LONG ISLAND INSTITUTE OF FOOD TECHNOLOGISTS

GAZETTE

Monday, Feb.6, 2017

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The Impact of Flavor Compounds on Health

Presented by Ivica Labuda, PhD.
Georgetown University

Flavor and fragrance compounds are intriguing chemical entities. Besides, enhancing food and attracting humans, they have various other roles. For instance, some of them stimulate peripheral physiological and cognitive responses in living cells. Many recent publications look into the additional properties of flavor and fragrance molecules, especially their impact on gene expression. In this presentation, Dr. Labuda will give some examples of terpenes and phenolic compounds and discuss their physiological effect— in particular, on skin, and how they change gene expression to help skin protect it self against ultraviolet rays.

About Ivica Labuda, PhD.

She is an adjunct Professor at Georgetown University, lecturing on Food Biotechnology, Fermentations, and Entrepreneur Biotechnology. She is a founder of consulting company Biokeys for Flavor, LLC and a skincare company NovaKera, LLC. Earlier Ivica worked for companies such as Kraft, Givaudan, Cultor-Danisco and Pepsi at various research and management roles. Ivica hold 13 patents; she authored peer-review publications and several book chapters.

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From The Chair:

A happy, healthy and prosperous 2017 to everyone!

Our meeting schedule is all set for 2017: Dr.Ivica Labuda, will speak for our Feb.6th meeting, on "The Impact of Flavor Compounds on Health." Our April meeting will feature the current IFT President, Dr. John Coupland, and our June meeting will have Alan Johnson speak about USDA Organic. This is a wonderful variety of topics that our membership should take advantage of.

We would like our membership to give us ideas for speakers for the next Long Island IFT season. If you have a topic of interest that you would like to present, just let any of the board members know about it. Our contact information is to the left.

Help us to keep our section interesting and informative!

Frank Vollaro for the Executive Board

Upcoming meetings:

April 3, 2017- "Communicating the Science of Food." presented by IFT President, and Professor of Food Science, Penn State Univ., Dr. John Coupland

June 5, 2017- "The Meaning of USDA Organic—presented by Alan Johnson, Independent Consultant

Watch the LIIFT Gazette for particulats

check out our website: www.longislandift.org

MEETING PLACE & DIRECTIONS

Date: Monday, Feb. 6, 2017

Place: The Inn at New Hyde Park
214 Jericho Tpk.
New Hyde Park, N.Y. 11040

Directions: go to www.innatnhp.com

Times: 6:00PM-7:00PM, cash bar, networking
7:00PM– 8:00PM, dinner
8:00PM– speaker

Price: $40.00 per person with reservation
$50.00 per person at the door

Reservations: Carol Zamojcin @ 516-352-5772, anytime before Fri. Feb.3rd.

The Need for Third-Party Certification of Dietary Supplements

In today's market, it is vital for reputable manufacturers to demonstrate the quality of their products and verify the accuracy of label claims.

by Cheryl Luther
General Manager, Dietary Supplement Programs
NSF International

Rob Ninkovich learned a costly lesson in September *[2016]*. The New England Patriots defensive end was suspended for four games after testing positive for a banned substance—one he wasn't aware he had taken.

Mr. Ninkovich told ESPN, "Any supplement I've ever used was bought at a store. I was unaware something I bought had a substance in it that would give me a positive test because it wasn't listed [as an ingredient on the label]."

Most people in the dietary supplement industry—and many professional and elite athletes—know that checking the label isn't always enough. In the last 18 months, the U.S. Department of Justice pursued civil and criminal cases against more than 100 dietary supplement companies for supplements containing unlisted ingredients or making unsupported claims. The U.S. FDA has seized products and shut down several manufacturers for violations of 21 CFR Part 111 and courts are handling down hefty fines and contempt sentences.

Additionally, recent research published in *Drug Testing and Analysis* identified oxilofrine, labeled as deriving form bitter orange or acacia, in 14 supplements. Other investigations have found DMAA falsely labeled as an extract of geranium, DEPEA marketed as an extract of dendrobium orchid and DMBA labeled as an extract of pouchong tea. These banned ingredients can endanger health and be particularly harmful to athletes who may be suspended for unknowingly taking products that contain banned substances masquerading as legitimate products. As the Patriots' Mr. Ninkovich discovered., you can't always trust what's on the label.

As this high-profile case illustrates, the actions of few bad or careless manufacturers can irrevocably harm brand reputations and reflect negatively on the entire supplement industry. Fortunately, reputable companies can seize this opportunity to showcase their products' safety, verify label claims and differentiate themselves in the marketplace. Independent, third-party certification of dietary and sports supplements and ingredients helps ensure safer, quality products.

Three Levels of Compliance and Certification

So how do reputable manufacturers demonstrate the quality of their products and verify the accuracy of label claims? Independent, third-party organizations like NSF International currently certify to three levels of compliance and certification standards.

First, supplement manufacturers must demonstrate regulatory compliance and adherence to Good Manufacturing Practices (GMPs).

