# UNPA ASIA REPORT

*A special section produced by the United Natural Products Alliance*

## Navigating China's Blue Hat registration: Why a China-based partner is critical

Also:

- Keeping 'reasonably anticipated' contaminants out of products
- U.S. Supreme Court decision on vitamin C price fixing
- Establishing botanical quality and purity

UNPA
UNITED NATURAL PRODUCTS ALLIANCE

**INSIDE | 2Q18**

# INTERESTED IN THE U.S. SUPPLEMENTS MARKET?

**As your industry partner, UNPA will help you reach your strategic business goals.** The United Natural Products Alliance (UNPA) is an international association representing more than 100 leading natural products, dietary supplement, functional food, and scientific and technology and related service companies that work together to create collaborative problem solving and to enhance market opportunities for its members.

## UNPA offers the following key services:

### ADVISORY/CONSULTING SERVICES

- Foreign/U.S. investments
- Key contact introductions
- Due diligence
- Product R&D
- Business reports
- Scientific & technical services
- U.S. operations: manufacturing, warehousing, etc.
- Product liability insurance
- Marketing services (translation, materials development, etc.)

### BUSINESS DEVELOPMENT

- Distribution
- Analytical testing for ingredients
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- Marketing services: consumers, trends, purchasing habits
- "Made in USA": How to bring top brands and services to China

...plus much more!

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- Import requirements
- Food Safety Modernization Act (FSMA), including PCQI/FSVP


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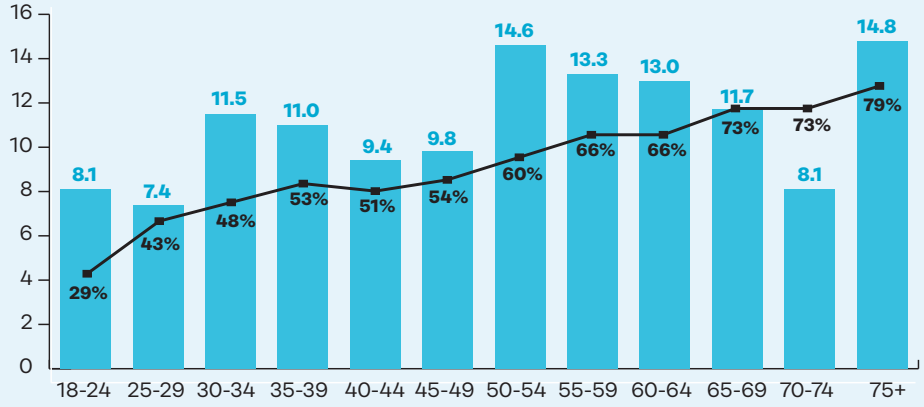
## U.S. supplement use by age groups




*Supplement usage in the United States increases with age, especially for most users age 50 and older. With an aging population, the U.S. market for supplements looks promising for the foreseeable future.*

Source: Simmons Market Research, Winter 2016 Simmons NCS Adult Study

## Why ASEAN will be boom region for supplements and nutrition products

The vast potential for supplements, functional foods and high-value nutritional products in Southeast Asia has been underlined by a new report, which highlights them as "sunrise industries"—namely, industries that are tipped to achieve considerable success.

The report, written by Australia's Commonwealth Scientific and Industrial Research Organization, focuses on the 10 member nations that comprise the Association of Southeast Asian Nations (ASEAN): The Philippines, Thailand, Vietnam, Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar and Singapore. The report highlights that ASEAN had the world's third-largest population in 2016 and is on course to have the world's fourth-largest economy by 2030.

Indonesia's middle class is projected to be the eighth largest by 2020 and become the fourth largest by 2030. Thailand, the Philippines and Vietnam are also expected to see large-scale growth to their middle class.

The report indicates that the greatest demand for high-value nutrition products is likely to come from markets with rapidly expanding middle classes. "While the production of high-value nutrition products within ASEAN is still in a nascent stage despite high demand, there are a few potential hubs," the report states. **—Nutraingredients-asia.com**

## Chinese scientists sequence antimalarial plant genes, finding way to extract more medicine

Chinese researchers reported in the journal *Molecular Plant* a high-quality draft genome sequence of *Artemisia annua*, a Chinese shrub producing a potent antimalarial compound, artemisinin, and a way to extract more antimalarial medicine from the plant.

The findings can be used to metabolically engineer plant lines that produce higher levels of artemisinin as the low amount of artemisinin produced in the leaves of this sweet wormwood does not meet the global demand.

"Nearly half of the world's population is at risk of malaria," said senior study author Tang Kexuan of Shanghai Jiao Tong University. "Our strategy for the large-scale production of artemisinin will meet the increasing demand for this medicinal compound and help address this global health problem."

According to the World Health Organization, malaria affected approximately 216 million people in 91 countries in 2016 and caused an estimated 445,000 deaths worldwide that year alone. **—ECNS.cn**

## Pharma deal could prove among sector's biggest consolidations

China Resources Pharmaceutical Group (CR Pharma) appears ready to assume a controlling stake in state-owned rival Jiangzhong, as China seeks to slash medicine costs and improve quality assurance.

CR Pharma, one of the nation's largest drug makers and distributors, has confirmed it is in talks to buy a controlling stake in the country's fifth largest Chinese traditional medicine maker, as part of industry consolidation encouraged by the Chinese government to cut health care costs.

The move is part of a "long-term strategic cooperation" pact CR Pharma wants to forge with the Jiangxi government and is aimed at "promoting development" of the province's pharmaceutical industry. Jiangzhong is 41.5-percent owned by the provincial government, which also owns a 43 percent stake in Shanghai-listed Jiangzhong Pharmaceutical, which has a market capitalization of 7.6 billion yuan (US$1.2 billion).

At current prices, the deal could be worth in excess of 3.9 billion yuan, making it one of the largest pharmaceutical deals yet within China's consolidation of the sector..

**—South China Morning Post**

## China cross-border, e-commerce access: 'Too early to say what will happen in 2019'

Exporters to China have been told to 'watch this space' over cross-border e-commerce rules, which provide the easiest access to the nation's soaring supplement market, but are due to end this year.

Speaking at the Natural Products New Zealand Summit, New Zealand Trade and Enterprise trade commissioner David Paling stated that it was too early to tell if the extension to the cross-border e-commerce regulation would remain in place past the end of 2018. The regulation, which had been scheduled to expire at the end of 2017 was granted a one-year extension. The cross-border e-commerce regulation allows for products shipped to a bonded warehouse in China to be sold via e-commerce sites to be treated as personal trade rather than commercial, allowing firms to bypass complex requirements.

"The extension gave us a little stability, but we are waiting to see what happens next," Paling commented. "Hopefully, it will be business as usual but, watch this space."

He went on to add, "By and large, we hope to have continued market access through cross-border e-commerce through 2019, but there is always a chance it could become more difficult and more costly."

**—Nutraingredients.com**

## Asia Pacific is sports nutrition's next hot spot

Global sports-nutrition sales grew from $8.4 billion in 2012 to $13.6 billion in 2017 and are expected to reach almost $19 billion by 2022. Core users, such as body builders and professional athletes, as well as new consumers, who are increasingly embracing fitness trends, thus incrementally building a broader sports-nutrition client base, support this global expansion.

