



# MUSHROOMS AND HEALTH GLOBAL INITIATIVE BULLETIN

An ISMS Global Initiative to increase the worldwide consumption of mushrooms through the collection, evaluation and dissemination of scientifically validated information.

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### News from the initiative - Mary Jo Feeney

#### ► Mushrooms and Health website

Since its launch in May, the [Mushrooms and Health](#) website is averaging over 3,000 hits per month from around the world – including the United States, Canada, Germany, Australia, Cyprus, Netherlands, Great Britain, Japan, Spain and China. Over half of the visitors have added the website to their “favorites”.

The CSIRO [Mushrooms and Health Report](#) is the most frequently visited section in the website. For those of you new to the website, download the Executive Summary and Methodology for a snapshot of the nutritional and health benefits of mushrooms and how the review was conducted. Use the Executive Summary for a quick reference when you receive inquiries from the media or others in the industry.

*Mushrooms and Health 2010* will soon replace the 2008 report. In addition to an expanded number of human studies, the updated report includes new areas of research on mushrooms' effect on neurodegenerative diseases and rheumatoid arthritis. As a *Bulletin* reader, you will receive an e-mail alert when the revised report is posted.

#### ► From the Strategic Communications Group (SCG)

Raymond van Buuren, Netherlands, reports that the mushroom growing sector can count on the European Union's (EU) financial support for its transnational promotion campaign 2010-2013. See “News from the Netherlands” page 2.

### Mushroom Research

#### ► Mushrooms' ability to inhibit cellular processes associated with cardiovascular disease

Martin KR. “Both common and specialty mushrooms inhibit adhesion molecule expression and *in vitro* binding of monocytes to human aortic endothelial cells in a pro-inflammatory environment.” *Nutrition Journal* 2010, 9:29doi:10.1186/1475-2891-9-29.

Findings of this study suggest that dietary mushrooms can be protective against early cellular changes associated with cardiovascular disease. The study included *Agaricus bisporus* (white button and crimini), shiitake, oyster and maitake.

#### ► Effects of alpha-glucans from *Agaricus bisporus*

Volman JJ, Mensink RP, Van Griensven LJ & Plat J. "Effects of alpha-glucans from *Agaricus bisporus* on *ex vivo* cytokine production by LPS and PHA-stimulated PBMCs; a placebo-controlled study in slightly hypercholesterolemic subjects." *European Journal of Clinical Nutrition* 64, 720-726 (July 2010) | doi:10.1038/ejcn.2010.32.

The researchers previously showed that the polysaccharide fraction from *A. bisporus*, consisting 90% of alpha-glucans, induced *in vitro* tumor necrosis factor (TNF) alpha and nitric oxide production. This study evaluated the effects of consuming *A. bisporus* alpha-glucans on *ex vivo* cytokine production by human peripheral mononuclear blood cells (PBMCs). The authors suggest that *in vivo*, alpha-glucans lost their efficacy to stimulate the immune response observed in an *in vitro* mouse model.

#### ► Cordyceps extract and asthma

Sun W, Yu J, Shi YM et al. "Effects of *Cordyceps* extract on cytokines and transcription factors in peripheral blood mononuclear cells of asthmatic children during remission stage." *Journal of Chinese Integrative Medicine (Zhong Xi Yi Jie He Xue Bao)*: 2010; 8(4): 341-346 DOI: 10.3736/jcim20100407.

A *Cordyceps* extract was evaluated in 20 asthmatic children during remission stage. Results suggest that *Cordyceps* extract can alleviate the chronic allergic inflammation by increasing the content of IL-10.

#### ► Bioavailability of ergothioneine

AuBrei J. Weigand, FDA, Laurel, MD; Penny Kris-Etherton, Robert B. Beelman, Penn State Univ, University Park, PA. "Bioavailability of ergothioneine from mushrooms in adult men." Institute of Food Technologists 2010 Annual Meeting and Food Expo, Presentation Number: 295-28.

