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The Herbal Dispatch

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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

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Editor/Publisher

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MSU and WVHA to hold Spring Conference on 5-6 May, 2006

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 on 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.

Do not forget to fill out your registration form and mail it TODAY!

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, \$50 one day

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.): _____

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

Schedule—First Spring Conference*

Producing and Marketing Fresh Herbs and Vegetables

Co-sponsored by: Mountain State University & the West Virginia Herb Association
With the cooperation of the USDA/ARS-Appalachian Farming Systems Research Center

5 May 2006

Time	Location	Activity
9:30-10:30	Carter Hall	Event set-up: registration desk, exhibitors
10:30-6:00	Carter Hall	Registration and exhibits open
12:00-2:00	Grandview, WV	Herb walk at Grandview National Park Dean Myles, Medicinal Botanicals Program, MSU. 18 participants will travel to Grandview, WV, to identify herbs and wild edible plants.
12:00-2:00	MBP Garden and Greenhouse	The MSU medicinal plant garden and greenhouse Dr. Mario Morales, Medicinal Botanicals Program, MSU, Beckley, WV Discussion of species in the medicinal plant garden and experiments in the greenhouse
2:00-4:00	Grandview, WV	Herb walk at Grandview National Park Dean Myles, Medicinal Botanicals Program, MSU. 18 participants will travel to Grandview, WV, to identify herbs and wild edible plants.
2:00-4:00	Carter Hall Room 314	Photography for Business and Pleasure. Ann Nye, WVHA. Learn techniques to take professional pictures of plants, flowers, and gardens.
4:00-5:00	Carter Hall	Visit the exhibitors' room
5:00-6:30	JEC Coffee House	Bar drinks and buffet dinner
7:00-7:30	JEC Coffee House	Welcome Dr. Mario Morales, Director, Medicinal Botanicals Program, MSU, Beckley, WV Dot Montgillion, President, West Virginia Herb Association, Weston, WV
7:30-9:30		Music, drinks, conversation

6 May 2006

Time (am)	Workshops A: Moderator: Dean Myles, MSU	Workshops B: Moderator: Ann Nye, WVHA
8:00-10:00	Market potential of fresh herbs and vegetables. <u>Carter Hall- Room 314</u> Dr. Arnold, WV Magazine Food Editor, Charleston, WV	Website Design <u>Carter Hall- Room 311</u> Dr. Susan Qian, MSU, Beckley, WV
10:00-10:15	Break	Break
10:15-12:15	Garden Insect and Disease <u>Carter Hall- Room 314</u> David Richmond, WV Extension Agent, Beckley, WV	Medicinal Foods <u>Carter Hall- Room 308</u> David Hawkins, WVHA, Parkersburg, WV
	Workshops A: Moderator: Dean Myles, MSU	Workshops B: Moderator: Ann Nye, WVHA
12:15-1:15	Lunch; conference will provide lunch boxes JEC Coffee House (Visit the exhibitors room)	
Time (pm)	Moderator: Dr. Mario Morales, MSU	Moderator: Dot Montgillion, WVHA
1:15-3:15	Organic Gardening <u>Carter Hall- Room 314</u> <u>MSU Garden</u> Marion Harless, WVHA, Kerns, WV	Adding value to WV Products <u>Carter Hall- Room 308</u> Marilyn Harrell, Center for Economic Options, Charleston, WV
3:15-3:30	Break	Break
3:30-5:30	Plant Propagation <u>Carter Hall- Room 314</u> <u>MSU Greenhouse</u> Wade Snyder, USDA, ARS, AFSRC, Beaver, WV	Living Wreath** <u>Carter Hall- Room 308</u> Melissa Dennison, Garden Treasures, WVHA, Clem, WV
5:30-6:00	Closing <u>Carter Hall Auditorium</u>	

MBP: Medicinal Botanicals Program

JEC: John Eye Center, Mountain State University campus

AFSRC: Appalachian Farming Systems Research Center, Beaver, WV

** The living wreath workshop require a extra \$12.00 fee for supplies

*: Minor changes will be made to the program to improve it

Jack-in-the-Pulpit [*Arisaema triphyllum*(L.) Schott]

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

Jack-in-the-Pulpit, a member of the Arum (*Araceae*) family, is a common, wild, medicinal, perennial herb that produces an unusual and beautiful wild flower. The enlarged root can be used as food source. Jack-in-the-Pulpit is known by many local names, such as Indian turnip, swamp turnip, pepper turnip, meadow turnip, marsh turnip, dragon turnip, wild turnip, bog onion, wild pepper, brown dragon, thrice-leaved arum, cuckoo plant, starchwort, devil's ear, priest's pintle, dragon root, memory root, and lords and ladies.

