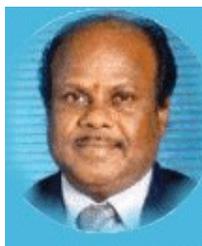


PHCOG MAG.: Researcher's Profile



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Dr. P. Pushpangadan, M.Sc. (Botany), M. Phil (Cytogenetics & Biochemistry), Ph.D. (Plant Breeding and Genetics) is presently the Director, National Botanical Research Institute (NBRI), Lucknow a constituent laboratory under the Council of Scientific & Industrial Research (CSIR), India. Dr. Pushpangadan also started his research career in a CSIR laboratory (Regional Research Laboratory) at Jammu in 1969. Prior to the present assignment, Dr. Pushpangadan served as Director, Tropical Botanic Garden & Research Institute (TBGRI) and Rajiv Gandhi Centre for Biotechnology (RGCB), both at Trivandrum (Kerala, India). He has multidisciplinary training and research experience of over 35 years and has carried out original research in Cytogenetics and Plant Breeding, Biotechnology, Molecular Taxonomy, Biosynthesis of secondary metabolites, Ethnobiology, Ethnopharmacology, Bioprospecting and natural product development etc. He has published over 166 original research papers and 124 articles in national and international journals, 41 chapters in books, authored 8 books and edited three books.

Dr. Pushpangadan and his team carried out bioprospecting leading to interesting pharmaceutical discoveries through an integrated research and combined the wisdom of the traditional systems of medicines and the modern scientific knowledge. He and his team have successfully isolated potential biodynamic compounds and developed scientifically validated and standardized herbal drugs / products. **He has about 63 patents (20 awarded & 43 filed) in India and abroad. Ten of his patented products are now commercially produced and globally marketed.** Dr. Pushpangadan brought a unique distinction to India as the first in developing a benefit-sharing model that implemented the Article 8(j) of the Convention on Biological Diversity (CBD).

At NBRI Dr. Pushpangadan established a Biodiversity Informatics Division with the State of Art facility and developing digitized database of the plants of India with digitized herbarium specimens associated knowledge

system, scientific/economic informations and a webenable network at national and international level. 17 students received Ph.D./MD under his guidance and 8 are currently registered for Ph.D./M.D. programme in different universities in India and abroad. Dr. Pushpangadan served/serving as consultant to WHO, DANIDA, UNESCO, UNDP, UNEP and NAM S&T Centre for developing countries and UN-CBD.

Dr. Pushpangadan functioned as team leader of many official scientific delegations on behalf of Govt. of India / CSIR to sign bilateral agreements on S&T collaboration / represented country on subjects like biodiversity, biotechnology, herbal technology, traditional Medicine and medicinal & aromatic plants. Function as the lead expert for Govt. of India (GOI) on matters related to Intellectual Property Rights (IPRs) and traditional medicine Knowledge.

Dr. Pushpangadan has been appointed as the official expert for Ministry of Environment & Forest, GOI and Ministry of Commerce, GOI on matters related CBD and WTO and accordingly he participated in the UN-CBD meeting held at Bangkok from March 14-18, 2005. With the approval of Govt. of India / CSIR Dr. Pushpangadan was engaged by Govt. of South Africa as the Chairman of an International Panel of experts to review the 5 year research performance of South African research institutions / universities funded by the National Science Foundation and Dept. of Science & Technology, South Africa in March 2004 at Pretoria.

Dr. Pushpangadan has received many national and international medals/awards including the prestigious UNEP Borlaug Award in 1998 and the UN-Equator Initiative Award-2002 at World Summit at Johannesburg, South Africa in September 2002. He is a fellow of the National Academy of Sciences (FNASc), Fellow of the National Academy of Agricultural Sciences (FNAASc) and also Fellow of three other Scientific Bodies in India. He is the President of National Society of Ethnopharmacology and the International Society of Environmental Botanists. He also served as the President of the International Society of Ethnopharmacology (1998-2001).

