. Seeds are released and dispersed by the wind from its ripe, open, spindle-shaped, two- to three-inch pods.

The flowers are rather small, but are closely clustered together in flat-topped clusters at the ends of the stems atop the two- to three-foot plant. They are a very attractive nectar source for butterflies, displaying an almost fluorescent orange color, which may vary in some wild plants to a pale yellow.

Wild plants may be found thriving in well drained to dry sandy soil, in full sun to partial shade, in the Eastern to Midwestern US.

When grown for the medicinal market, the large, deep-growing, tuberous root system should be dug, cleaned, and cut in pieces to facilitate drying. They should be grown from seed planted one to two feet apart, and will benefit from a handful of bone meal worked into the soil before seeding.



Courses in Herbal Sciences

The Medicinal Botanicals Program will start offering courses in medicinal and aromatic plants in the fall of 2006. These are elective Biology courses that can be used to satisfy requirements in Arts and Sciences, Health Sciences and Culinary Arts. They could also be credited in the future for a certificate or associate or bachelor degree in Herbal Sciences.

The two courses to be offered in the fall of 2006 are:

Introduction to Medicinal Plants (BIOL 380)

Two sections of this course will

be offered, one on Thursdays from 6:00 pm to 8:15 pm, during all the semester, and the other on Saturdays from 9:00 am to 3:30 pm, during the first half of the semester (Aug to Oct).

Botany for Herbalists (BIOL 381)

This course will be offered only on Saturdays from 9:00 am to 3:30 pm, during the second half of the semester (Oct to Dec).

MSU requires a minimum of 10 students to offer a course. If you are interested in getting an education in herbal sciences,

we encourage you to enroll in these courses. This is the opportunity you have been waiting for. Do not delay, register now.

Financial Aid. If your annual income is less than \$30,000, you may be eligible to get up to \$6,000 in financial aid to cover tuition and book costs. Once you pre-register, the MSU financial aid office will assist you with forms and applications.

Decide your future now and register in these courses at MSU.

For information regarding the

courses contact:

Dr. Mario Morales at 304-929-1683 or

mmorales@mountainstate.edu

To register contact:

Darlene Brown, Enrollment Office, 304-929-1433 or

dbrown@mountainstate.edu



Evolutionary Aspects of Omega-3 Fatty Acid Intake

Simopoulos, A.P. 2000. In: Omega-3 Fatty Acids, Diabetes and Cardiovascular Risk: An International Workshop, Nov 30-Dec 2, 2000, Bethesda, MD

Studies on the evolutionary aspects of diet indicate that major changes have taken place in our physical activity and diet, particularly in the type and amount of essential FA (omega-6 and omega-3) and antioxidant intake. Assuming 35% of energy came from animals and 65% from plants, the estimated intake of essential FA from animal and vegetable sources in the Late Paleolithic period shows that the ratio of linoleic acid to α -linolenic acid (LA:ALA) is 0.70, whereas the ratio of longer chain omega-6:omega-3 is 1.79, giving a ratio of total omega-6:omega-3 of 0.79. In the United States, again

considering the same subsistence ratio of animal sources:plants sources of 35:65, the current diet would provide a ratio of 16.74, which is close to estimates of 15-20:1 of other investigators. Considering other populations, i.e., in Japan the omega-6:omega-3 ratio is 4:1, and in the United Kingdom this ratio is 15:1, whereas 20 years ago it was 10:1. Similar ratios have been suggested for northern Europe and Holland with lower ratios in southern Europe due to higher consumption of olive oil instead of corn and safflower oils. In the past 20 years the ratio changed from 10:1 to 15:1 in England and northern Europe. The shift in the decrease in omega-3 fatty acid intake is reflected in the declining concentrations of docosahexaenoic acid (DHA)

and rising concentrations of LA in human milk. The traditional diet of Greece prior to 1960 had a ratio of 1-2:1. In general, there are a few reliable estimates of the intake of longer chain omega-3 PUFA. The increase in the omega-6:omega-3 ratio is a totally new phenomenon in the diet of human beings. Current intake differs from our ancestors' intake who consumed omega-6 and omega-3 FA in roughly equal amounts. Such an enormous change in a short period of time does not allow time for adaptation. The omega-3 and omega-6 essential FA are not interconvertible in the human body and are important components of practically all cell membranes. Omega-6 and omega-3 FA influence eicosanoid metabolism, gene

expression, and intracellular cell communication. Because the PUFA composition of cell membranes is to a great extent dependent on dietary intake, appropriate amounts of dietary omega-6 and omega-3 FA need to be considered in making dietary recommendations, and these two classes of PUFAs should be distinguished because they are metabolically and functionally distinct and have opposing physiological functions. Their balance is important for homeostasis and normal development. A balanced omega-6:omega-3 ratio in the diet is essential for normal growth and development and should lead to decreases in cardiovascular disease, other chronic diseases and improve mental health.

