

# Gail B. Mahady, Ph.D.

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## Assistant Professor

Department of Pharmacy Practice, Director Clinical Pharmacognosy Laboratory  
UIC/NIH Center for Botanical Dietary Supplements Research for Women's Health,  
Department of Medicinal Chemistry and Pharmacognosy  
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### EDUCATION:

Postdoctoral Training	1991-1994	Department of Medicinal Chemistry and Pharmacognosy, College of Pharmacy, University of Illinois at Chicago, Chicago, Illinois, U.S.A.
Doctor of Philosophy	1991	Pharmacognosy, Program for Collaborative Research in the Pharmaceutical Sciences, College of Pharmacy University of Illinois at Chicago, Chicago, Illinois U.S.A.
Bachelor of Science	1979	Pharmacy College of Pharmacy, Dalhousie University, Halifax, Nova Scotia, Canada.

### Professional experience

#### 2001-present

**Assistant Professor**, Department of Pharmacy Practice

- Elected Member of the United States Pharmacopoeia Dietary Supplements: Information Expert Panel 2005-2010.
- Advisory Board Member, MDVIP Advisory Board for Formulary, University of the Sciences in Philadelphia, PA, 2005-present.
- Advisory Board Member, Clinical Trials for Picosanol in dyslipidemia of HIV/AIDS, NCCAM funded, Rush-Pres Medical College, Chicago, IL, 2005-present.
- Office of Dietary Supplements, NIH: Review Panel Member for Annual Bibliography of Significant Advances in Dietary Supplement Research, 2002-present.
- NCCAM/NIH, Review Panel Member, Review Panel ZAT1 G 16S, 2004-present.

- NCCAM/NIH, Review Panel Member, Review Panel ZAT LPR, 2005-present.
- NCCAM/NIDDK/NIH, Member-Special Review Panel (Intramural), 2005.
- Honors College Fellow, University of Illinois, 2002-present.
- Faculty Member 2005 Vahlteich Scholarship Committee, College of Pharmacy, UIC.
- Singapore National Medical Research Council, Research Development Executive Branch, Grant Reviewer 2003-present.
- Consultant for the World Health Organization's-Traditional Medicines Programme 1995-2005.
- NCCAM/NIH, Review Panel Member, ZAT1 G, CAM and Oncology Panel 2001-2005
- NIH/Fogerty International Center, Review Panel Member ICP-2, ICBG Review Panel.
- Leader-Education and Information Core-Center for Botanical Dietary Supplements Research 1999-2005.
- Developer, Coordinator and Lecturer for the College of Pharmacy Online Continuing Education Programs: Botanical Dietary Supplements for Women's Health 2001-2005; Botanical Dietary Supplements for Men's and Women's Health 2005-present.
- Co-PI Project 1, UIC/NIH Center for Botanical Dietary Supplements Research 1999-2005.
- Associate Director and Editor for the NAPRALERT, a database of world literature on natural products.
- Consultant for the Federal Trade Commission 1997-2005.
- USP Expert Panel on Botanical Dietary Supplements-Elected Member 2000-2005.
- Member-USP Ad Hoc Panel on Botanicals 1998-2000
- Working group member, American Pharmaceutical Association and American Dietetics Association (APhA/ADA) Working Group on Dietary Supplements 1999-2000
- Member, Steering Committee for Research in Botanical Dietary Supplements for the National Institute of Child Health and Development in conjunction with ODS and NCCAM 2000-20001
- Lecturer in the Pharmacognosy Graduate Program and Professional Pharm D. Program 2000-present
- Coordinator and lecturer of Herbal Medicine section of the "Non-prescription and Herbal Medicines" course for professional pharmacy (Doctor of Pharmacy) students 2000-present.
- Continuing education faculty member for UIC, Columbia University, Harvard Medical School, Center for Alternative Medicine Research 1998-2002.
- Hans Vahlteich Scholar, University of Illinois at Chicago, 1998-1999.
- Coordinator for curriculum development of the Herbal Medicine section of the core pharmacy curriculum
- Scientific Advisory Board Member, Warner-Lambert Complementary Medicine Advisory Board 1998-1999, McNeil Consumer Health 1998-2001, Novartis Consumer Health SA 2000-2001
- Panel Member, Procter & Gamble Herbal Medicines Safety Panel, 1999-2000

- Member, International Collaboration for Information on Traditional and Complementary Medicine Databases, Columbia University, College of Physicians and Surgeons, Center for Complementary and Alternative Medicine Research in Aging and Women's Health 2000-2003.

#### **1994-2000**

**Research Assistant Professor**, Program for Collaborative Research in the Pharmaceutical Sciences, College of Pharmacy, WHO-TRM Collaborating Center, University of Illinois at Chicago, Chicago, IL, U.S.A. Medicinal plant and tissue culture research; lecturer in Research in Pharmacognosy Graduate Program; Associate Director for the NAPRALERT, database of world literature on natural products.