Above ground parts, growing to three feet tall, consist of a single annual stem, branched at the top with two leaf stems, each with three veined, oval, six-inch long, pointed leaflets, and a

center stalk arising between the leaf stems, terminating as the spathe and spadix. The young plants are almost identical in appearance to those of the trilliums and are distinguished from them by a leaf vein just inside of and parallel to the leaflet edge.

The underground part of the plant consists of a starchy, round, flat-bottom corm with a few short string-like rootlets. For medicinal use, the collector must wash the corm, cut it into thin transverse slices and allow it to dry in an airy, shaded location.

For culinary purposes, the corm must be cooked or dried before they are edible.

Caution: Raw Jack-in-the-Pulpit corms contain caustic calcium oxalate crystals which will cause extreme oral burning pain!

For wild flower growing, the



Photo by DLK

corm can be collected in the wild and transplanted, or the red berries can be collected (they are red ripe at the same time of the year that ginseng berries are) and the seeds extracted and planted

immediately, or stratified for planting in early spring. Just remember, the species thrives in rich wet soil in shady places in the woods or wild flower gardens.

Herbal Medicine News

Association of Ginseng Use with Survival and Quality of Life among Breast Cancer Patients

Yong Cui, Xiao-Ou Shu, Yu-Tang Gao, Hui Cai, Meng-Hua Tao and Wei Zheng. 2006. American Journal of Epidemiology 163(7):645-653

The authors evaluated the associations of ginseng use as a complementary therapy with survival and quality of life (QOL) in a cohort of 1,455 breast cancer patients who were recruited to the Shanghai Breast Cancer Study between August 1996 and March 1998

in Shanghai, China. Patients were followed through December 2002. Information on ginseng use before cancer diagnosis was collected at baseline recruitment and was linked to survival. Survivors' ginseng use after cancer diagnosis was obtained at the follow-up survey and was correlated to QOL at the same time. The Kaplan-Meier method and Cox regression models were applied to evaluate the association of ginseng use with overall and disease-free survival. The relation of ginseng use and QOL was evaluated by using multiple linear regression models.

Approximately 27% of study participants were regular ginseng users before cancer diagnosis. Compared with patients who never used ginseng, regular users had a significantly reduced risk of death; adjusted hazard ratios associated with ginseng use were 0.71 (95% confidence interval: 0.52, 0.98) for total mortality and 0.70 (95% confidence interval: 0.53, 0.93) for disease-specific mortality/recurrence. Ginseng use after cancer diagnosis, particularly current use, was positively associated with QOL scores, with the strongest effect in the psychological and

social well-being domains. Additionally, QOL improved as cumulative ginseng use increased.



Appalachian Plant Profile: Bloodroot

By Dean Myles, Coordinator
Medicinal Botanicals Program
Mountain State University

Sanguinaria canadensis L., commonly known as bloodroot, is a perennial herb native to the Appalachian Mountains spreading westward to Missouri [1]. The 5 to 9, lobed, kidney-shaped, yellow-green leaves do not fully open until after the flower has bloomed [2]. The flower appears in late March through early April followed by the leaves. The flowers are white with 8 petals and have yellow stamens in the center. The 1-2 inch wide flowers last only a few days. The roots are from 1 to 4 inches in length and 1/4 to 3/4 of an inch in diameter. The rhizome is reddish and is considered toxic [3].

Bloodroot is one of the earliest flowering spring ephemerals in Appalachia. Bloodroot can be found growing in moist, rich woodlands. Plants associated with bloodroot populations are sugar maple, yellow poplar, wild ginger, ginseng, rattlesnake fern and goldenseal. Bloodroot flowers are hermaphroditic, allowing self and cross-pollination [2].

Bees in the Adrenidea, Apidea, and Hallicitidea families and other insects such as Hymenoptera, Hemiptera, and Coleoptera are the main pollinators. Seed dispersal is conducted by ants.

Traditionally, the fresh rhizome was used to stimulate appetite, and to suppress coughs [3]. A root tea was used to treat rheumatism, asthma, bronchitis, and lung ailments. Today, bloodroot is seldom used due to its toxicity. However, the alkaloid sanguinarine is used in plaque-inhibiting tooth paste, mouthwashes, and rinses. Bloodroot has been shown to exhibit antiseptic, anesthetic, and anticancer activity.