Calcium plus Vitamin D Supplementation and the Risk of Fractures

Jackson, R.D. et al., 2006. *The New England Journal of Medicine* 354(7):669-683

Background. The efficacy of calcium with vitamin D supplementation for preventing hip and other fractures in healthy postmenopausal women remains equivocal.

Methods. We recruited 36,282 postmenopausal women, 50 to 79 years of age, who were already enrolled in a Women's Health Initiative (WHI) clinical trial. We randomly assigned participants to receive 1000 mg of elemental calcium as calcium carbonate with 400 IU of vitamin D₃ daily or placebo. Fractures were ascertained for an average follow-up period of 7.0 years. Bone density was measured at three WHI

centers.

Results. Hip bone density was 1.06 percent higher in the calcium plus vitamin D group than in the placebo group ($P < 0.01$). Intention-to-treat analysis indicated that participants receiving calcium plus vitamin D supplementation had a hazard ratio of 0.88 for hip fracture (95 percent confidence interval, 0.72 to 1.08), 0.90 for clinical spine fracture (0.74 to 1.10), and 0.96 for total fractures (0.91 to 1.02). The risk of renal calculi increased with calcium plus vitamin D (hazard ratio, 1.17; 95 percent confidence interval, 1.02 to 1.34). Censoring data from women when they ceased to adhere to the study medication reduced the hazard ratio for hip fracture to 0.71 (95

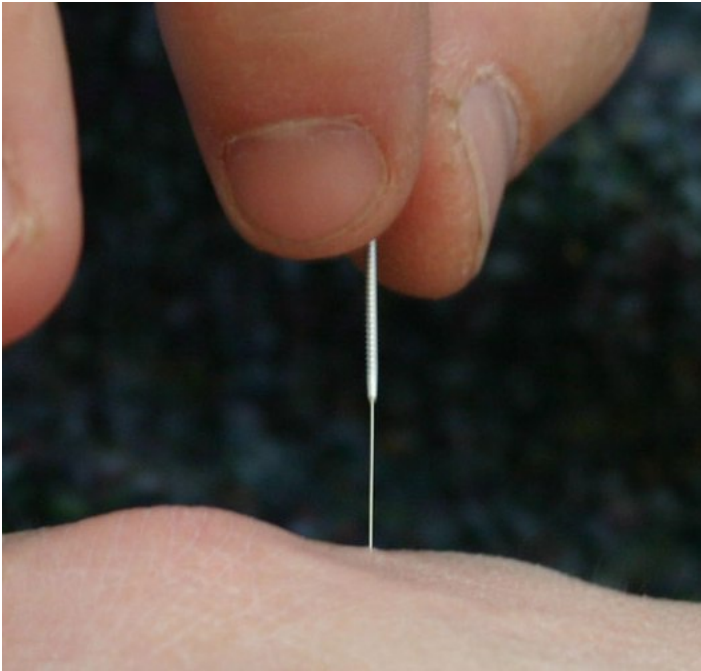


percent confidence interval, 0.52 to 0.97). Effects did not vary significantly according to prerandomization serum vitamin D levels.

Conclusions. Among healthy postmenopausal women,

calcium with vitamin D supplementation resulted in a small but significant improvement in hip bone density, did not significantly reduce hip fracture, and increased the risk of kidney stones.

Acupuncture: Theory, Efficacy, and Practice



Kaptchuk, T.J., 2002, **Complementary and Alternative Medicine Series** 136(5):374-383

Traditionally, acupuncture is

embedded in naturalistic theories that are compatible with Confucianism and Taoism. Such ideas as *yin-yang*, *qi*, *dampness*, and *wind* represent

East Asian conceptual frameworks that emphasize the reliability of ordinary, human sensory awareness. Many physicians who practice acupuncture reject such prescientific notions. Numerous randomized, controlled trials and more than 25 systematic reviews and meta-analyses have evaluated the clinical efficacy of acupuncture. Evidence from these trials indicates that acupuncture is effective for emesis developing after surgery or chemotherapy in adults and for nausea associated with pregnancy. Good evidence exists that acupuncture is also effective for relieving dental pain. For such conditions as chronic pain, back pain, and headache, the data are equivocal or contradictory. Clinical research

on acupuncture poses unique methodologic challenges. Properly performed acupuncture seems to be a safe procedure. Basic-science research provides evidence that begins to offer plausible mechanisms for the presumed physiologic effects of acupuncture. Multiple research approaches have shown that acupuncture activates endogenous opioid mechanisms. Recent data, obtained by using functional magnetic resonance imaging, suggest that acupuncture has regionally specific, quantifiable effects on relevant brain structures. Acupuncture may stimulate gene expression of neuropeptides. The training and provision of acupuncture care in the United States are rapidly expanding.