#### **1991-1994**

**Research Associate**, Dept. of Medicinal Chemistry and Pharmacognosy, University of Illinois at Chicago, IL, U.S.A.

#### **PROFESSIONAL MEMBERSHIPS AND LICENSES:**

American Society of Pharmacognosy  
 American College of Clinical Pharmacy  
 American Association for the Advancement of Science  
 Illinois State Academy of Science  
 Registered Pharmacist (Illinois)

#### **Reviewer/Editor**

Associate Director and Editor: Napralert Database  
 Associate Editor: Pharmaceutical Biology  
 Contributing Editor: Nutrition Reviews  
 Contributing Editor: Journal of Oncology and Integrative Medicine  
 Editorial Advisory Board: Journal of Pharmaceutical Science  
 Editorial Advisory Board: Journal of Medicinal Plants  
 Editorial Advisory Board: Phytomedicine  
 Reviewer for: Phytomedicine, J. Natural Products, Journal of Women's Health, Journal of Agriculture and Food Chemistry, Blood Coagulation and Fibrinolysis, Breast Cancer Research and Treatment, Journal of the American Medical Women's Association

#### **PUBLICATIONS**

##### ***Books Authored or Co Authored***

- Farnsworth, N.R., Fong, H.H.S. and **Mahady, G.B.** (2005) *WHO Model Monographs on Selected Medicinal Plants*. Vol IV, World Health Organization, Traditional Medicine Programme, Geneva, Switzerland (in preparation).
- Farnsworth, N.R., Fong, H.H.S. and **Mahady, G.B.** (2004) *WHO Model Monographs on Selected Medicinal Plants*. Vol III, World Health Organization, Traditional Medicine Programme, Geneva, Switzerland (in press).
- Mahady G.B.**, Fong, H.H.S. and Farnsworth, N.R. (2001) *Botanical Dietary Supplements: Quality, Safety and Efficacy*. Swets and Zeilinger (in press).
- Farnsworth, N.R., Fong, H.H.S. and **Mahady, G.B.** (2002) *WHO Model Monographs on Selected Medicinal Plants*. Vol II, World Health Organization, Traditional Medicine Programme, Geneva, Switzerland.

Farnsworth, N.R., Fong, H.H.S. and **Mahady, G.B.** (1999) *WHO Monographs of Selected Medicinal Plants* Vol. 1, World Health Organization, Traditional Medicine Programme, Geneva, Switzerland.

#### **Book Chapters**

- Mahady, G.B.** Antibacterial Agents from Natural Products, *Bioactive Natural Products*, edited by Prof. Atta-Ur-Rahman, Elsevier Science Publishers, Amsterdam, 2005.
- Mahady GB.** Resveratrol as an antibacterial agent. *Resveratrol in Health and Disease*, edited by B. Aggarwal, Shishodia, and Packer, Taylor & Francis, Inc., 2005 in press.
- Mahady GB.** Botanical Dietary Supplements for Coronary Heart Disease. UNESCO. Elioss Publishers, 2005 (in press).
- Bauer R, Dietz B, **Mahady G.B.** Botanicals for Pediatrics. In: Handbook of Pediatrics, (accepted, in press), 2005.
- Mahady GB,** Dietz, B., Engle J, Michel J., Sagraves R. *Vitex agnus castus*. Encyclopedia of Dietary Supplements, published by Marcel Dekker, Inc 2004.
- Mahady GB,** Dietz, B., Engle J, Sagraves R. Cascara sagrada. Encyclopedia of Dietary Supplements, published by Marcel Dekker, Inc. 2004.
- Mahady G.B.** Scientific and official information resources for Botanical Dietary Supplements. In: M Maffei, ed., *Dietary Supplements of Plant Origin*, Harwood Academic Publishers, Amsterdam, 2003.
- Mahady, GB.** World Health and International Collaboration in Traditional Medicine and Medicinal Plant Research. In: *What will Influence the Future of Alternative Medicine? A World Perspective*. Ed. D. Eskinazi, World Scientific Publishers, Singapore, 2001.

