

Cover Story:

## Sabinsa Corporation Announces Sales and Marketing Agreement with Tempo Canada

Sabinsa Corporation announced today that it has signed a sales and marketing agreement with Tempo Canada that incorporates Sabinsa's broad range of nutritional ingredients and integrated services, in which Tempo Canada will distribute specialized, standardized botanical extracts and cosmeceuticals from Sabinsa, to the personal care & health care industries in Canada

This collaboration is an important step for the further development and the overall commercialization of Sabinsa's products in the Canadian market. The goal of this partnership is to develop and deliver even more unique products that are safe and efficient which meet the needs of customers and consumers by leveraging the key strengths of each company.

The marketing of the specialized extracts and ingredients is expected to launch January 1, 2008. This agreement reflects the changing dynamics in the healthcare marketplace and Sabinsa is on the forefront of this positive change. This partnership is seen as the initial and first step of a closer collaborative venture between Tempo and Sabinsa.

Today's announcement underscores the many solutions that Sabinsa offers the nutraceutical and cosmeceutical industry, said Dr. Muhammad Majeed, Founder Sabinsa Corporation. "We are pleased that with Tempo we have gained a strong partner with excellent marketing expertise and a powerful distribution network in the field of nutraceutical, cosmeceutical and specialty ingredients in Canada,

who will help us to realize the significant market potential. This agreement is an example of Sabinsa's commitment to bringing innovative nutraceuticals, cosmeceuticals and specialty ingredients to market and to establish strategic alliances with companies that share this commitment with the R&D activities."

Tempo is a well established distributor of specialty and commodity chemicals, cosmeceutical ingredients and nutraceuticals supporting Canadian manufacturing industries. A dedicated team of highly skilled professionals is committed to excellence, responsible ingredient handling, distribution and customer satisfaction. "Our strength lies in building long-term partnerships with both our clients and our suppliers, which benefits all parties involved. We believe in partnerships built on unparalleled service and the sharing of technical knowledge and expertise. Helping manufacturers fit the puzzle together to produce products that their customers need, is what Tempo does best," stated Eno Agro, president, Tempo Canada.

Sabinsa's mission has always been to provide alternative and complementary natural products for human nutrition and overall wellbeing. Over the past years, Sabinsa has brought to market several

*Continued on page 2...*

**tempo**  
CANADA INC.



OUR INNOVATION IS  
YOUR ANSWER®  
info@sabinsa.com

### SABINSA SHOWS

#### **Incosmetics**

April 15 – 17  
Amsterdam, Netherlands

#### **Supply Expo**

April 16 – 17  
Yurakucho, Japan

#### **Vita Foods**

May 6 – 8  
Geneva, Switzerland

#### **NYSCC**

May 14 – 15  
Edison, NJ

#### **IFIA Show**

May 21 – 23  
Ariake, Japan

### Visit Sabinsa's Websites

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standardized botanical extracts and privately funded several clinical studies in conjunction with prestigious institutions worldwide in support of these products. With more than 100 scientists working full time conducting ongoing researches both in India and the United States, Sabinsa continues to develop and patent phytonutrients for the world markets. Currently, the company holds 35 U.S. and international patents surrounding several of its ingredients. Sabinsa has marketing, sales and distribution offices in the U.S., Europe, South Africa, China, Dubai, Malaysia, Japan and Australia. The corporate R&D and manufacturing facilities are located in India. For more information visit [www.sabinsa.com](http://www.sabinsa.com).

## WHITE PAPERS— FREE TO DOWNLOAD

Some of the product articles are available on our website for free download by our customers and clients who would be interested to know more about the products.

Please log on to [www.sabinsa.com](http://www.sabinsa.com) and click on the white papers to freely download the articles of your choice.