North America has historically dominated sports-nutrition sales due to the mature U.S. market. In fact, the U.S. alone has represented more than 60 percent of global value sales each year over the past 10 years, reaching $8.4 billion in 2017. But even though North America, and specifically the U.S., accounts for the majority of global sports-nutrition sales today, sales in Asia Pacific are expected to grow at the fastest pace moving forward.

Looking ahead, Asia Pacific is projected to be the fastest-growing sports-nutrition region, with a 10 percent compound annual growth rate between 2017-2022 and is set to reach $1.3 billion by 2022 (up from $816 million in 2017). In this region, sales are mainly driven by two markets, Japan and China, which had combined sales of $432 million in 2017, representing over 50 percent of regional sales and together set to reach $812 million by 2022.

**—Nutritional Outlook**

## 2018 Trade Shows & Conferences

**IADSA 20th Anniversary Week**
*June 19-21 • London*

**SupplySide China**
*June 28-30 • Guangzhou, China*

**Institute of Food Technologists 2018**
*July 15-18 • Chicago, Ill.*

**NBJ Summit**
*July 16-19 • Rancho Palos Verdes, Calif.*

**Vitafoods Asia**
*September 9-11 • Singapore*

**Natural Products Expo East & All Things Organic**
*September 12-15 • Baltimore, Md.*

**China International Import Expo**
*November 5-10 • Shanghai, China*

**SupplySide West**
*November 6-10 • Las Vegas, Nev.*

**For more information, visit www.unpa.com/events**

## Nature's Care sale: Chinese private-equity firms take majority stake in Aussie supplement brand

Two Chinese private equity firms, JIC Investments and Tamar Alliance Fund, have bought a majority stake in Australian vitamin manufacturer Nature's Care for a reported A$800 million.

JIC Investments, a wholly owned subsidiary of the state-run sovereign fund China Jianyin Investment Ltd., and Tamar Alliance Fund, likewise, a wholly owned subsidiary of China's largest conglomerate, CITIC Ltd., purchased the company to take advantage of the reputation Australian supplements hold as being producers of safe, clean and sustainable health-boosting products.

Tom Coleman, Nature's Care CEO, told media that the buyout was expected to increase distribution in China, where the company has been targeting higher-end customers.

**—Nutraingredients-asia.com**

*A pending U.S. Supreme Court case may have a big impact on vitamin C pricing.*

# Outcome of vitamin C price-fixing case to impact industry in U.S. and China

By Jim Prochnow

Price-fixing is not a new topic in the vitamin C industry. It is a decades-old theme, with origins in China beginning in about 1978 that continues to gain momentum due to the economic policies of the Chinese government.

Although most dietary supplement companies are very familiar with the Dietary Supplement Health and Education Act (DSHEA) and the 21 CFR Part 111 regulations, antitrust principles and their effect on prices paid by supplement companies to vitamin C suppliers—which are ultimately passed on to consumers—are

**Continued on page 6**

## U.S. nutrition industry strengthening bridge to China

China has always been important to the supply side of the U.S. health and nutrition industry, but smart businesses are tapping into the growing significance of the Chinese consumer base. Yet, accessing the market of more than one billion people is not an easy task for U.S.-based brands that must navigate regulation and communication barriers.

The United Natural Products Alliance (UNPA) is working to strengthen the bridge to China by creating memorandum of understanding agreements with several Chinese organizations.

In a recent podcast, Loren Israelsen, UNPA president, discussed how the U.S. and Chinese natural products industries are starting to align. Israelsen noted that the U.S. industry has traditionally thought of the China market from the supply perspective but it is now also emerging as the biggest consumer market for natural health products in the world, which is very interested in U.S. and Western products. Many companies in the U.S. are interested in the China market but entering China is "easier said than done," he said.

Brand holders in China are also interested in reaching U.S. consumers, Israelsen noted. "It's new to them, and they need advice and help." Israelsen discussed the regulatory issues that U.S. ingredient and finished brands face as they enter the Chinese market; the efforts to harmonize quality standards between the United States and China, so brands and consumers can trust the safety and efficacy of products; and UNPA's partnerships with China Nutrition Health Food Association (CNHFA) and *Asiaceutical Insights,* and how those are helping create a deeper connection between the two markets.

To listen to the podcast, visit: https://bit.ly/2LjYEfw

**—NaturalProductsINSIDER**

## China's emerging dietary supplement market: Opportunities and challenges in 2018

With China's Food and Drug Administration still struggling to smooth the regulatory process for dietary supplements, China's domestic supplement players are focusing heavily on cross-border investment and e-commerce, creating attractive opportunities for international brands.

China's rapidly growing middle class is driving demand for higher quality health products from brands they trust. Currently, this means imported brands from the United States, Australia and New Zealand.

"There are still some local concerns about local manufacturing and safety, so strong Western brands are very attractive to Chinese investors," noted William Hood, founder of investment banking firm William Hood & Co., speaking at Natural Products Expo West in March.

It is projected that by 2020, China's middle class will triple in size to 400 million. Unfortunately for Chinese supplement brands, China's own internal regulatory roadblocks continue driving investors overseas, slowing domestic growth.

Even as regulators seek a more streamlined process for supplements, investors, retailers and consumers continue to focus on cross-border e-commerce. Chinese customers are most interested in well-established international brands and do their own Internet research to discover what's popular internationally. "A strong online and social media presence, through growing Chinese social media platforms like WeChat, is important for international brands hoping to reach Chinese consumers," stated Jeff Crowther, executive director of the U.S.-China Health Products Association.

"Investment is the fastest way for the Chinese domestic industry to grow," he continued. "Having an investment or controlling power in these international brands gives these players an advantage as the industry continues to develop."

**—Nutritional Outlook**

# Vitamin C price fixing

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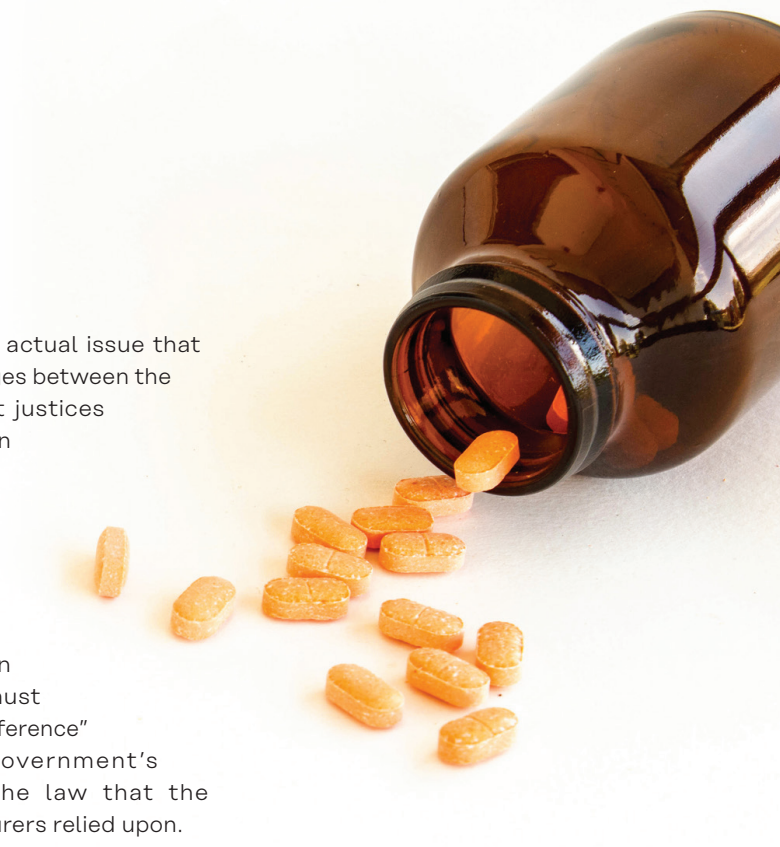


not the topic of regular conversations and are not generally well understood.