#### **Peer Reviewed Articles and Abstracts**

- Mahady GB,** Gaus K, Pendland SL, Israel D. Standardized ginger extracts reduce bacterial load, as well as acute and chronic inflammation induced by infection of *Helicobacter pylori*, a group 1 carcinogen. *Anticancer Res*, 2005, accepted in press.
- Mahady, GB.** Does Soy Supplementation cause endometrial hyperplasia? *Nutr. Rev.* 2005 (accepted in press).
- Mahady GB,** Pendland S., Stoia A, Chadwick LR, Hamill FA. *In vitro* susceptibility of *Helicobacter pylori* to botanicals used traditionally for the treatment of gastrointestinal disorders. *Phytotherapy Research*, 2005 (accepted in press).
- Mahady GB,** Michel J, Caceres A, Soejarto DD. Attitudes and traditional medicine treatments for menopause in Guatemala. *Social Sciences and Medicine*, 2005, accepted in press.
- Dietz, B, **Mahady GB,** Pauli G, Farnsworth NR., Valerian extracts and valerenic acid are partial agonists of the 5HT<sub>5a</sub> receptor. *Molecular Brain Research*, 2005; 138:191-197.
- Mahady GB.** Medicinal Plants for the Treatment and Prevention of Bacterial Infections. *Current Pharm. Design* 2005, 11/19:2405-2427.
- Mahady GB.** Black cohosh: A review of the clinical data supporting safety and efficacy. *Treatments in Endocrinology*, 2005, 4:117-123.
- Dietz B, Bauer R, Engle J, Sagraves R, **Mahady GB.** Review of the clinical evidence for the use of botanicals in pediatrics. *Journal of Pediatrics*. 2005; 146:311-317.
- J. Liu, J.E. Burdette, S. Deng, S.M. Schlecht, J.M. Pezzuto, J.L. Bolton, **G.B. Mahady,** and N.R. Farnsworth\*. Estrogenic activity of *Vitex agnus-castus* and Linoleic Acid, *Phytomedicine* 2004, 10:213.
- Mahady GB,** Pendland SL, Yun GS, Lu ZZ, Stoia A. Ginger (*Zingiber officinale* Roscoe) and the gingerols inhibit the growth of Cag A+ strains of *Helicobacter pylori*. *Anticancer Res*. 2003, 23(5A): 3699-3702.
- Schriever C, **Mahady GB,** Pendland S. Red wine, resveratrol, *Chlamydia pneumonia* and the French Connection. *Atherosclerosis* 2003, 171(2): 379-380.
- Bharmapravati S, **Mahady GB,** Pendland SL. Thai Traditional plant-based medicines for treatment of *Helicobacter pylori* infections. *In vivo* 2004, 17:541-544.
- Mahady GB,** Pendland SL. In vitro susceptibility of *Helicobacter pylori* by isoquinoline alkaloids from *Sanguinaria canadensis* and *Hydrastis canadensis*. *Phytotherapy Research*, 2003, 17:217-221.
- Mahady G.B.,** Pendland S.L., Chadwick L.R. Red wine and resveratrol inhibit cagA+ strains of *Helicobacter pylori* in vitro. *Am. J. Gastroenterol.*, 2003, 98:1440-1441.