He is also the Vice-President/Chairman/Vice Chairman/Member of many National and International scientific bodies/committees. He has visited over 50 countries in various capacities as leader of scientific delegation/scientific expert or to participate in International seminars/symposia or to chair the International Expert Panel to review research programmes.

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Media Alert

Blumenthal Tapped as Expert Source for Two CNN Programs

Date: Thursday, July 28, 2005

From: American Botanical Council

In the aftermath of yesterday's published study from the *New England Journal of Medicine* (NEJM), claiming *Echinacea angustifolia* does little to treat or prevent the common cold; American Botanical Council Executive Director Mark Blumenthal has been fielding interview questions at a frantic pace. Following his appearance on last night's (July 27, 2005) episode of *Nightly News with Brian Williams*, the pace has increased.

"It's a curious default mechanism of the media that they love to jump on a 'bad news' story," said Blumenthal, referencing the many calls, e-mails and faxes to ABC from both national and worldwide media, as well as the extensive coverage this story has received. "Where have all these guys been after we've put out recent press releases about *positive* clinical trials on saw palmetto and St. John's wort?" he asked.

The latest to request his expert opinion is CNN, where his interviews will air on two separate programs this evening. On *Wolf Blitzer Reports*, (5:00 p.m. EDT), his interview was to be broadcast at approximately 5:40-5:55 p.m. CDT, according to the show's producer.

Immediately following *Wolf Blitzer Reports*, Blumenthal is featured in a related story on *Anderson-Cooper 360*, (6:00 p.m., EDT). This extended report not only discusses the latest echinacea news but also contains a "Myths and Truths" segment with information on aloe, ginger and cranberry. At the request of CNN, the American Botanical Council provided much of the research information. The show's producer indicated that this report will air around 6:50 p.m.

Blumenthal has had numerous radio interviews as well. Tonight he will be a guest on *The World Today*, a production of CNKW News Talk 980 AM. The Vancouver, B.C.-based all-talk station will be taking listener calls beginning 5:45 p.m. (PDT).

Tonight at 10:00 (EDT), station WOR 710 AM, is featuring Blumenthal as a guest on Health Talk, a New York-based radio show with Dr. Ronald Hoffman, recognized as one of America's foremost complementary medicine practitioners.

Tomorrow he will be a guest on *The Brian Lehrer Show*, New York Public Radio station 93.9 FM. Blumenthal will be taking listener questions beginning at 11:05 a.m. (EDT) for approximately 30 minutes. Also on Friday, Blumenthal will appear on Northwest Passage, produced by KLCC, 89.7 FM, which is a Eugene, OR-based NPR station. He is also taping interviews to appear on radio programs through the weekend.

Editor's Note: Mark Blumenthal is available for interviews. Please contact Nancy Moon (contact mentioned above).

FOR IMMEDIATE RELEASE

News Release

Herbal Science Group Says Dosage Too Low in New Echinacea Trial

(Austin, TX, July 27, 2005). The nonprofit American Botanical Council (ABC), an Austin, Texas-based research and education organization, has reviewed a new clinical trial on the popular herb echinacea for use in a specific kind of induced virus, being published Thursday in the *New England Journal of Medicine*.¹ The study concluded that the echinacea preparations did not prevent or help treat symptoms of a specific virus applied to the test subjects. ABC has found several aspects of the design of the study worthy of clarification, and comments on the potential misinterpretations of the significance of this study.

First, the extracts used were made in a university laboratory and do not correlate with commercial echinacea products currently available to consumers. Second, the dosages used in this trial were probably too low. The echinacea preparations used in the study might have shown activity at more frequent dosing intervals and/or higher

dosage levels - as is often the case with contemporary echinacea use.