Simply stated, price competition between or among competitors results in lower prices from suppliers and to consumers. That is why a case pending before the U.S. Supreme Court is so important to the dietary supplements industries in both the United States and China.

## Implications of Supreme Court decision

The prices paid by U.S. dietary supplement companies that include vitamin C in their products or who sell vitamin C as a sole-ingredient product are likely to be significantly affected by a decision expected shortly from the court. On April 24, it heard heated arguments in the case of Animal Science Products and The Ranis Co. v. Hebei Welcome Pharmaceutical Co. and North China Pharma Group on the issue of whether it should affirm a September 20, 2016 decision of the federal Court of Appeals for the Second Circuit.

That appellate court had overturned a $150 million award and a permanent injunction, which prohibited further anti-competitive behavior, rendered in March 2013, in a federal trial court in Brooklyn. The decision was in favor of two U.S. buyers of vitamin C, who, in 2005 in a class-action lawsuit, had accused several Chinese vitamin C manufacturers of price fixing and manipulation of the supply of vitamin C in the United States.

The principal defense of the Chinese vitamin C manufacturers, who controlled 80 percent of the U.S. vitamin C market at the time, was that they were compelled by Chinese law to refrain from price competition and to limit the volume of vitamin C that they exported to buyers in the United States. The U.S. buyers disagreed and argued that Chinese law does not actually compel the manufacturers to engage in their alleged anti-competitive activity.

Not surprisingly, the actual issue that occupied the exchanges between the nine Supreme Court justices and the lawyers when the case was argued was not whether price-fixing or supply manipulation had occurred, but whether courts in the United States must accord "conclusive deference" to the Chinese government's interpretation of the law that the defendant manufacturers relied upon.

This issue of deference, often called "international comity," is not new to federal courts, but what makes this an uncommon case is that the Chinese government, through its Ministry of Commerce, actively participated in a case between these private parties. It did so by filing, with the trial court's permission, a comprehensive, detailed, evidentiary statement/declaration that supported the defendants' interpretation of the Chinese law and pointed out that the defendants could not comply simultaneously with U.S. and Chinese law.

## Experts differ on probable outcome

Frequent followers of the Supreme Court expect a decision by the end of June but differ on the probable outcome. The impact of the court's opinion will in part, depend on the reasoning or explanation of the majority of the Justices.

Assuming the court decides the case in favor of the plaintiffs, there could be a significant reduction in price on future vitamin C sales to companies in the United States. It is possible, however, that prices would not drop in the immediate future if each or some of the Chinese vitamin C manufacturers decided to stay out of the U.S. vitamin C market for a period of time, while they assess the economic effect of the court decision on their profits and operations.

On the other hand, if the court does not reverse the decision of the Court of Appeals, the logical result would be a continuation of the current vitamin C pricing structure. If this occurs, as suggested by the appellate court, President Trump could exert political pressure on the Chinese government to affect pricing going forward, consistent with his campaign promises of curbing what he has called abusive Chinese trading tactics. Whether this option would actually be implemented is a mixed political and economic issue for the executive branch.

In summary, this decision will be carefully evaluated by many countries and in markets well beyond those for vitamin C. ■

*Jim Prochnow is a former chair of the Colorado Bar Association Committee on Antitrust Law and received his antitrust law education at Georgetown University. He is a shareholder in the Denver office of Greenberg Traurig and specializes in the representation of dietary supplement, medical food and conventional food companies. He is a former litigator with the Department of Justice and White House lawyer.*

# SupplySide China helps companies learn intricacies of Chinese market

The global healthcare trade industry is growing exponentially, and China's health and nutrition industry is expanding along with it. The Chinese market is now second only to the $41 billion U.S. dietary supplement market, with sales revenues now estimated at RMB200 billion (US$31 billion). Business opportunities for supplement and health products companies interested in the Chinese market are vast, but entering the huge market also takes commitment and careful planning.

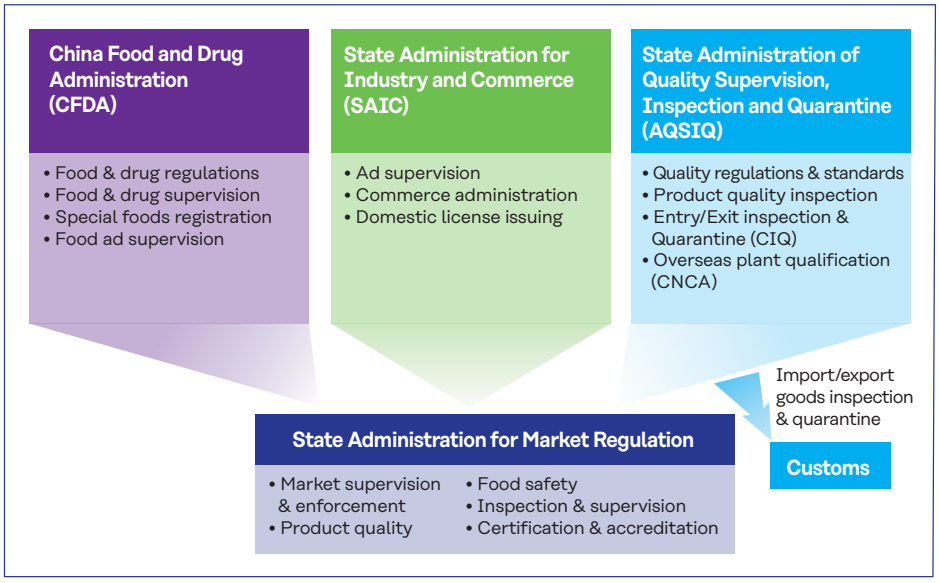
To help companies get ahead of this curve, Informa Exhibitions will debut the Chinese version of its successful U.S. SupplySide shows this month. SupplySide China 2018 will take place June 28-30 at the China Import and Export Fair Complex in Guangzhou, China, in conjunction with the 27th Inter Health Expo.

Demand for health products is expected to see continued growth in China, according to James Xiao, project manager, Global Exhibitions for Informa Exhibitions, the organizer of the event. "The development of a 'Healthy China' is central to the Chinese government's agenda for health and development and has the potential to reap huge benefits for the rest of the world," said Xiao. "The strategic opportunities of China's health and nutrition industry are coming."