- Mahady G.B.** Is Black Cohosh estrogenic? *Nutrition Reviews*, 2003, 61: 183-186.
- Mahady GB**, Parrot J, Lee C, Yun G, Dan A. Botanical Use by Peri and Post-Menopausal Women. *Menopause*, 2003, 10:65-72.
- Mahady G.B.**, Dietz B, Chandwick LR, Fabricant D. Black Cohosh, An alternative for Menopausal Symptoms? *Nutr Clin Care* 2002, 5(6): 283-289.
- Mahady GB**, Pendland SL, Yun G, Lu ZZ. Turmeric (*Curcuma longa*) and curcumin inhibit the growth of *Helicobacter pylori*, a group 1 carcinogen. *Anticancer Research*, 2002; 22:4179-4182.
- Mahady GB**, Schriever C, Chadwick LR, Pendland SL. *In vitro* susceptibility of *Chlamydia pneumonia* to red wine extracts and resveratrol. *Revista de Fitoterapia*, 2002, 2:183, A202.
- Bharmapravati S, **Mahady GB**, Thabrew MI, Pendland SL. The effect of medicinal plant extracts from Thailand and Sri Lanka on the growth of *Helicobacter pylori* in vitro. *Revista de Fitoterapia*, 2002, 2:184, A203.
- Mahady GB**, Schriever C, Pendland SL. Red wine, resveratrol and *Chlamydia pneumonia*. In: Proceedings of the American Society of Pharmacognosy, Annual Meeting July 2002. New Brunswick, New Jersey
- Bharmapravati S, **Mahady GB**, Thabrew MI, Pendland SL. The effect of medicinal plant extracts from Thailand and Sri Lanka on the growth of *Helicobacter pylori* in vitro. In: Proceedings of the American Society of Pharmacognosy, Annual Meeting July 2002, New Brunswick, New Jersey.
- Mahady GB**. Can plant-based medicines substitute for antibiotics in animal husbandry? In: *Proceeding of the International Conference on Medicinal Plants and Animal Husbandry*, Mahidol University, Bangkok, Thailand, October 24, 2002.
- Mahady G.B.** Ginkgo biloba: A review of the cardiovascular effects. *J Cardiovas Nurs*, 2002, 16(1):21-32.
- Mahady G.B.** *Ginkgo biloba*: A review of quality, safety and efficacy. *Nutr. Clin. Care*. 2001;4:140-147.
- Mahady G.B.**, Matsuura H, Pendland SL. Allixin, a garlic phytoalexin inhibits the growth of *Helicobacter pylori* in vitro. *American Journal of Gastroenterol*. 2001, 96:3454-3455.
- Mahady G.B.** Qato DM, Gyllenhaal C, Chadwick LR, Fong HHS. *Echinacea*: Recommendations for its use in prophylaxis and treatment of respiratory tract infections. *Nutr. Clin Care*, 2001;4, 200-210.
- Mahady G.B.** Global harmonization of herbal health claims. *Journal of Nutrition* 2001, 131:1-4.
- Mahady GB**, Chadwick LR. Goldenseal: Is there enough science for therapeutic recommendations? *Nutr. Clin Care*, 2001;4:243-249.
- Mahady GB**, Pendland SL, Stoia A et al. *In vitro* susceptibility of *Helicobacter pylori* to botanicals used traditionally for the treatment of gastrointestinal disorders. *Phytomedicine*, 2000 (Suppl II), 7:P-79.
- Mahady GB**, Fong HHS. *The safety and efficacy of herbal medicine*. In: Proceedings of the WHO/WPRO Regional workshop on traditional practice of medicine and health sector development, Samoa, 6-9 November 2000.
- Mahady G.B.**, Pendland S.L. Garlic and *Helicobacter pylori*. *Am. J. Gastroenterol*. 2000, 95:309-310.
- Mahady G.B.**, Pendland S.L. Resveratrol from wine inhibits the growth of *Helicobacter pylori*. *Am. J. Gastroenterol*. 2000, 95:1849.
- Mahady, G.B.**, Gyllenhaal C., Farnsworth N.R., Fong, H.H.S. Ginsengs: A review of safety and efficacy. *Nutrition in Clinical Care* 2000, 3:90-101.
- Mahady G.B.** Botanicals: The complexities associated with assessing the clinical literature on efficacy. *Pharmacy and Therapeutics*, 2000, 25:128-132.
- Farnsworth, N.R., **Mahady, G.B.** The Use of Botanicals in Women's Health: A Research Update. *Journal of Women's Health and Gender-Based Medicine*, 2000, 9:449.
- Mahady GB**. Herbal medicine and pharmacy education. *Journal of the American Pharmaceutical Association*, 1998, 38:274.
- Mahady GB**. The role of the pharmacist in the herbal renaissance. *Pharmacy Today*, 1998, 4:15.
- Mahady, G.B.**, Liu, Chuan, Beecher, C.W.W. Involvement of protein kinase and G-proteins in the signal transduction of induced benzophenanthridine alkaloid biosynthesis. *Phytochemistry*, 1998, 48:93-102, 1998.
- O'Keefe, B., **Mahady, G.B.**, Schilling, A.B., Gills, J.J., Beecher, C.W.W. Stable vindoline production in transformed suspension-cell cultures of *Catharanthus roseus* (L.) G. Don. *J. Natural Products* 1997, 60:261.
- Mahady, G.B.** (1997) The Herbal Renaissance and Professional Education. In: The Proceedings of the International Symposium of Herbal Medicine, Jeddah, Saudi Arabia, March 24-27, 1997.