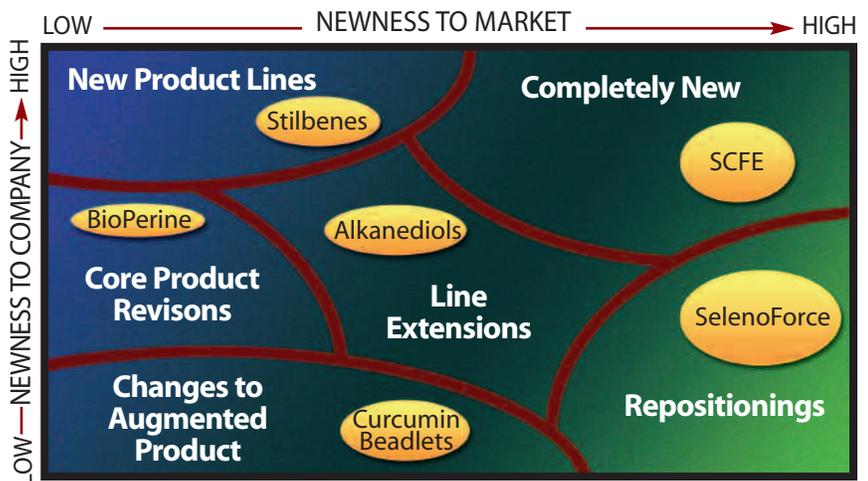
1. Targeting Trace Mineral Bioavailability: The Case of Selenium
2. Aging, Biomorphosis, Life Span and Phytonutrients
3. Green Coconut Water
4. Phytonutrients & Nutritional Interventions for Natural Immune Support
5. Policosanol - Naturally Healthful From the Inside & Out
6. Targeting Optimal Nutrient Absorption with Phytonutrients
7. Probiotics for Health and Well Being
8. Phytonutrients & Nutritional Interventions to Support A Healthy Body Weight & Composition

# New Product Development at

Sabinsa has always fostered a healthy trend for innovation and nowhere is it more obvious than in its New Products. In fact the company's tag line 'our innovation is your answer', celebrates the efforts involved in new product development.

Right from the initial stages of idea generation a keen eye is kept on consumer benefit. Often times our customers are our best generators of product ideas. This has helped us to evolve a customer centric approach to product development. Questions like what is the benefit to the user, manufacturer and market are commonly asked. Other times we get to suggest optimizations. One point to keep in mind here is that New Products alone do not constitute new product development. Every time an effort is made to improve on an existing ingredient this contributes to our new product development efforts as well. Optimizing taste, color, solvent profiles etc. are major advantages depending on the target market.

When so much is done to create a completely new product or optimize it, how does one measure the magnitude of the innovation. How difficult or easy was it to make and market these ingredients? One way to analyze this would be to compare the innovation with regards to Newness to the company vs. Newness to market.



Sabinsa has been successful in introducing new products to the market and to its customers.

## Changes to augmented product: Curcumin C<sup>3</sup> Complex® Beadlets

When the entire contract manufacturing company was having a tough time working with curcuminoids, Sabinsa listened to them. The biggest concern of the customers and clients was dust and

# Sabinsa

staining while running the product on their encapsulating and tableting machines. Curcuminoids as an ingredient was not a new product to us and they have been in the market for a very long time. Sabinsa went ahead and made beadlets that had the curcuminoids embedded in it. Sabinsa innovated the free flowing Curcumin C3 Complex® beadlets that are dust free and easy to use on machines.

## Core product revision: BioPerine®

The Japanese have a very strong dietary ingredients regulatory system. They also do not accept some of the conventional solvents used to extract botanicals in most developed nations. When the time came for Sabinsa to introduce this flagship brand into the Japanese market, a hurdle was raised. The hurdle came in the form of the extraction solvent. Ethanol was however acceptable. Sabinsa started to experiment with a strong in-house R&D and after several interactions optimized a process that would give the 95% assay of the product with Ethanol for the Japanese market. Thus was born BioPerine® JP grade. Today the ingredient is sold worldwide and is Ethanol extracted material. It is safer and more acceptable—globally.