## Understanding China opportunities

SupplySide China will provide industry stakeholders with a professional and focused platform to unite industry suppliers and buyers to build relationships, share expertise, gain an understanding of the latest industry developments, as well as access this expanding market and open new business opportunities, Xiao explained.

The event will include a three-day exhibition featuring a conference and workshops. Presentations will explore topics, including anti-aging, digestive health, sports nutrition, law and regulations and finance and investment. Experts and industry professionals from around the world will discuss the state of the science, the latest industry innovations and trends, new ingredients and solutions and the opportunities and challenges that will help industry stakeholders keep up with this rapidly changing market.




## New State Administration for Industry and Commerce

An example of how the regulatory framework is evolving and can impact companies looking to export product to China was the March vote in which the 13th National People's Congress of China voted to adopt a decision on the institutional reform plan of the State Council. As a result, Xiao explained, a combined and integrated institution called the State Administration for Market Regulation was established. The responsibilities of the new State Administration for Industry and Commerce (SAIC) now include the State Administration of Quality Supervision, Inspection and Quarantine (AQSIQ), the China Food and Drug Administration (CFDA) and duties of price supervision and inspection and anti-monopoly enforcement of the State Development and Reform Commission, among other agencies (see chart above). ■

*For more information on SupplySide China visit supplysidechina.com.*

### UNPA to present on U.S. market opportunities at SupplySide China

The SupplySide China education sessions, to be held June 28-30 in Guangzhou, China, will help educate attendees looking to develop business in other global markets, including the United States. The United Natural Products Alliance (UNPA), for example, will present a workshop on how to enter the U.S. market, including a market overview and information on regulatory compliance. Speakers will include UNPA President Loren Israelsen, Larisa Pavlick, VP of global regulatory and compliance, and Daniel Mabey, Asia general manager for UNPA.

# Regulatory update:

## Nutrition & Supplement Facts labels and Prop 65

### Changes to labeling laws and expansion of California's chemical warnings looming

By Frank Lampe

Like other highly regulated industries in the United States, it's imperative for the dietary supplement industry to be aware of the new and evolving rules that oversee the sourcing, manufacturing, distribution, claims and marketing of its products. Here are two areas of regulation that are changing and which will have a major impact on supplement manufacturing and production.

**Supplement Facts: Compliance dates extended**

Effective July 2016, the U.S. Food and Drug Administration (FDA) enacted a major revision to the Nutrition Facts labels on foods in order to better provide updated nutrition information to assist consumers in maintaining healthy dietary practices and to help them make more-informed food choices. Many of these changes also impact the Supplement Facts labels for dietary supplements.

Based on comments it received, FDA delayed the compliance date for the label changes for manufacturers with $10 million or more in annual sales to Jan. 1, 2020. Manufacturers with less than $10 million in annual sales will now need to comply by Jan. 1, 2021.

As with the new food label, the agency will no longer require information on vitamins A or C (unless you're making a specific claim or for product requirements) or calories from fat, although inclusion is allowed, if desired on supplement labels. However, vitamin D, potassium and "added sugars" content must be declared, and there are new rules about how fiber and sugars are listed.

Of interest, the new labels require a footnote for labels for "certain products represented or purported to be for use by children 1 through 3 years of age."

Most important, perhaps, is that "daily values" have been updated, based on new science, and these changes are extensive. For example, vitamin C daily values move from 60 mg to 90 mg; vitamins B6 and B12 values were decreased, while those for phosphorous, magnesium and potassium were all increased.

New for the updated Supplement Facts label is a required order for nutrients. For example, when declared, choline must follow potassium on the label, and fluoride must be at the end of the list of nutrients.

Manufacturers will also have to rethink and update units of measure to determine the new daily values. For example, the measurements for vitamin D and vitamin E as a tocopherol are changing from IU to mcg and mg, respectively. Further complicating things, according to analytical testing lab Covance, FDA considers the addition of synthetic tocopherol at half the potency of the natural form of the vitamin; other related forms, including beta, delta, gamma and tocotrienols "may have antioxidant properties of value to a product but are not to be counted toward vitamin E content."

**California's Prop 65: Warnings expanded, August compliance date**

California's Proposition 65, also known as the Safe Drinking Water and Toxic Enforcement Act of 1986, requires businesses to provide warnings to Californians about "significant" exposures to chemicals that cause cancer, birth defects or other reproductive harm. The law requires the state to publish a list of chemicals known to cause cancer, birth defects or other reproductive harm, which is updated annually and now includes approximately 900 chemicals.

**Continued on page 9**

**Nutrition Facts**

17 servings per container
**Serving size** **3/4 cup (28g)**

**Amount per serving**
**Calories** **140**

| | % Daily Value* |
|---|---|
| **Total Fat** 1.5g | **2%** |
| Saturated Fat 0g | **0%** |
| *Trans* Fat 0g | |
| Polyunsaturated Fat 0.5g | |
| Monounsaturated Fat 0.5g | |
| **Cholesterol** 0mg | **0%** |
| **Sodium** 160mg | **7%** |
| **Fluoride** 0mg | |
| **Total Carbohydrate** 22g | **8%** |
| Dietary Fiber 2g | **7%** |
| Soluble Fiber <1g | |
| Insoluble Fiber 1g | |
| Total Sugars 9g | |
| Includes 8g Added Sugars | **16%** |
| **Protein** 9g | **18%** |
| Vitamin D 2mcg (80 IU) | 10% |
| Calcium 130mg | 10% |
| Iron 4.5mg | 25% |
| Potassium 110mg | 2% |
| Vitamin A 90mcg | 10% |
| Vitamin C 9mg | 10% |
| Thiamin 0.3mg | 25% |
| Riboflavin 0.3mg | 25% |
| Niacin 4mg | 25% |
| Vitamin $B_6$ 0.4mg | 25% |
| Folate 200mcg DFE (120mcg folic acid) | 50% |
| Vitamin $B_{12}$ 0.6mcg | 25% |
| Phosphorus 100mg | 8% |
| Magnesium 25mg | 6% |
| Zinc 3mg | 25% |
| Choline 60mg | 10% |

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

*Among the changes to the Nutrition Facts label, daily values for ingredients like vitamins C, B6, B12 and magnesium have been changed to reflect new science.*

# Meet the UNPA staff: Larisa Pavlick

*Larisa Pavlick*

It's unusual, bordering on rare, when a person with more than eight years of experience as a consumer safety officer for the U.S. Food and Drug Administration (FDA) chooses to use that experience to help one of the industries she was responsible for investigating.

But that's exactly what happened when Larisa Pavlick joined the United Natural Products Alliance in 2016. Pavlick had been responsible for good manufacturing practice (cGMP) inspections of food (21 CFR Part 117) and dietary supplement (21 CFR Part 111) manufacturing facilities in a number of states in the Western United States and internationally, and she brought a wealth of regulatory and compliance knowledge and a unique perspective to her role as UNPA's vice president of global regulatory and compliance. While at FDA, Pavlick visited more than 200 food and supplement facilities.