- Mahady, G.B.** (1997) Application of the Napralert Database to the Study of Traditional Chinese Medicine, In: Proceedings of The International Symposium on Information and Publications in Traditional Chinese Medicine, China Medical College, Taichung, Taiwan.
- Mahady, G.B.** and Fong, H.H.S. (1996) Encyclopedia of Common Natural Ingredients used in Food, Drugs and Cosmetics. Second Ed., John Wiley and Sons Inc., New York, N.Y. (Book Review) *Am. J. Pharm. Ed.* 60: 227.
- Liu, C., **Mahady, G.B.** and Beecher, C.W.W. (1996) A highly specific SAM: tetrahydrocoptisine-N-methyltransferase from *Sanguinaria canadensis*. *Pharmaceutical Research* 13: MNPC5059.
- O'Keefe, B., **Mahady, G.B.**, Schilling, A.B., Gillis, J.J., Beecher, C.W.W. (1996) Stable vindoline production in transformed suspension-cell cultures of *Catharanthus roseus* (L.) G. Don. In: Biotechnology and Natural Products. American Society of Pharmacognosy, 37th Annual Meeting, Santa Cruz, USA.
- Mahady, G.B.** (1996) Induction of two N-methyltransferases in the benzophenanthridine alkaloid biosynthetic pathway by mastoparan analogues. In: Biotechnology and Natural Products. American Society of Pharmacognosy, 37th Annual Meeting, Santa Cruz, USA.
- Liu, D., **Mahady, G.B.**, Beecher, C.W.W. (1996) Isolation and characterization of a novel enzyme SAM:N-methyltransferase from suspension cultures of *Sanguinaria canadensis* L. In: Biotechnology and Natural Products. American Society of Pharmacognosy, 37th Annual Meeting, Santa Cruz, USA.
- Mahady, G.B.** and Beecher, C.W.W. (1996) Induction of benzo[c]phenanthridine alkaloid biosynthesis in suspension cell cultures of *Sanguinaria canadensis* by retinoic acid derivatives. *Natural Product Letters* 8: 173-180.
- Mahady, G.B.**, Liu, Chuan, Beecher, C.W.W. (1995) Involvement of protein kinase and G-proteins in the signal transduction of induced benzophenanthridine alkaloid biosynthesis. In: Natural Products as Prototype Antiinfectives: Discovery, Characterization and Development. American Journal of Pharmacognosy. 36th Annual Meeting, University of Mississippi, Oxford, USA.
- Mahady, G.B.**, Liu, Chuan, Beecher, C.W.W. (1995) Abscisic acid induction of benzophenanthridine alkaloid biosynthesis in suspension-cell cultures of *Sanguinaria canadensis*. In: Natural Products as Prototype Antiinfectives: Discovery, Characterization and Development. American Journal of Pharmacognosy. 36th Annual Meeting, University of Mississippi, Oxford, USA.
- Constant, H.L., **Mahady, G.B.**, Ramakrishna, K.V., Venton, D.L. and Beecher, C.W.W. (1995) Analysis of taxanes in *Taxus baccata* leaves, bark and gall tumor by negative ion electrospray HPLC/MS. In: Natural Products as Prototype Antiinfectives: Discovery, Characterization and Development. American Journal of Pharmacognosy. 36th Annual Meeting, University of Mississippi, Oxford, USA.
- Mahady, G.B.**, and Beecher, C.W.W.: Elicitor-induced benzophenanthridine biosynthesis in bloodroot suspension cells is mediated by calcium. *Phytochemistry* (1994) 37:214-217.
- Mahady, G.B.**, Beecher, C.W.W.: Quercetin-induced benzophenanthridine alkaloid biosynthesis in suspension-cell cultures of *Sanguinaria canadensis*. *Planta Medica* (1994) 60: 553-557.
- Mahady, G.B.**, Beecher, C.W.W. and Schilling, A.B.: *Sanguinaria canadensis* L.: *In Vitro* culture and the production of benzophenanthridine alkaloids. In: Biotechnology in Agriculture and Forestry, Medicinal and Aromatic Plants Series, Y.P.S. Bajaj, ed., Springer-Verlag, Berlin, pp.313-327, 1993.
- Swanson, S.M.; **Mahady, G.B.** and Beecher, C.W.W.: Stevioside biosynthesis in callus, shoot, root and rooted-shoot cultures *in vitro*. *Plant Cell Tissue and Organ Culture* 28: 151-157, 1991.
- Mahady, G.B.** and Beecher, C.W.W.: The role of cAMP in secondary metabolite induction. *Plant Physiol.* 96: 150, 1991.
- Mahady, G.B.** and Beecher, C.W.W.: A bioassay for screening compounds as potential elicitors. *Plant Physiol.* 96: 96, 1991.
- Mahady, G.B.** and Beecher, C.W.W.: The role of calcium in the induction of secondary metabolism. International Research Congress on Natural Products, pp.127, Chicago, IL, 1991.
- Mahady, G.B.** and Beecher, C.W.W.: Retinoid induction of benzophenanthridine alkaloid biosynthesis. *Plant Physiol.* 93: 21, 1990.
- Mahady, G.B.** and Beecher, C.W.W.: The estimation of macromolecular synthesis in plant cell cultures. *Phytochem. Anal.* 1: 60-62, 1990.
- Beecher, C.W.W., **Mahady, G.B.** and Schilling, A.B. The analysis of some isoquinoline alkaloids from cell cultures by particle beam LC/MS. In Proceedings of the 38th ASMS Conference on Mass Spectroscopy and Allied Topics pp. 1087-1090, Tucson, Az, 1990.

- Marsh-Glen, M., **Mahady, G.B.** and Beecher, C.W.W. NMR studies of enzyme activity over the growth cycle of *Sanguinaria canadensis* cells. Proceedings of the 10th International Biophysics Congress, Vancouver, Canada, 1990.
- Mahady, G.B.** and Beecher, C.W.W.: The pattern of RNA synthesis during the fermentation of *Sanguinaria canadensis* tissue cultures. Transactions of the Illinois State Academy of Sciences, Northwestern University, Evanston, IL, October 1989.
- Mahady, G.B.**; Swanson, S.M. and Beecher, C.W.W.: Cell-free glycosylation of <sup>3</sup>H-steviol by extracts of *Stevia rebaudiana* propagation cultures. Research Congress on Natural Products, August 6-10, San Juan, PR 1989.
- Mahady, G.B.** and Beecher, C.W.W.: The pattern of macromolecular biosynthesis during alkaloid production in *Sanguinaria canadensis* suspension cells. Research Congress on Natural Products, San Juan PR, 1989.