The new trial utilized extracts made from the roots of a species of echinacea called *Echinacea angustifolia*. The randomized, double-blind, placebo-controlled, seven-arm trial was conducted on 437 college students who had a particular type of rhinovirus inserted into their nostrils (the results were calculated on 399 subjects). In the trial, the echinacea preparations were tested to see if they had a preventive effect or if they could help treat the symptoms caused by the rhinovirus. The students who received the three different echinacea preparations and were sequestered in a hotel room did not experience fewer infections, fewer symptoms, or a reduction in the duration of symptoms, compared with those who received the placebo.

The trial utilized three doses of 1.5 milliliters each of the three laboratory-produced echinacea extracts, presumably equivalent to about 300 milligrams of the dried powdered root in each dose (equivalent to 900 mg per day of the dried root). This level was chosen for the trial because it is the dose recommended by the German government's expert herb panel called the Commission E, which had conducted reviews of the research published on various types of echinacea in the scientific and medical literature in the early 1990s.²

According to ABC various international monographs have acknowledged the generally higher dose used for echinacea root products. The World Health Organization (WHO) monograph for Echinacea root ("Radix Echinaceae") has a dosage for *Echinacea angustifolia* root at the equivalence of 3 gm per day of the dried root.³ This same dosage is also acknowledged in the more recently developed draft monographs on Echinacea from the Canadian Natural Health Products Directorate.⁴

This dosage level is about 330% higher than the dosage of the echinacea preparations given in the NEJM trial. This supports ABC's contention that the preparations may have been underdosed and that the trial might have shown a potentially positive trend if a higher dosage and/or increased frequency of administration had been followed.

"It would have been optimal if this trial had tested the echinacea preparations at more frequent and/or higher doses," said Mark Blumenthal, Founder and Executive Director of ABC. "Dosage is one of the most important aspects in assessing any therapeutic agent. Many clinicians who recommend echinacea for treatment of upper respiratory tract infections related to colds and flu normally utilize a frequency of use and/or a total daily dose that is higher than the one used in this trial. This is also true for consumer self-medication with many commercial echinacea preparations according to some label dosage suggestions."

Blumenthal added. "The researchers have previous experience in researching echinacea and have done an admirable job in testing a species of echinacea (i.e., *E. angustifolia*) that has not been adequately researched." But he hastened to add, "The most accurate statement that can be said about this trial is this: These specific laboratory-produced echinacea extracts, at the dose given in the trial, under the specific design of this trial, did not produce any measurable effect."

He emphasized, "This is not a definitive trial on the efficacy of echinacea, nor should the results be generalized to echinacea preparations widely available. Unfortunately, the conclusion that may be drawn by some media who report this study may state that 'echinacea is ineffective,' but this would be an incorrect conclusion based on the design of this study and the evidence in the existing literature."

"Dosing people for rhinovirus in a hotel does not necessarily mimic real life," said Bruce Barrett, MD, PhD, an Assistant Professor of Family Medicine University of Wisconsin School of Medicine and an author of several previous critical reviews on echinacea clinical trials. He noted that the patients were possibly relatively resistant to the echinacea treatment. "College kids are immunocompetent," he stated, referring to the relative health of the test subjects in the trial. "It may have been better to test older people to see how they might have fared."

However, Dr. Barrett was generally complimentary about the trial in general. "This is a very valuable study and quite helpful, although it has some significant limitations, including product, sample, and population," he stated. "In general, you may want to

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have about 100 people per treatment group for more statistical significance rather than only about 50 per group used in this trial."

In general, products marketed as "Echinacea" are extremely popular in the United States. Echinacea ranked second in sales in mainstream market retail stores in 2004, according to an article in ABC's journal *HerbalGram*.⁵ Total sales of echinacea products in all channels of trade in the United States in 2004 was estimated at about \$155 million, according to data compiled by *Nutrition Business Journal*.

Blumenthal also added that although it was formerly quite popular, there has been a trend away from using *Echinacea angustifolia* root in commercial herbal products based on increased concerns by many responsible members of the herb community regarding conservation and sustainability of wild medicinal plants. *Echinacea angustifolia* is generally more difficult to cultivate commercially than the other two more popular species of echinacea (*E. pallida* and *E. purpurea*), and so more material from these species are found in products on the North American market.