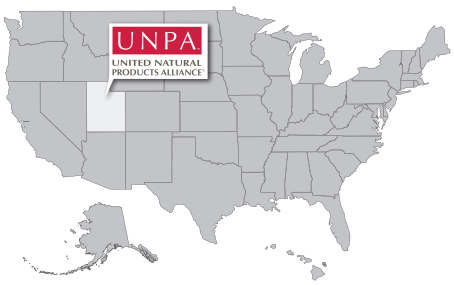
Pavlick is no stranger to the natural health products industry, however. Before joining FDA, she enjoyed a long career in the dietary supplement industry and served in a number of capacities, including manufacturing, quality assurance, product formulation and development and other science- and technology-based positions. Among many other accomplishments, she has helped develop botanical products, utilizing Traditional Chinese Medicine, ethnomedicinal plants and Ayurveda.

### A passion for supplements

Ask anyone that knows her, and they'll tell you that Pavlick has a passion for the dietary supplements and natural products industry and for helping others.

While she's been at UNPA, Pavlick has been instrumental in the development and establishment of trainings to help teach UNPA members and the industry how to be in compliance with the federal regulations that govern the dietary supplement industry, especially those enacted as part of the Food Safety Modernization Act, including the Preventive Controls for Human Food rule and Foreign Supplier Verification Programs trainings.

When she's not working and spending time with her family, you will likely find Pavlick exploring the great outdoors, including the many activities that Colorado has to offer, whether it's exploring the back roads of Colorado astride her Harley Davidson motorcycle, kayaking, hiking, biking, boating and water sports or camping. She's also an avid gardener and a voracious reader. ■




*UNPA is headquartered in Salt Lake City, Utah*

# Regulatory update

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What's changing is that the revised warnings will alert consumers to the specific chemical(s) in the product, as well as how they might be exposed—and how they can reduce or eliminate possible exposure. The state also amended the responsibilities of manufacturers and retailers in informing consumers about the warnings.

*California's Prop 65 now includes a new warning label.*

Unlike the delay in federal label changes mentioned above, the Prop 65 changes come into effect on Aug. 31 of this year. If you sell products in The Golden State—the world's fifth largest economy—the clock is ticking.

Key amendments to the labeling law:

- If required, Prop 65 warnings must now state that the product "can expose" users to a chemical or chemicals
- Warnings to include the name of the chemical
- A link to the state's Prop 65 website
- A new warning symbol
- More information for certain types of exposures and products
- Warnings for listed chemicals in products sold on websites
- Some warnings to be issued in other languages.

This extremely brief review of the changes to the Prop 65 requirements is in no way complete or comprehensive.

We encourage all ingredient suppliers and manufacturers to take the appropriate steps to ensure compliance with the labeling changes mentioned above. In addition to the obvious need to be compliant with ever-evolving state and federal regulations, the value of exhibiting leadership around these issues demonstrates to consumers that responsible industry is highly regulated and deserves their continued trust and respect. ■

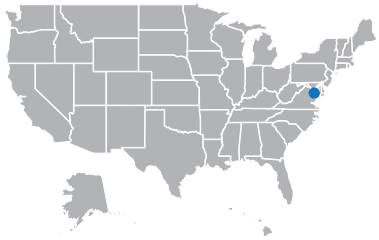
# USP strives to help Chinese industry through education, standards and verification

Last year, USP a global health organization, celebrated the 10-year anniversary of its presence in China. The country is a global manufacturing base for pharmaceuticals, dietary supplements and food ingredients, and USP has had a presence there for nearly 20 years. Located in the Shanghai Free Trade Pilot Zone, USP-China's facilities include a laboratory and methods-development division, as well as a professional team of scientists and customer-support managers.

USP is an associate member of the United Natural Products Alliance (UNPA), and the organizations share a commitment to helping consumers access quality health products.

## Setting quality standards

Among its many activities, USP develops public standards that are used in more than 140 countries. Collaborating with the world's top health and science experts—including 800 volunteers from universities, nonprofits, industry and government—USP is widely considered to be the leading source for excellence in manufacturing for manufacturing and distributing quality medicines, dietary supplements and foods around the globe.



USP's drug substances, drug products and dietary supplements standards are published in the *United States Pharmacopeia* (USP), while standards for excipients are published in the *National Formulary* (NF). These official compendia are published together in a combined volume, the *USP-NF*. USP also publishes other standards, including:

- The *Food Chemicals Codex*, which provides food ingredient standards
- The *Dietary Supplements Compendium*, a compilation of dietary supplement standards and other resources of relevance to the dietary supplement sector
- The *Herbal Medicines Compendium*, which contains standards for herbal ingredients that have been approved by a national authority for use in herbal medicines or that are included in a national pharmacopeia.

In addition, USP offers reference standards for use in conducting official compendial tests and assays. The use of documentary standards in conjunction with reference standards helps companies ensure the authenticity and quality of their ingredients and finished products.

## Education and verification programs

USP conducts events and training and offers other resources for industry and governments globally. In the last 10 years, USP has hosted more than 200 forums and educational programs in China that were attended by nearly 9,000 participants.

John Atwater, senior director of USP verification services, will be conducting presentations on USP tools for good manufacturing practice (GMP) compliance at both the upcoming CPhI and SupplySide China shows in June.

As consumers increasingly look for independent, third-party assurances that the supplements they take are of high quality, USP's global Dietary Supplement and Ingredient Verification Programs help supplement companies meet consumers' expectations of quality. To date, there have been over 800 million bottles of dietary supplements sold with the USP "Verified" mark.

The verification program is multifaceted and includes:

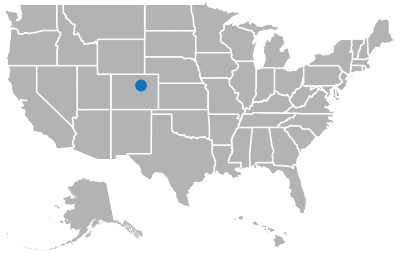
- GMP facility audits
- Product quality control and manufacturing-process evaluations
- Product testing.

Additionally, USP annually evaluates the quality of the products through the three-step process of GMP facility audits, product quality control and manufacturing process evaluation and in-store surveillance. ■

*For more information about: USP's activities in China, visit usp.org/usp-china; Dietary Supplement Verification Program, visit quality-supplements.org; Ingredient Verification Program, visit usp.org/verification-services/ingredient-verification-program.*

# Navigating the first steps of botanical quality and purity

By Trish Flaster, MSc



Over the last several years, as the natural products industry has grown and expanded, problems with the purity of botanical and herbal dietary supplement products have likewise increased. This has led to potential loss of profits due to returned or damaged shipments, negative media and negative reactions from consumers, which, in a worst-case scenario, can result in loss of trust and expensive, class-action lawsuits.

However, when using plant materials, a few simple, early-stage processes can prevent these problems.

## Resources for identification

*Identification.* It all begins with proper identification of the starting raw materials. This is the first, critical step when developing products for human health. In the case of botanicals, the best practice is to, when possible, obtain the whole, fertile, flowering plant from a qualified grower, wildcrafter or vendor. With this reference material in hand, you can be absolutely sure of the plant's identity. This ensures the product's safety and verifies that it is within legal guidelines.