Although the antioxidant properties of ergothioneine have been widely studied, bioavailability from mushrooms, a primary dietary source, is still unknown. The objective of this study was to evaluate the bioavailability of ergothioneine in 10 healthy men through a dose-response time-course. Ergothioneine concentration in red blood cells increased significantly after the equivalent of two servings of mushrooms; however, despite ergothioneine's antioxidant properties, ORAC<sub>total</sub> values decreased.



### News from the Netherlands - Raymond Van Buuren

#### ► European Union Provides Subsidy to Promote Mushrooms

The mushroom growing sector can count on the European Union's (EU) financial support for its transnational promotion campaign 2010-2013. The communication and promotional programme, partly initiated by the Mushroom Promotion Foundation (MPF) and GEPC (Groupement Européen des Producteurs de Champignons, the European Mushroom Growers Association) promotion, targets German, French, Dutch and Spanish consumers. The programme's total budget will receive a 50% EU subsidy.

The Mushroom Promotion Foundation, located in Amsterdam and founded in 2008 on the initiative of mushroom growers in the Netherlands, Belgium, France and Spain, promotes the mushroom to consumers. This European foundation mobilizes and represents companies from the entire sector, from compost suppliers to processing plants. Its promotional campaigns aim to inform consumers and make them enthusiastic about the versatility of mushrooms and also about their nutritional and health aspects. The core message is: *mushrooms are healthy, delicious and quick and easy to cook.*

### ► The Campaign in the Netherlands and Germany

In the Netherlands, for whom the German and Dutch markets are key, this sector wide initiative is borne by all the links in the chain that together raised the other 50% of the campaign budget.

The programme will be rolled out together with France's ANICC (Association Nationale Interprofessionnelle Champignon de Couche) and Spain (Asociacion Profesional de Cultivadores de Champignon de la Rioja y Asociacion profesional Castellano) who will focus on their respective domestic markets.

The goal of the campaign is to increase the consumption of mushrooms which is currently in decline. The campaign targets young adults and families with children, whose awareness about the health and nutritional aspects of mushrooms is low, and who know little about preparation and use.

"The campaign will clearly position the mushroom and inform the target group about their health and nutritional aspects. It will inspire the target group to consider using the mushroom in daily meals", explains Raymond van Buuren, Programme Director MPF.

The campaign uses a variety of complementary elements including newspaper advertising, online banners, SEO (search engine optimisation), social media, shop promotion and participation in consumers' fairs. The campaign will also use the interactive platform <http://www.champignon-id.com/> launched earlier this year by the MPF.

Godert Tegelberg, General Director Lutece and board member of MPF says: "We are incredibly pleased with this support. The consumer is largely unaware of this environmentally friendly product which is cultivated in Europe. Consumers' perception needs to be changed. We can really make a difference here, not only in the interests of employment in this sector which is worth more than €1 billion, but also its contribution to a healthy diet! The Mushroom Promotion Foundation has been specially set up to do this."

The core message is: mushrooms are healthy, delicious and quick and easy to cook.



## News from Australia - Glenn Cardwell

### ► Communicating Mushrooms' Benefits to Health Professionals

#### ► Exhibits

"It's not an apple a day, it's a mushroom a day" said a delegate attending the General Practitioner Conference and Exhibitions (GPCE) held in Sydney (May) and Brisbane (July). The Australian Mushrooms Growers Association's (AMGA) presence at GPCEs around Australia have proven to be a fantastic opportunity to promote mushrooms and their nutritional and health benefits to around 3,000 general practitioners (GPs) and 500 Practice Nurses. The Sydney event

is one of the two biggest doctors' conferences held in Australia each year, and attracts delegates from around Australia, New Zealand and the Pacific Islands. "Mushrooms are a low cal superfood" - It's wonderful when you hear a doctor say this at the AMGA display. Most of the delegates were aware that mushrooms were low in kilojoules although a few stated that they thought that the mushroom was low in nutrients until we put them straight. Many were not familiar with the research on mushrooms and the reduced risk of breast cancer, although they were impressed when shown the extent of the research in our new health professional brochure [Nutrition and Health, Surprises from the Mushroom](#) and the list of international researchers conducting mushroom research right at this moment.