The propagation of bloodroot can be from seed or root divisions. Bloodroot prefers a rich, moist soil with a pH between 5 and 7 [2]. Like most woodland herbs, bloodroot requires some shade. Seeds are planted immediately after collection. Seeds can also be purchased. Once obtained, fresh seeds are planted one to two inches apart and 1/4 inch deep. Germination will occur after the second spring. Seeds obtained from seed suppliers

should be planted the same way. To propagate from cuttings, cut rhizomes vertically two inches in length ensuring at least one bud is present. Cover the cuttings with two to three inches of soil. Make sure the bud is pointed upwards. Divisions should be made in the spring or fall. Bloodroot is harvested in the fall after the vegetation has died back. It may take 5-6 years for plants originated from seed to become harvestable, while only 3-4 years for plants originated from root divisions.

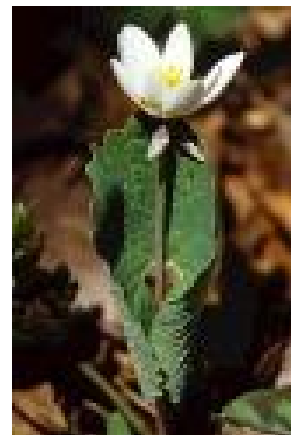
Bloodroot is not considered endangered or rare in its range [2]. In areas with abundant populations, rhizomes may be harvested for personal use. Please contact your state's agency concerning harvesting of wild plants or contact your local native plant program or the National Plants Database at <http://plants.usda.gov/> 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
Sanguinaria canadensis.
Accessed 4/18/06 at

<http://plants.usda.gov>

2 Predny, M.; Chamberlain, J. 2005 Bloodroot *Sanguinaria canadensis* : An Annotated Bibliography General Technical Report SRS-86 Asheville, NC; US Department of Agriculture Forest Service, Southern Research Station. Accessed on 4/18/2006 at <http://www.sfp.forprod.vt.edu/pubs/pubs.htm>

3 Foster, S., Duke, J. 2000 **Medicinal Plants and Herbs Eastern/Central Ed.** Houghton Mifflin Co. NY



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

In vitro and in vivo assessment of herb drug interactions

Venkataramanan, R.; Komoroski, B.; and Strom, S. 2006. Life Sciences 78(18):2105-2115

Abstract: Herbal products contain several chemicals that are metabolized by phase 1 and phase 2 pathways and also serve as substrates for certain transporters. Due to their interaction with these enzymes and transporters there is a potential for alteration in the activity of drug

metabolizing enzymes and transporters in presence of herbal components. Induction and inhibition of drug metabolizing enzymes and transporters by herbal component has been documented in several *in vitro* studies. While these studies offer a system to determine the potential for an herbal component to alter the pharmacokinetics of a drug, they cannot always be used to

predict the magnitude of any potential effect *in vivo*. *In vivo* studies are the ultimate way to determine the clinical importance of herb drug interactions. However, lack of content uniformity and lack of documentation of the bioavailability of herbal components makes even *in vivo* human studies difficult to interpret as the effect may be product specific. It appears that St. John's wort extract is

probably one of the most important herbal products that increases the metabolism and decreases the efficacy of several drugs. Milk thistle on the other hand appears to have minimal effect on phase 1 pathways and limited data exists for phase 2 pathways and transporter activity *in vivo*. Further systematic studies are necessary to assess the significance of herb drug interactions.

Herbal Medicine News

The chondroprotective actions of a natural product are associated with the activation of IGF-1 production by human chondrocytes despite the presence of IL-1b

Miller, MJS; Ahmed, S; Bobrowski, PJ; and Haqqi, TM. 2006. *BMC Complementary and Alternative Medicine* 6:13

Background

Cartilage loss is a hallmark of arthritis and follows activation of catabolic processes concomitant with a disruption of anabolic pathways like insulin-like growth factor 1 (IGF-1). We hypothesized that two natural products of South American origin, would limit cartilage degradation by respectively suppressing catabolism and activating local IGF-1 anabolic pathways. One extract, derived from cats claw

(*Unicaria guianensis*, Rubiaceae), is a well-described inhibitor of NF-kB. The other extract, derived from the vegetable *Lepidium meyenii* (RNI 249), possessed an uncertain mechanism of action but with defined ethnomedical applications for fertility and vitality.