Many companies also utilize sensory or organoleptic techniques to confirm identity. Analytical methods exist to objectify these very subjective criteria, such as using a taste panel developed by a qualified person that includes vetted panel members. The process should be documented, noting how panel members were qualified, what descriptive terms were used and how taste comparisons were made. It is important to point out that descriptive terms are subjective, and often, there is questionable validity to many of them. Panel consensus and numerical rankings can be used to support panel conclusions.

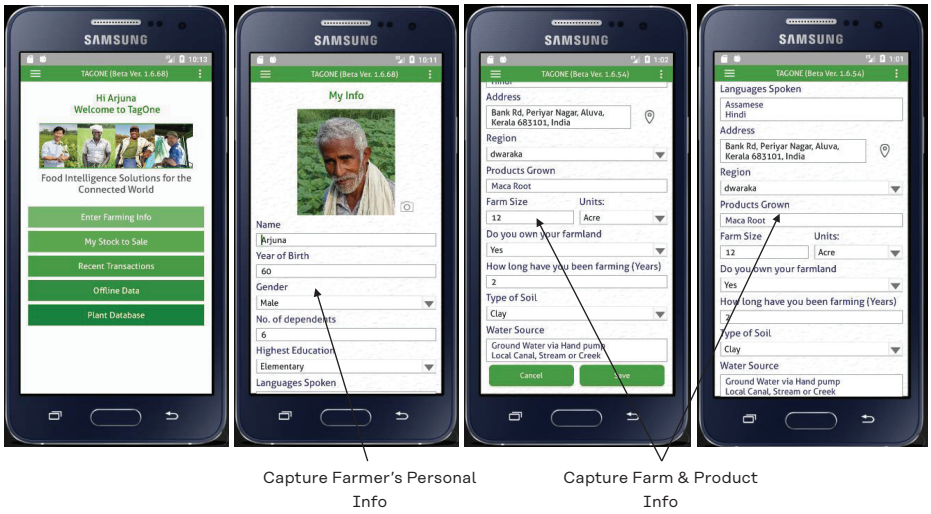
The good news is that guidelines and resources are available to help establish these necessary early processes. One is the Supplement Safety & Compliance Initiative (SSCI). This industry-driven initiative, led by a consortium of U.S. retailers, provides a harmonized benchmark to recognize various safety standards throughout the entire dietary supplement supply chain. SSCI is an innovative step toward providing quality assurance from harvest to shelf. Dietary supplements must meet or exceed the SSCI benchmark to be accepted for sale at the participating retailers, all with the goal of providing quality products and increasing consumer confidence.

With a good plan in place, an experienced field person or qualified botanist can use the information on the origin of the materials to assist with these first steps, or the "first kilometer," as SSCI calls it.

*Documentation.* After identification, the plan should encompass all of the manufacturing processes, such as drying, milling and extracting that can affect the purity of the product.

Each processing or manufacturing procedure must be documented, maintained and integrated, from soil to soul, field to facility, grower to shelf. This documentation not only assures purity, but it can also forewarn manufacturers of potential issues and reduce testing to an as-needed basis.

It is important to note, however, that the documentation process has to be of substantive value. Simply listing the name of a plant and that "something" was done to it without also including actual data is inadequate. For example, when stating the name of the plant, you also need to specify what test was done to provide the accuracy




*The new Farmer to Aisle app, for Android-platform phones, is a tool that contains farmer and plant profiles with detailed plant descriptions and visual support.*

of the identification. The test and result can include the image of the voucher specimen identifying the plant, with a traditional botanical label that includes the location, date, description and collector data. Verification data at every step is required.

## Yet more documentation

*Purity.* With documentation in place, we move next from identification to purity. This step includes the inclusion of pertinent details about the ingredient, such as water source, soil quality and chemical amendments. This step provides insight into what tests may be needed to ensure purity and allows for focus on appropriate testing instead of using a roulette-wheel approach that can result in expensive and unnecessary analytical testing.

For example, if the water source is known to be near mining sites, a buyer would assume that heavy-metal testing was done prior to plant collection and shipment, thus saving time and money. Additionally, if a problem arises, one can demonstrate that all steps were taken to ensure safety at each point in the process.

Knowledge of soil and chemical amendments can inform buyers of the possibility of adulterants in the material, such as bacteria, fungi, or old, outlawed chemicals.

*Harvest and post harvest.* Once we acquire data on the general purity of the ingredient, we can then move toward harvest. Information on weather conditions on harvest day and postharvest handling allows for the reduction in molds and maintenance of flavor and active constituents. At this point, the paper trail begins to narrow. Lot numbers can be attached and blockchain-entered (a list of records, called blocks, which are linked and secured using cryptography) to secure the accuracy of the data.

Documentation then can be tracked and accompany the materials to the manufacturing facility. Certificates of Analysis (COAs) are typically used as the most common form to communicate quality. However, these forms are often less than trustworthy, as investigations have shown that a vast majority of COAs are void of information, inadequate or inaccurate. Buyer beware!

To make the documentation process easier, several industry companies have come to agreement on the most important steps. These steps mimic the Global Food Safety Initiative (GFSI) and are used as the minimum requirements for products or benchmarks for retailers as they scrutinize products they will promote.

## An app for identification

Technological advances also help improve the identity and purity-evaluation processes. One new tool, the Farmer to Aisle app, jointly developed by Dreamweaver and Botanical Liaisons, is an application for cellphones that may appear simple, yet it is a detailed and sophisticated tool.

The Farmer to Aisle app, currently available for the Android platform, contains farmer and plant profiles and additional information, including detailed plant descriptions with visual support and descriptive terms for sensory testing. The app can register GPS coordinates and collect randomly generated or manually entered lot numbers. It then incorporates blockchain to store and secure the information. Finally, all information about harvest and post-handling chain of custody is recorded until the manufacturer or buyer completes the transaction. At that point, good manufacturing practice protocols and documentation can be integrated to create a total, solution-based process from field to consumer, grower or store shelf.

*Verify methodology.* Ultimately, many tests for purity and strength, as well as analytical tools for this purpose, are available to industry. But regardless of what methods are used, it is also important to be sure that the methods themselves were tested and confirmed and the data is attached or a number listed alongside the test methods. Verify—then trust—your vendors. If any of these items are missing, speak with your vendor and work with them to improve the system. Science is always cheaper than a lawyer. ■

Trish Flaster, MSc

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# Blue Hat registration: A partner with channel expertise, government contacts critical

By Karen Raterman

Along with its growing market for health products, China's regulatory landscape for dietary supplements and health products is complicated and changes quickly. Regulatory certifications, such as China's Blue Hat registration, are infamous for being time consuming, expensive and arduous. Companies looking to capitalize on the market's growth are well advised to get way ahead of such regulatory approvals to have the best chance of taking advantage of this growing market demand for health products.