Hundreds more Australian health professionals learn of the health and nutritional potential of the mushroom.



"You make the whole place smell fabulous. Less of that clinical smell we usually get." – said an attendee as we offered samples of stir-fried mushrooms with Brazilian spice mix. The aroma permeated the exhibition hall making it easy to attract delegates to our display. Mushroom tasting was the perfect way to get delegates to stay around the stand, discuss mushrooms and look at the posters displaying information on mushroom research and the CSIRO [Mushrooms and Health Report](#).

► **Vitamin D Seminar and Educational Workshops**

Rebecca Mason, Professor of Physiology and deputy Director of the Bosch Institute, University of Sydney gave an excellent seminar on vitamin D and

health sponsored by the mushroom industry. Glenn Cardwell, dietitian to the AMGA ran workshops on eating for bone health, focusing on calcium, sodium and vitamin D. This was well received as it gave doctors practical information they could forward to their patients.

### ► Dietitians Line up for Mushroom Breakfast

For the second successive year AMGA hosted a breakfast for dietitians attending the annual Dietitians Association of Australia (DAA) in Melbourne. The breakfast proved to be an even bigger success than our last one in Darwin. The breakfast was a “sell-out” with the maximum 150 dietitians booked in for the event held in the Melbourne Convention and Exhibition Centre.

Delegates arrived to find Fast Ed Halmagyi, our BBQ Mushrooms Ambassador and TV's *Better Homes and Gardens* star, charming them through a series of recipes they can quickly prepare at home to impress family and friends. Everyone then sat down to breakfast with a mushroom theme.

During the breakfast, Dr Louise Bennett from the CSIRO in Melbourne gave a presentation on how food and nutrition can influence brain health and ward off dementia. She said that her work with mushrooms had shown “very promising results” in preventing dementia. Her results are to be published in a scientific journal later this year.

AMGA's dietitian Glenn Cardwell gave the guests an update on mushroom research since the last DAA breakfast in 2009, including information on the vitamin B12 and vitamin D content of mushrooms. He also discussed research showing the reduced risk of breast cancer in mushroom consumers.

The breakfast is a superb means of introducing a key influencer group, such as dietitians, to the health benefits of mushroom. As a result of the excellent response to the Darwin and Melbourne breakfasts, we have agreed to be involved in the next DAA conference in Adelaide.



## News from the United States - Heidi Gengler

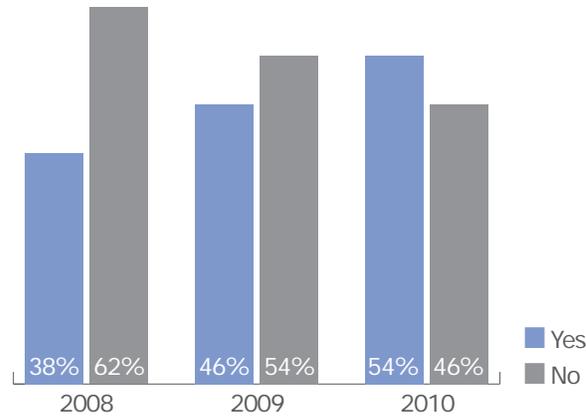
### ► Registered Dietitians Consider Mushrooms an Important Part of a Healthy Diet

In May 2010, the Mushroom Council conducted its third annual survey of *Today's Dietitian* magazine subscribers to better understand registered dietitians' knowledge and opinion of mushrooms. Surveys from more than 1,800 subscribers were collected and analyzed to measure the Council's efforts to educate this influential group of health professionals.

### Registered Dietitians Survey Results

Do you recommend mushrooms to your clients?

The number of dietitians recommending mushrooms to their clients increased by eight percent since 2009 and 16 percent since 2008.