Methods

Human cartilage samples were procured from surgical specimens with consent, and were evaluated either as explants or as primary chondrocytes prepared after enzymatic digestion of cartilage matrix. Assessments included IGF-1 gene expression, IGF-1 production (ELISA), cartilage matrix degradation and nitric oxide (NO) production, under basal conditions and in the presence of IL-1b.

Results

RNI 249 enhanced basal IGF-1 mRNA levels in human chondrocytes by 2.7 fold, an effect that was further enhanced to 3.8 fold by co-administration with vincaria. Enhanced basal IGF-1 production by RNI 249 alone and together with vincaria, was confirmed in both explants and in primary chondrocytes (P <0.05). As expected, IL-1b exposure completely silenced IGF-1 production by chondrocytes. However, in the presence of IL-1b both RNI 249 and vincaria protected IGF-1 production in an additive manner (P <0.01) with the combination restoring chondrocyte IGF-1 production to normal levels. Cartilage NO production was dramatically enhanced by IL-1b. Both vincaria and RNI 249 partially

attenuated NO production in an additive manner (p< 0.05). IL-1b-induced degradation of cartilage matrix was quantified as glycosaminoglycan release. Individually RNI 249 or vincaria, prevented this catabolic action of IL-1b.

Conclusion

The identification of agents that activate the autocrine production of IGF-1 in cartilage, even in the face of suppressive pro-inflammatory, catabolic cytokines like IL-1b, represents a novel therapeutic approach to cartilage biology. Chondroprotection associated with prevention of the catabolic events and the potential for sustained anabolic activity with this natural product suggests that it holds significant promise in the treatment of debilitating joint diseases.

Omega-3s: Why are They Important?

Sacramento, Calif.--(Business Wire)--July 7, 2003

Scientific evidence continues to show that one type of fat, omega-3 fatty acids, deliver a surprisingly broad spectrum of health bonuses. How can a body reap the benefits? Contrary to popular belief, you don't have to eat fish everyday, or even cook. It's as simple as eating just one handful of walnuts a day.

Head to toe, omega-3 fatty acids provide a wide range of benefits (as part of an overall healthy diet):

- Lower blood pressure
- Improved blood flow
- Reduced inflammation

- Improved endothelial function
- Reduced blood clotting
- Lower triglycerides
- Improved brain cell health (aids depression, mental agility and Alzheimer's)

Reaping the benefits of omega-3s has everything to do with what you eat. The body cannot produce this essential fatty acid; therefore you must get it from eating certain foods. Foods rich in omega-3s include not only fish such as salmon, mackerel and sardines, but also important plant food sources--walnuts, flaxseed and dark leafy field greens are the richest sources.

The good news is that you can easily improve your health by eating omega-3-rich foods such as walnuts. Walnuts taste good, are readily available and fit into any menu or busy lifestyle--and there's no cooking required, which makes them a truly portable snack.

Additionally, in a number of clinical trials, consuming walnuts has reduced LDL or 'bad' cholesterol in both men and women, which is a key cardiovascular risk factor.

The Food Nutrition Board of the National Academies' Institute of Medicine was the first to set a Dietary Reference Intake (DRI) of 1.6 and 1.1 grams of omega-3 fatty acids

for men and women, respectively.

References:

Robinson, Jo, and Artemis P. Simopoulos, M.D. *The Omega Diet*. New York: HarperCollins Publishers, 1999.

Nelson, Miriam E. Ph.D., Kristin R. Baker, Ph.D., Ronenn Roubenoff, M.D., M.H.S., and Lawrence Lindner, M.A. *Strong Women and Men Beat Arthritis*. New York: Berkley Publishing Group, 2002.

Stoll, Andrew L., M.D. *The Omega Connection*. New York: Simon & Schuster, 2001.

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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.

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mmorales@mountainstate.edu

Or a written request to:

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Contributions

Dear reader:

Would you like to share your knowledge, skills and experience with us? Do you know how to produce, process, market and/or use herbs and medicinal plants? Would you like to share this knowledge with our readers? It is quite simple. Just write your ideas on a piece of paper and mail it to us. We will type it and make sure that it get published in our newsletter.

Please send contributions to the addresses indicated above.

Thanks.

MBP in Pictures



Dean Myles, MBP Coordinator, David C. Carman, grower/collector of medicinal plants, and Autumn Iams, MSU student, sifting humus to establish an on-farm experiment measuring the effect of gypsum/humus combinations on ginseng (*Panax quinquefolious* L.) growth, March 2, 2006.

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 degrees in Herbal Sciences.

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).

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