With total size of the Chinese supplements market predicted to reach RMB 300 billion (US$46.8 billion) by 2019, according to data from Research and Markets[1], and second in size only to the United States, there is a significant upside for supplement companies that are willing and able to take on these certifications. Chinese consumers are looking for high-quality health products, including dietary supplements, and with good reason. According to China's National Nutrition and Chronic Diseases report released in 2015, nutrient deficiencies remain a problem and health conditions, such as obesity and high blood pressure are on the rise in China.[2]

All dietary ingredients used in health products in China must go through a registration process with the Chinese Food and Drug Administration (CFDA), regardless of whether they are produced domestically or imported. Most dietary supplements and their ingredients fall under the Blue Hat system—the name refers to the Chinese characters written in a blue font with a standard code for imported or domestic health supplements. Only vitamins and minerals in addition to specific ingredients listed in the health food ingredient catalog now fall under the more recent Chinese Food Safety Law (see sidebar, next page) that took effect in October 2015.

## Blue Hat: Time consuming and expensive

Both registration processes are time consuming and expensive, but especially Blue Hat, which requires a registration for each finished product. According to Jen Johansen, VP of quality, regulatory and government affairs for Kona, Hawaii-based Cyanotech Corp./Nutrex, the company has two products that have completed the Blue Hat registration and a third registration that is currently in process.

保健食品

The Blue Hat procedure "can take two to three years and is a six-figure endeavor, so it's not cheap if you are a small company," Johansen said. But it is also well worth the time and effort in a market with such great potential, she added. "Chinese consumers want U.S. goods. Most of the direct selling companies offer supplements, and e-commerce is huge because there is a large and growing middle class looking for these products. I am not a marketing executive, but I don't think the opportunity has peaked."

Having assisted on two completed Blue Hat registrations, Johansen notes that there are some key ways to help the process go more smoothly. The first step, she noted, is to look at the channel and markets that are most appropriate for your products and then be sure you actually need a Blue Hat registration. Online platforms such as Tmall Global, Tmall Hong

### China's new food safety law

Not all products entering the Chinese market have to go through the Blue Hat process. In October 2015, the China Food and Drug Administration (CFDA) implemented a new law, the Chinese Food Safety Law, which included a new notification process that allows certain dietary supplements, such as vitamins and minerals, to bypass the CFDA registration.

Based on the existing registration process, the new notification system shifted authoritative responsibilities from CFDA to provincial FDAs overseeing domestic products. This system includes registration of first-time imported goods that are recognized nutritional supplements containing vitamins and minerals.

The process, although less arduous than the Blue Hat registration, can take three or more months and can be expensive, especially if testing is required for documentation. It also has some specific requirements prior to consideration. For example, imported health foods that qualify under this regulatory class must be marketed in their producing country for at least a year before being registered in China.

Similar to Blue Hat requirements, applications materials for this registration must be translated into Chinese with the original language attached for reference. Then, a Chinese notary must verify that the translation is consistent with the original paperwork.

Source: *The Burdock Group and NaturalProductsINSIDER*

Kong and Ali Baba may not require this registration, she noted. "It's important to look at this first and then, of course, if you want to sell in other channels or across channels, you need to get the Blue Hat."

## Vetting partners in advance

One of the most important steps in starting the process, Johansen added, is to find a partner in China and make sure the company or individual is an expert in the channel or channels you want to be in. This partner, depending on their expertise, may also be able to help with the Blue Hat registration, or companies can also utilize a professional agency that specializes in regulatory needs and product registrations. Either way, she noted, you need to have a business partner that understands the channels important for your distribution, such as social media, supermarkets or WeChat.


Jen Johansen

These partners are critical, but this is also an area to tread carefully, Johansen added, because companies entering China need to maintain control of the registration and documents and should be cautious about giving a partner authority over their brand. "There is a lot of business nuance in China, so depending on how a company is operating on your behalf, you could grant them authority as an agent of the product or business, which you would not want to do," she said. "You need someone who is familiar with business there, who can speak Chinese and is part of your own organization."

For example, Johansen noted that "someone might offer to set up a Tmall page for you, but if you do this, it is one way you might inadvertently grant authority for that person to serve as an agent for your brand."

This was not an issue Cyanotech experienced directly, but it was offered as advice from other companies that had gone through the process. Getting such advice is important, Johansen added. "This is one of the advantages of being a member of a trade organization, such as the United Natural Products Alliance. You get to interface with leaders and executives who have experience that you can trust and who have the integrity to steer you in the right direction." Other great resources for this kind of information include on-the-ground trade groups, such as the U.S. China Health Products Association or the China Nutrition and Health Food Association.

A good partner or agency can help with the many logistics of the Blue Hat process. Among them is completing the health food approval certificate through CFDA and then authenticating the entire supply chain for the product, including notarized sign off from official state entities verifying your supply and manufacturing processes. "CFDA really wants to know the origins of the product," Johansen said. "For example, we had to have the lieutenant governor in Hawaii sign off on a document that we grow algae here. We also had the secretary of state in California provide verification that we manufacture product in the state."

Ultimately, it is a huge package of documents that needs to go to the Consulate General for China. "We sent an employee to the Consulate General four or five times, and each time he came back with a new document to sign," she said. "There are layers and layers of bureaucracy and sign off at CFDA, so when picking a partner it is good to find one that has a good relationship with government entities." ■

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# Reasonably anticipated contaminants: How to identify and test

By James Neal-Kababick

Beyond testing for ingredient identity, the complicated prospect of complying with the U.S. FDA's good manufacturing practices (cGMPs) rule also requires dietary supplement manufacturers to identify and eliminate reasonably anticipated contaminants (RACs). With the rule stating that dietary ingredients shall be free from these reasonably anticipated contaminants, companies must ensure that their ingredients meet this requirement by conducting tests or examinations. However, to do that, one must understand what RACs are.

Reasonably anticipated contaminants are different depending on the ingredient in question. These are, by definition, contaminants that can be reasonably expected to occur that would lead to the ingredient being adulterated or misbranded.

## RACs defined

For botanicals, there are many RACs. These include pesticides, heavy metals, aflatoxins, pathogenic organisms, fillers/bulking agents, toxic botanicals used for substitution/adulteration and others. In the case of botanical extracts, solvent residues are also included. There are many more that are going to be class specific; these will also be examined below.

In the base of non-botanical ingredients, such as amino acids, vitamins and minerals, there are synthesis impurities, chiral impurities and other contaminants to plan for.

To better understand the concept, let's look at some examples.

## Goldenseal

Goldenseal is an expensive crop that is often subject to adulteration. It is wildcrafted or grown under shade cloth when farmed. It takes several seasons to obtain good-quality product. For these reasons, it is often adulterated. Common adulterants include sand/soil or less costly berberine-containing roots, such as *Coptis chinensis*. The latter is readily detected during identity testing by HPTLC and microscopy. The former can be detected by performing an ash and acid insoluble ash analysis. These tests will reveal the extra insoluble matter due to admixture of soil and sand. A well-trained microscopist can also observe this. In addition to this type of adulteration, farming practices can lead to the use of pesticide residues either by direct application or overspray from other crops. The root can uptake heavy metals from the soil, as well. Microbial contamination is an issue, too. These are all RACs that should be evaluated by analytical testing.