Blumenthal points to a body of clinical evidence that supports the use of various echinacea preparations for treating symptoms associated with colds and flus. A [therapeutic monograph on Echinacea](#) is available in [The ABC Clinical Guide to Herbs](#), ABC's reference book and continuing medical education module.⁶ The monograph summarizes 21 clinical trials on various echinacea preparations for colds, flus, upper respiratory tract infections, and other uses. ABC has posted the complete echinacea chapter including this monograph on its website (<http://www.herbalgram.org/>) as an educational service to the public.

The study has generated significant media attention. ABC and Blumenthal have been contacted by a variety of news sources, including: the Associated Press, Bloomberg Business News, CNN, the *Los Angeles Times*, *NBC Nightly News with Brian Williams*, the *New York Times* and *USA Today*.

News Release

July 26, 2005

Herbal Science Group Clarifies

Echinacea Study

(Austin, TX, July 27, 2005). The nonprofit American Botanical Council (ABC), an Austin, Texas-based research and education organization, has reviewed a new clinical trial on the popular herb echinacea for use in a specific kind of induced virus, to be published this week in the *New England Journal of Medicine*.¹ The study noted negative results using the preparation produced for the study on the specific virus. ABC has found several aspects of the design of the study worthy of clarification, and commented on the inevitable conclusions that may be drawn.

First, the extracts used were made in a university laboratory and do not correlate with commercial echinacea products currently available to consumers. Second, the study might have shown activity at more frequent dosing intervals and/or higher dosage levels - as is often the case with contemporary echinacea use -- than the dose used in the trial.

The new trial utilized extracts made from the roots of a species of echinacea called *Echinacea angustifolia*. The randomized, double-blind, placebo-controlled, seven-arm trial was conducted on 437 college students who had a particular type of rhinovirus inserted into their nostrils (the results were calculated on 399 subjects). In the trial, the echinacea preparations were tested to see if they had a preventive effect or if they could help treat the symptoms caused by the rhinovirus. The students who received the three different echinacea preparations and were sequestered in a hotel room did not experience fewer infections, fewer symptoms, or a reduction in the duration of symptoms, compared with those who received the placebo.

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"It would have been optimal if this trial had tested the echinacea preparations at more frequent and/or higher doses," said Mark Blumenthal, Founder and

Executive Director of ABC. "Dosage is one of the most important aspects in assessing any therapeutic agent. Many clinicians who recommend echinacea for treatment of upper respiratory tract infections related to colds and flus normally utilize a frequency of use and/or a total daily dose that is higher than the one used in this trial. This is also true for consumer self-medication with many commercial echinacea preparations according to some label dosage suggestions."

Blumenthal added. "The researchers have previous experience in researching echinacea and have done an admirable job in testing a species of echinacea (i.e., *E. angustifolia*) that has not been adequately researched. The best that can be said is that these specific laboratory-produced extracts, at the dose given in the trial, under the specific design of this trial, did not produce any measurable effect. However, this is not a definitive trial on the efficacy of echinacea, nor should the results be generalized to echinacea preparations widely available. Unfortunately, the inevitable conclusion that may be drawn by some media who report this study may state that 'echinacea is ineffective,' but this would be an incorrect conclusion based on the design of this study and the evidence in the existing literature."

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About the American Botanical Council

The American Botanical Council is the nation's leading nonprofit organization addressing research and educational issues regarding herbs and medicinal plants. The 17-year-old organization occupies a 2.5 acre site in Austin, Texas, where it publishes [HerbalGram](#), a peer-reviewed journal. ABC is also the publisher of [The ABC Clinical Guide to Herbs](#), a continuing education and reference book, which contains extensive monographs on the safety and efficacy of 29 popular herbs, including echinacea.⁴ More information on echinacea is available on ABC's extensive website, www.herbalgram.org.

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