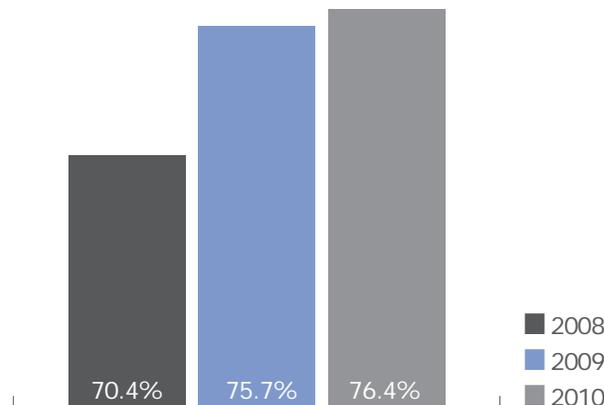


Notably, the number of respondents reporting that they recommend mushrooms to their clients increased by eight percent since 2009 and 16 percent since 2008. Additional survey results and year-over-year comparisons include:

- More than three-fourths (76 percent) of the dietitians surveyed recognized mushrooms as an “important,” “somewhat important” or “very important” contributor to a healthy diet, compared to 75 percent in 2009 and 70 percent in 2008.
- Nearly all of the respondents (more than 93 percent) are aware that mushrooms are low in calories, nutritious and part of a healthy diet.
- Approximately 80 percent of dietitians surveyed believe that mushrooms are good to include in a cancer-preventative/cancer-fighting diet and believe that mushrooms have natural antioxidants.
- Ninety-four percent of respondents believe that mushrooms are a good choice to include in a weight-loss diet.

### Registered Dietitians Survey Results

Do you recognize mushrooms as an “important” or “very important” contributor to a healthy diet?



While dietitians were quick to recognize the general nutritional benefits, interestingly fewer dietitians acknowledged mushrooms as a significant source of specific nutrients including vitamin D, selenium, copper and potassium, as well as antioxidants and aromatase-inhibiting compounds. Additionally, the majority (approximately 75 percent) of dietitians reported that they do not use the word “superfood” while counseling clients as it may suggest consumers may have unrealistic expectations and expect too much from foods that are identified as “superfoods.”

These results suggest dietitians are focusing on total dietary patterns as opposed to specific nutrients, and may also indicate that dietitians are tentative to link foods to single health benefits, such as increased immunity or reduced cancer risk. Overall, the survey results demonstrate the positive opinion dietitians have for mushrooms, evidenced by their awareness and client recommendations. The Mushroom Council has worked to reach this group of health professionals and shares the nutritional profile and health benefits of mushrooms via quarterly nutrition newsletters, mailings to leaders within the American Dietetic Association (ADA), and participation in industry conferences (e.g. the ADA's annual Food & Nutrition Conference & Expo).

Be sure to visit the Mushrooms and Health website <http://www.mushroomsandhealth.com/>

► **Initiative project team**

- Greg Seymour, President, ISMS General Manager AMGA, Australia; Manager, Mushrooms and Health Global Initiative
- Bart Minor, President, Mushroom Council, United States
- John Collier, Group Research and Development Manager, Monaghan Mushrooms Ltd, Republic of Ireland
- Mary Jo Feeney, Mushrooms and Health Global Initiative Operations Manager, Bulletin Editor, United States
- Glenn Cardwell, Accredited Practising Dietitian, Nutrition Impact P/L, Australia
- Chris Rowley, Communications Consultant, Australia
- Heidi Gengler, Vice President, Edelman Public Relations, United States

► **Strategic communications group**

Members of the Strategic Communications Group strengthen the Initiative's communication capability and develop a local public relations presence in each country whose industry is contributing financially to the project. Members of this group help facilitate stories about mushrooms and health appearing in their local media, monitor mushroom nutrition and health research, liaison with scientists, media and other influencers, and provide feedback to the Initiative. They include

- Vicky Cook - United Kingdom
- Franz Schmaus - Germany
- Francois Marche - France
- Ignace Deroo, Evy Detroch - Belgium
- Jose Antonio Jimenez Hernandez - Spain
- Kent Stenvang - Denmark
- Raymond van Buuren - Netherlands
- Elizabeth O'Neil - Canada