Next, supplement manufacturers can certify their products to *NSF/ANSI 173; Dietary Supplements,* the official American National Standard for dietary supplement products.

Finally, the highest level of independent, third party, certification requires testing on a lot-by-lot basis for more than 245 athletic banned substances. The NSF Certified for Sport program is an example of this most rigorous level of certification.

Let's take a closer look at the steps required to achieve the highest level of independent, third-party certification.

Regulatory Compliance & GMPs

First, supplement companies are required to ensure their products are not contaminated, mislabeled or harmful, and comply with

regulatory standards such as 21 CFR Part 111, Good Manufacturing Practices (GMP). Testing and certification ensures ingredients meet these requirements for quality and safety, provides documented evidence of ingredients and test results, and verifies label claims.

GMP guidelines require processes and documentation to assure a product had the identity, strength, composition, quality and purity that appear on its label. GMP guidelines apply to dietary supplement, ingredient and raw material manufacturers and to distribution, warehousing and packaging companies. GMP regulations also require identification of all raw ingredients..

Verifying GMP's involves assessing the physical plant and grounds, personnel, equipment, production and processes control systems, holding and distribution processes, record keeping and procedures for handling recalls, product returns and product complaints.

Certification to ANSI for Dietary Supplements

Next, supplement manufacturers can work toward dietary supplement certification. In addition to passing twice-annual GMP audits, certification requires products to be tested to verify compliance with *NSF/ANSI 173: Dietary Supplements,* the official American National Standard for dietary supplement products. This includes:

Label claims and content verification, as well as contaminant testing. Certification verifies the contents of the package are the same as the label and that there are no harmful levels of specific contaminants;

Verification of product formulation and label claims through a toxicology review;

Ongoing monitoring to verify compliance through periodic auditing and testing.

Contaminant testing includes metals that pose health risks (e.g., lead, mercury, arsenic, cadmium and chromium VI) microbial contaminants, aflatoxins, pesticides and herbicides. Testing can also detect fillers and allergens, even at very low abundance (down to a few molecules of DNA). This helps prevent possible allergic reactions and ensures manufacturers are getting the ingredients they are paying for. The standard also provides criteria for determining that GMPs were followed in the production of dietary supplements.

Certification to *NSF/ANSI 173: Dietary Supplements* provides a means to source safer products, raw materials and ingredients. Regardless of where ingredients are sourced, proper testing and qualification of suppliers is paramount to maintaining control over the supply chain and ensuring the quality and safety of finished products.

Sports Supplemental & Ingredient Testing

Finally, supplement manufacturers can take an extra step and work toward independent certification for safer use by athletes. For example, the NSF Certified for Sport program builds on the *NSF/ANSI 173: Dietary Supplements* standard by screening for athletic banned substances. This rigorous certification program was developed with regulatory, sports industry and consumer groups to help athletes and consumers choose supplements that do not contain banned substances.

Because each product is unique, certification involves customized test methods relevant to the particular type of supplement. For example, ingredients known to contain aristolochic acid are assayed for it, botanicals are screened for pesticides, and glycerin products are tested for diethylene glycol.

Sports supplements are tested on a lot-by-lot basis for more than 245 athletic banned substances from the World Anti-Doping Agency (WADA), NSF Annex B, NFL and MLB prohibited substance lists. Testing covers various pharmacological activity classes, including anabolic steroids (e.g. testosterone and stanozolol) stimulants (e.g. amphetamine and DMAA), diuretics

(e.g., chlorothiazide and bumetanide), beta agonists (e.g., albuterol and salmeterol), beta blockers(e.g. atenolol and metoprolol), narcotics (e.g.. morphine) and cannabinoids (e.g., THC), hormones and masking agents. This list is monitored and updated as new substances are discovered or banned. This is why the NSF Certified for Sport program is used by NFL, NHL, MLB, PGA, LPGA, Canadian Centre for Ethics in Sport (CCES) and the New York City Police Department.

Increased Demand for Quality

The dietary supplements industry is responsible for ensuring product safety. More and more athletes are looking for certified products, and consumers are increasingly savvy, demanding transparency and trust. Being able to prove that what is on the label is actually what's in the product is beneficial for producers, suppliers retailers and consumers.

Testing and certification increase product quality and reduce the risk of adverse events caused by unidentified ingredients, of litigation and of regulatory action. Consumers and athletes can trust NSF/ ANSI 173 and NSF Certified for Sport certification labels when purchasing supplements. They can be confident that consuming certified products will not result in accidental doping or adverse health effects.

About Cheryl Luther, DC:

Cheryl is general manager of NSF International's Dietary Supplements Program. She has extensive experience in physiotherapy and athletic performance as a sports practitioner, amateur and professional athlete and coach. As a Certified Chiropractic Sports Physician (CCSP), she consults with athletes in the NBS, and NHL, as well as U.S. Olympians and Para-Olympians.

This article can be found in *Nurtaceutical World,* November, 2016.