## **Presentations:**

### **Continuing Education Programs**

- Botanical Dietary Supplements for Men's and Women's Health, College of Pharmacy, University of Illinois at Chicago, Online CE 2005-2009.
- Botanical Dietary Supplements for Women's Health, College of Pharmacy, University of Illinois at Chicago, Online CE 2001-2005
- Botanical Dietary Supplements in Women's Health: A Scientific Research Update, University of Michigan Medical School, 10/3/2003
- Scientific Assessment of Herbal Medicines, Drug Information Association Annual Meeting, Chicago, IL 6/2002
- Research Update for Botanical Dietary Supplements in Women's Health, Columbia University College of Physicians and Surgeons, New York 5/2002
- Filing Botanical IND's , Harvard Medical School, Boston MA, 4/2002
- Safety and Efficacy of Medicinal Herbs, Purdue University, IN, 01/28/02
- Botanical Dietary Supplements: Quality, safety and efficacy, April 5-6<sup>th</sup>, 2001 Ohio Pharmacist's Association
- Scientific Assessment of Herbal Medicines, Denver, CO, July 1-3, 2001, Drug Information Association
- Do Herbal Products Affect Quality of Life Issues for Women? October 22, 2001, NIH/Office of Dietary Supplements/American Dietetic Association
- Safety and Efficacy of Botanicals, American College of Physicians, Philadelphia, PA, June, 2001
- Quality, Safety and Efficacy of Botanicals, August 2001, San Diego, CA, NACDS
- Safety of Botanical Dietary Supplements, Veterans Administration, Virginia March 2000
- Center for Botanical Dietary Supplements, Harvard Medical School, Boston MA, March 2000
- Research Update for Botanical Dietary Supplements in Women's Health, Columbia University, College of Physicians and Surgeons, New York, May 2000

### **Invited Lectures/Presentations**

- Botanical Dietary Supplements for Women's Health, University of Costa Rica, San Jose, Costa Rica, February 24, 2005.

Research Update from the Center for Botanical Dietary Supplements Research in Women's Health, University of San Carlos, Guatemala City, Guatemala, February 26, 2005.

Survey on Botanical Dietary Supplement Use in Peri-and Post Menopausal Women, Functional Foods for Health Annual Meeting, Schaumburg, IL, July 10, 2003.

Herb Drug Interactions, Rush Medical School, Schweitzer Fellows Presentation, Chicago, IL, 5/1/03.

Botanical Dietary Supplements for Aging. Institute of Aging, Chicago, IL 04/25/03

Center for Botanical Dietary Supplements Research: Update in Women's Health. WOCMAP III World Congress, Chang Mai, Thailand, February 7<sup>th</sup>, 2003.

Botanical Dietary Supplements for the Elderly, National Institute of Health, Washington, DC, 01/13/03.

Herbal Medicines: Safety and Efficacy. American Association of Retired Persons (AARP), Chicago, IL 02/18/03.

Education and Information Workshop on Dietary Supplements, Center for Botanical Dietary Supplements Research, NIH/NCCAM, Bethesda, MD July 2002

Can plant-based medicines substitute for antibiotics in animal husbandry? Thai Ministry of Public Health Bangkok, Thailand, 10/20/2002.

Predictive strategies for Natural Products Research using the Napralert Database. Mahidol University, Faculty of Pharmacy, October 2001

International Collaborations in Traditional Medicine Research, Mahidol University, Faculty of Science, October 2001.

Botanicals: Taking Steps and Making Choices, National Center on Women and Aging Westin Hotel, Chicago IL, 11/27/2001

Botanical Dietary Supplements in Women's Health, Illinois Department of Women's Health, Donald Stephens Convention Center, Rosemont, IL, 10/23/2001

Safety of Botanical Dietary Supplements, Federal Trade Commission, Chicago, IL 6/27/2001

UIC/NIH Center for Botanical Dietary Supplements Research-Education and Information, Functional Foods for Health, Urbana, IL 6/10/2001

Botanical Dietary Supplements in Women's Health, Department of Public Health, Center for Excellence in Women's Health, Jim Thompson Center, Chicago, IL, 5/23/2001

Safety of Botanicals for Women's Health, Food and Drug Administration-Office of Women's Health Washington DC, 4/19/2001

Safety of Safety of Herbal Medicines in Children-workshop, NIH/NICHD-Botanicals for Pediatrics, Washington, DC, 2/12/2001

### **Oral Presentations**

Mahady GB. Botanicals for Women's Health, a Research Update. WOCMAP III Meeting, Bangkok, Thailand, February 5, 2004

Mahady GB. College of Pharmacy Seminars: Survey of Botanical Dietary Supplement Usage by Menopausal Women, Wednesday Feb. 20, 2002

Mahady GB, Schriever C, Chadwick LR, Pendland SL In vitro susceptibility of Chlamydia pneumonia to red wine extracts and resveratrol,. Society for Medicinal Plant Research , Barcelona, Spain, 9/3/2002

Bharmapravati S, Mahady GB, Thabrew MI, Pendland SL. In vitro susceptibility of Helicobacter pylori to Traditional Medicines from Thailand and Sri Lanka Society for Medicinal Plant Research Barcelona, Spain 9/3/2002