## Bilberry standardized extract

Bilberry is another costly crop that is in high demand, and it is subject to all sorts of adulteration. Beside the routine metals, pesticides, solvent residues and such, there are special RACs to look for here. It is not uncommon to find dyes in bilberry that are used to spoof the spectrophotometric assay for total anthocyanin content. There are some well-designed HPTLC and HPLC methods for detection of these dyes.

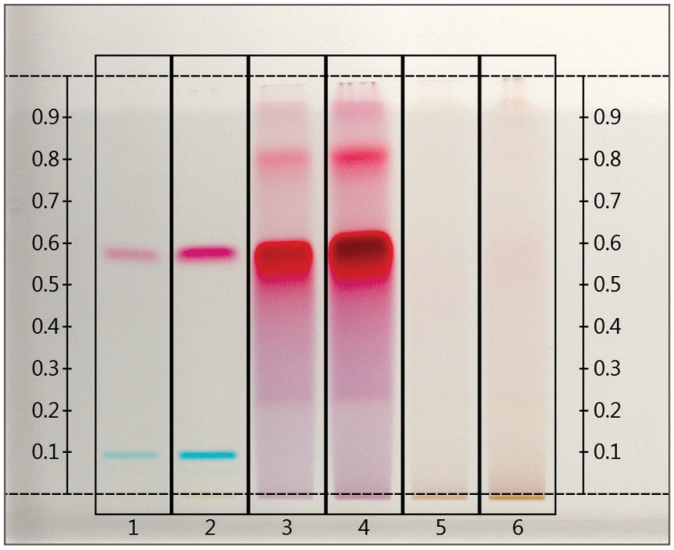
## Ginkgo 24/6 standardized extract

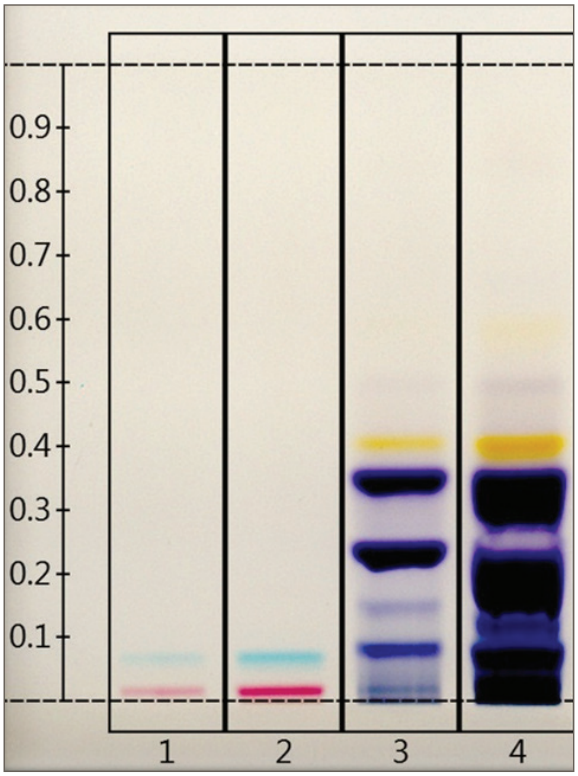
Ginkgo extract, much like bilberry extract, should be tested for heavy metals, pesticides and solvent residues. However, there is an additional concern with ginkgo 24/6 extracts. It is very costly to make this extract, with about 70kg of ginkgo leaves used per kg of extract. The process of concentrating the flavonoids from the native ~3 percent-4 percent level to 24 percent requires extensive resin-bed clean up. Often, as is the case with many purifications, the last purification to get from 22 percent to 24 percent takes significant additional resources and adds cost to manufacturing.

Some unscrupulous vendors have skirted this by using flavonoid isolates from sophora leaf and fruit. Special testing is required to detect this adulteration, including HPLC and HPTLC of the free aglycone content, as well as screening for the presence of genistein. Genistein is found in sophora as the glycoside sophoricoside. When the laboratory assay for total flavonoid glycosides is performed, the sophoricoside undergoes hydrolysis, and genistein is formed. Its presence is a negative marker indicating adulteration with *sophora spp.*

## Asian ginseng standardized extract

Panax ginseng is a popular botanical, and the extract is widely used in dietary supplements. Routine screening for aflatoxins, pesticides, solvent residues, pathogens and heavy metals is essential. Another issue with this ingredient is that since ginseng is standardized on ginsenoside content, one must look for evidence of adulteration with exogenous ginsenosides. For years, the industry has been aware of adulteration of root extract with leaf extract. The leaf actually contains more ginsenoside content per gram than the root, and this is a major




*These plates show an example of what can be called a reasonably anticipated contaminant from dye adulteration in elderberry. Lanes 1 & 2 show elderberry extract adulterated with synthetic dyes, and lanes 3 & 4 show authentic elderberry extract.*
*Left plate: reverse phase C18.*
*Right plate: Silica gel F254.*

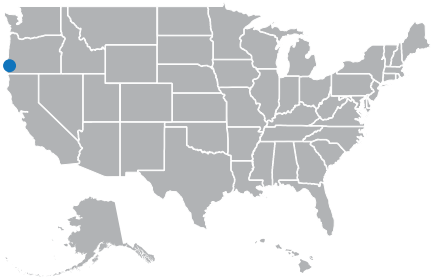
adulteration source. However, a less-understood source is American ginseng root. One might question this as American ginseng is more costly than Asian ginseng, so why would a processor use a more costly raw material to adulterate a less costly one? The answer lies in the processing method. American ginseng is stripped of its tiny hair-like rootlets, and the main root is sold. These rootlets are then sold on the secondary market for less money and often find their way to extractors that remove the ginsenosides and add them to Asian ginseng extract to boost the total ginsenoside content. This is a sophisticated adulteration scheme that may be difficult to detect as it requires the ability to detect pseudoginsenoside F11 by HPTLC or HPLC—a very expensive standard that many labs don't offer.

### Chondroitin sulfate 95%

Chondroitin sulfate also requires specialized testing. One is the detection of sodium hexametaphosphate (also known as Calgon detergent) being added to boost the CPC titration assay values. The only way to readily detect this low-level adulteration (typically only used at ~2 percent) is to conduct P31 NMR testing or Cellulose Acetate Membrane Electrophoresis testing (CAME). CAME is called out in the USP CS monograph and has been a part of the panel for more than 15 years. However, very few labs offer this testing due to the labor-intensive nature and the large amounts of dye and acetic acid used.

In conclusion, it is very important to go beyond the basic identity-testing requirement to include RACs in your testing specifications and programs.

Remember that each material can have its own unique RACs. Many of the specifications on certificates of analyses are the result of testing modalities needed to ensure quality. It is important to understand why each test/specification is there, what it tells you and what it does not tell you. Finally, never forget that the supplement industry is very dynamic, and bad actors are constantly developing new schemes to adulterate products. This requires eternal vigilance and multi-faceted testing protocols. ■



*James Neal-Kababick is founder and director of Flora Research Laboratories LLC, in Grants Pass, Ore., a natural products research and testing laboratory celebrating its 25th year serving the dietary supplements industry. Neal-Kababick is recognized globally for pioneering work in phytoforensic science and the advancement of analytical techniques for dietary supplement analysis.*