Effect of needle puncture and electro-acupuncture on mucociliary clearance in anesthetized quails

Tai, S., J. Wang, F. Sun, S. Xutian, T. Wang and M. King, 2006, **BMC Complementary and Alternative Medicine** 6:4

Background. Acupuncture therapy for obstructive respiratory diseases has been effectively used in clinical practice and the acupuncture points or acupoints of Zhongfu and Tiantu are commonly-used acupoints to treat patients with the diseases. Since the impaired mucociliary clearance is among the most important features of airway inflammation in most obstructive respiratory diseases, the effect of needle

puncture and electro-acupuncture at the specific acupoints on tracheal mucociliary clearance was investigated in anesthetized quails.

Methods. Mucociliary transport velocity on tracheal mucosa was measured through observing the optimal pathway, and fucose and protein contents in tracheal lavages were determined with biochemical methods. In the therapeutic group, needle puncture or electro-acupuncture stimulation to the acupoints was applied without or with constant current output in 2 mA and at frequency of

100 Hz for 60 minutes. In the sham group, electro-acupuncture stimulation to Liangmen was applied.

Results. Our present experiments demonstrated that the electro-acupuncture stimulation to Zhongfu and Tiantu significantly increased tracheal mucociliary transport velocity and decreased the content of protein in the tracheal lavage, compared with the control group. Moreover, either needle puncture or electro-acupuncture stimulation to Zhongfu and Tiantu significantly reverted the human neutrophil elastase-induced decrease in tracheal

mucociliary transport velocity and human neutrophil elastase-induced increase in the contents of fucose and protein in the tracheal lavage, compared with the control group.

Conclusion. These results suggest that either needle puncture or electro-acupuncture stimulation to the effective acupoints significantly improves both airway mucociliary clearance and the airway surface liquid and that the improvements may be ascribed to both the special function of the points and the substantial stimulation of electricity.

Mountain State University

Medicinal Botanical Program
P.O. Box 9003
Beckley, WV 25801

Mario R. Morales, Director
Phone: (304) 929-1683
mmorales@mountainstate.edu

Dean Myles, Coordinator
Phone: (304) 929-1687
dmyles@mountainstate.edu

Program's Fax: (304) 929-1640

Webpage:
www.mountainstate.edu/usda

About the Medicinal Botanical Program

This Program was created as a result of a Specific Cooperative Agreement between Mountain State University and the USDA/ARS-Appalachian Farming Systems Research Center in Beaver, WV. The establishment of this agreement came through the efforts of Senator Robert C. Byrd and a Congressional Appropriation. The mission of the Program is to promote the medicinal plant industry through research, education, marketing and outreach. Educational offerings include a Bachelor degree in Herbal Sciences, a symposium and workshops. The Program also conducts research on the chemistry, propagation and cultivation of native medicinal plants.

Spring Herb Conference

The Mountain State University Medicinal Botanicals Program (MBP) and the West Virginia Herb Association with cooperation of the USDA/ARS Appalachian Farming Systems Research Center, Beaver, WV, will hold a Spring Conference on fresh herbs and vegetables at Mountain State University, Beckley, WV, on May 5 and 6, 2006 with the theme 'Producing and Marketing Fresh Herbs and Vegetables'.

The program includes workshops, a tour, an herb walk, and an exhibitor/trade session. On May 5, go to an herb walk in wonderful Grandview National Park to identify spring wildflowers and herbs. Take a tour of the MBP's greenhouse and medicinal plant garden or learn to take professional garden and nature photographs in a photography workshop. Enjoy a wonderful dinner and take part in conversations with new and old friends. On May 6, learn from experts how to produce, add value, and market fresh herbs, vegetables and other WV products to local chefs and retailers. Explore opportunities to establish a home-base business and website. Discover how the foods we eat may affect our health. Learn to organically produce top quality herbs and vegetables. Learn to identify and control garden pests and diseases, to make and maintain living wreaths, and propagate unique or prized plants in the plant propagation workshop.

Fill out and send your registration TODAY!

Make check or money order payable to **Mountain State University** and mail it with form to:

Mountain State University
Medicinal Botanicals Program
P.O. Box 9003
Beckley, WV 25802-9003

Registration fees are not refundable

Registration Forms

CONFERENCE REGISTRATION FORM 2006 Spring Herb and Vegetable Conference May 5-6, 2006

Name: _____

Company: _____

Address: _____

City: _____

State: _____ Zip code: _____

Telephone: _____

Email: _____

I plan to do the living wreath workshop Yes (Add \$12) No

I plan to go on the herb walk Yes No

Registration Fees: \$80

EXHIBITOR REGISTRATION FORM

2006 Spring Herb and Vegetable Conference
May 5-6, 2006

Before Apr 1: \$10/table; after April 1: \$15/table

Name: _____

Affiliation: _____

Address: _____

City: _____

State: _____ Zip code: _____

Telephone: _____

Email: _____

Number of 4 x 8 tables: _____

Special requirements (power, cold storage, etc.): _____

MOUNTAIN STATE UNIVERSITY
MEDICINAL BOTANICALS PROGRAM
P.O. Box 9003
Beckley, WV 25802-9003

Non Profit Org.
US Postage Paid
Beckley, WV
Permit No. 439