Mahady, GB, Pendland SL. In vitro susceptibility of Helicobacter pylori to extracts of ginger rhizome and isolated constituents, American Society of Pharmacognosy Asilomar, CA 11/11/2001

Mahady GB, Survey of Botanical Dietary Supplement Use in Menopausal Women American Society of Pharmacognosy, Asilomar, CA 11/11/2001

Mahady GB. Traditional Medicines for the Treatment of Helicobacter pylori Infections COP, Hans W. Vahlteich Endowment Program for Faculty Research , 12/1/2000

Mahady G.B .Botanical Dietary Supplements and Drug Interactions, Center for Botanical Dietary Supplements Research, 11/13/2000

Mahady GB, Fong HHS. The safety and efficacy of herbal medicine, WHO/WPRO Regional workshop, Samoa, 11/6/2000

Mahady GB, Pendland SL, Stoia A et al. In vitro susceptibility of Helicobacter pylori to botanicals used traditionally for the treatment of gastrointestinal disorders, European Cooperative on Phytotherapy , Munich Germany, 10/1/2000

Mahady G.B., Pendland S.L. Resveratrol from wine inhibits the growth of *Helicobacter pylori*. European Cooperative on Phytotherapy, Munich Germany, 10/1/2000

## **Research Interests and Funding**

My research interests specifically focus on natural products and botanical dietary supplements and their application to the treatment of women's health disorders and infectious diseases and their chronic health consequences.

I have a number of active projects for the development and testing of novel natural agents for treatment/prevention of acute and chronic infectious disease.

1.Botanicals for *Helicobacter pylori* infections. This work was funded by NCCAM/NIH during the period of 2/1/2001-6/30/2004 at a total award of \$388,940.00 (Mahady-PI 20% effort), R21 AT 00412-02.

This work is based on the hypothesis that since many medicinal and food plants are used around the world for the treatment of gastritis, dyspepsia and peptic ulcers, and some plant species also have experimental antibacterial activity, these plant species are candidates for novel antibacterial agents against *H. pylori* (HP) infections. This project

involves the screening of plant-based medicines for in vitro and in vivo activity against HP. The work has resulted in 17 abstracts, presentations and publications. We have developed standardized botanical extracts that inhibit the growth of these bacteria both in vitro and in vivo. In the case of Helicobacter, our research has shown that botanical extracts reduce bacterial load in these animals, as well as significantly suppressed acute and chronic gastritis. I am currently drafting an RO1 to NIH for October 1<sup>st</sup>, 2005 for the continuation of this work.

2. The second project involves the research and develop specific botanical extracts and/or combination of extracts for the prevention/treatment of *Chlamydia pneumoniae* (CP) infections. The work is also funded by the NCCAM/NIH R21 AT01317-01, for the period of 7/1/2004-12/31/2006, total amount \$389,676.00 (Mahady-PI 20% effort). This work is based on the hypothesis, that specific botanical extracts have been used in traditional systems of medicine for the treatment and prevention of coronary heart disease (CHD), some of these extracts will inhibit the growth of CP, and thus may significantly impact the development or progression of atherosclerosis. This hypothesis is further supported by the fact that in addition to their traditional use for the prevention and treatment of CHD, many botanicals have experimental antibacterial, anti-adhesive, antioxidant and anti-inflammatory activity, making them prime candidates for the discovery of novel treatment of CP infections. The specific botanicals to be tested were selected using the Napralert<sup>SM</sup> database, a relational database of natural products, as well as PubMed, the German Commission E and WHO Monographs, Medline and other databases. We have identified numerous botanical extracts and have determined their minimum inhibitory concentration against CP in vitro. I have tested 6 of the extracts in a mouse model system to determine the most active botanical extract. The mechanism of action was determined by measuring maximum chlamydicidal concentrations, and assessing the effects of the botanical extracts on the expression of adhesion molecules in endothelial cells. In addition ICAM and VCAM adhesion was determined in HUVAC cells.

3. My research interests in international women's health focuses currently in two areas, menopause and PMS. I have funding for one project " Botanicals from Central America for Menopause". This project is funded by the NCCAM/NIH as R21 AT02381-01, 9/1/2004-3/30/2007, total award \$389,676.00, (Mahady-PI, 20% effort). This project will assess the safety and efficacy of botanical medicines from Guatemala and Costa Rica for the treatment of menopausal symptoms. This is a collaboration between UIC and University of San Carlos, Guatemala and University of Costa Rica. In light of the results of the Women's Health Initiative, many women are searching for alternative treatments for menopause. While, botanicals such as black cohosh, red clover and soy appear to be promising alternative therapies questions of safety and efficacy have arisen. Thus, the focus of this project is to research and develop of other treatment alternatives for menopause. In Central American countries, specifically Guatemala and Costa Rica, women have menopausal symptoms similar to their U.S. counterparts. However, these women do not seek Western medical treatment, but use natural methods including herbal medicines to improve the quality of life in the peri- and postmenopausal periods. The project is based on the hypothesis that specific botanical extracts that have been used traditionally in Central America for the treatment menopausal symptoms will have biological activities that correspond with their traditional use. Thus, these extracts can be standardized for use in animal or human studies. The objective of this investigation is to

collect and extract these plant species from both countries, and test the extracts for activity in specific bioassays that are relevant to menopause. The overall goal of the proposed work is to develop standardized botanical extracts, based on the bioassay results, for the symptomatic treatment of menopause. The standardized extracts will then be used as the basis of an RO1 application to assess biological activity in an animal model and/or pilot human study. I am planning to submit an RO1 application for this work in Feb. 2006. Another proposal focusing on botanical extracts for PMS will be submitted on October 1<sup>st</sup>, 2005.

4. Conference grant entitled “The Omics Revolution: Transcriptomics, Proteomics and Metabolomics in Dietary Supplement and Nutrition Research”. Funded by the NCCAM/NIH/ODS/NCI, for the period of 9/1/2004 to 12/31/2005, total award \$35,000.00 (Mahady –PI). This is a conference grant R13-AT02206-01.

Over the past decade there has been a renewed interest in research and development of dietary supplements, functional foods and natural products. Significant advancements have been made in the scientific assessment of the quality, safety and efficacy of these products, due to the interest and financial support of these projects by the National Institutes of Health. As DS and FF research continues to advance, opportunities to employ new and innovative research technologies and methodologies such as DNA microarray, chip technology and proteomics are critical for the future progress of the science. Thus, to highlight these new technologies and their potential applications to natural products research, a major international scientific conference will be convened March 20-21<sup>st</sup>, 2006, in Lihue (Kauai), Hawaii. This scientific conference will provide state-of-the-art information about current advances and applications of geneomics, proteomics, metabolomics and data mining to dietary supplements and natural products research based on our growing understanding of these techniques. In the past few years there have been rapid increases in the development of these new scientific research technologies, however their application to the fields of dietary supplements, functional foods and natural products has lagged. As these fields continue to grow, it is critical that new scientific ideas and techniques be incorporated into future research. This conference will address all of these issues, as well as establish new research collaborations. The conference will cover a number of specific topics including cDNA microarrays, serial analysis of gene expression (SAGE), structural proteomics, protein detecting microarrays, metabolomics, integrative metabonomics, transgenic animals and bioinformatics.

5. I am also currently involved in a project sponsored by the World Health Organization, the development of the WHO Monographs on Selected Medicinal Plants, WHO Monographs on Selected Medicinal Plants, Volume 4, WHO-TRM, 9/1/2002-12/30/2005, \$65000 (Mahady-Co-PI). This is joint project between the World Health Organization’s Traditional Medicines Programme and the College of Pharmacy (PAHO/WHO Collaborating Center for WHO) at The University of Illinois. The monographs, currently Volumes I-III are extensive reviews of widely used medicinal plants from around the world. These books are intended for developing countries to supply up-to-date scientific and technical information on medicinal plants. The books are used by the regulatory authorities in the countries to help establish policy on medicinal plants. This project is currently funded by the WHO-TRM through 2005. The official WHO Consultation for Volume 4 of the WHO Monographs will be held in Salerno, Italy

in October 2005. We expect that the monograph development by WHO may extend for another round (Volume 5).

6. Center for Botanical Dietary Supplements Research on Women's Health. The Center is one of the five Botanical Centers funded by the NCCAM/NIH/ODS P50 AT 00155-404 (Farnsworth PI; Mahady Co-PI), Center of Botanical Dietary Supplements Research (\$7.5 M) 9/20/1999-4/31/2005, Core B total funding \$807,902 (Mahady). I was the Core Leader-Education and Information Core, as well as Co-PI on Project 1. This work specifically focused its efforts on the investigation of the clinical safety and efficacy of 10 herbal supplements widely used in the U.S. for the symptomatic treatment of menopause, premenstrual syndrome and chronic urinary tract infections. I have been involved in the development of standardized extracts for animal and human studies. Additional work will address mechanisms of action, identification of the active chemical constituents, and characterization of metabolism, bioavailability and pharmacokinetics of the active constituents. The Core B also published many papers in the field of botanical dietary supplements education and developed two online Continuing Education Programs for Pharmacists. The courses were well-received and over 500 pharmacists and other healthcare professionals from around the world registered for the online CE. The Center project was made up of a multidisciplinary research team including internationally renowned experts in the fields of pharmacognosy, medicinal chemistry, pharmacy practice, obstetrics and gynecology, geriatrics, surgical oncology, and mathematics and statistics.

7. Further funding: APFE Fellowship for graduate student Joanna Michel (Mahady-PI), American Foundation for Pharmaceutical Education, 1/2/2003-12/30/2005, \$6000 per year.