## Line extensions: Alkanediols

Sabinsa has always been strong in the alkanediols chemistry. This is part of Sabinsa's specialty fine chemicals product line. Sabinsa has 1, 2 hexanediol in the product list for many years. This has been used extensively in the printer inkjet cartridge industry to provide superior ink flow properties. Sabinsa has listened to its customer who approached us from a completely different industry to develop an alkanediol for use in the cosmetics market to provide viscosity to their moisturizing creams, gels and lotions. Sabinsa identified 1,2 Octanediol and developed its usage. Sabinsa sells it as a value added excipient and recently has discovered new applications for this product.

## New product lines: Resvenox®

Just out of sheer interest in stilbenes, Sabinsa has been able to develop several new molecules. Our first product

in this category was a pure resveratrol. After reviewing the toxicity and safety dosage this product, Sabinsa has introduced Resvenox primarily for the anti-aging market. Resveratrol has been a heavily discussed topic in our industry, but very few have been able to dissect the chemistry behind the product and develop new/similar entities. Sabinsa has developed the interest and has made the products to be the leader in this category.

## Repositioning: SelenoForce®

Sabinsa has been trying to market a product by the brand name of GarliSelect®. Sabinsa used a proprietary hydroponics technology to enrich garlic pods with selenium and re-extract an array of garlic compounds and selenium amino-acids from it. Although Sabinsa tried to promote the selenium supplementation in the ingredient market, most of the customers saw it as a garlic product. Seeing that enriched garlic has a completely different connotation to the customers. Sabinsa embarked on a journey to reposition this ingredient as a selenium product. GarliSelect was branded as SelenoForce®. Sabinsa has already seen customers getting interested in this concept and getting involved with the product.

## Completely new: Super Critical Fluid Extractions (SCFE)

At a time when there was not even an established market for SCF extracts, Dr. Majeed, Founder, Sabinsa Corporation, showed a keen interest in developing this technology. Sabinsa/ Sami Labs teamed up with the Govt. of India and Indian Institute of Technology to create for the first time in India a 100% indigenously built, owned and operated SCFE factory. This technology was completely new to the world nutraceutical markets. Many customers have appreciated the efforts of Sabinsa as pioneers in this field. Sabinsa has been successful in producing many products with this technology and serve its customers.

For more information on the new product development program or to suggest an innovation please contact the author of this segment—Sendhil Pani, manager special projects.

# A Focus on Curcuminoids

The chemopreventive roles of dietary antioxidant phytonutrients against various forms of cancer are well researched. These include curcumin, resveratrol, ellagic acid, green tea catechins, quercetin and others. Many of these compounds are reported to provide health benefits through their molecular roles in the hepatic cytochrome P450 monooxygenase system of enzymes responsible for a major portion of drug metabolism in humans.

At the fundamental level, phytonutrients such as quercetin and curcumin have been shown to up regulate antioxidant gene expression in animal models (Shahed, et al; 2001). Interestingly, curcumin is reported to inhibit the expression of inflammatory enzymes, as well. Cyclooxygenase (COX-2) gene expression is reported to be characteristic of colon cancer and several high grade tumors. A non-toxic concentration of curcumin was found to significantly inhibit the expression of the COX-2 gene, suggesting its beneficial role against colon cancer (Goel, et al; 2001).

A number of research institutions including The National Cancer Institute (NCI) in the United States, are currently in the advanced stages of evaluating Curcumin as a potential therapeutic intervention in several degenerative disease conditions associated with aging. Several of these studies use Curcumin C3 Complex® a branded (trademark of Sabinsa Corporation) natural extract prepared from turmeric roots containing curcumin, demethoxycurcumin and bisdemethoxycurcumin, collectively known as curcuminoids. Patented for its unique composition ratio and use, research shows that C3 Complex is a “bioprotectant” that effectively inhibits free radical formation and propagation (Majeed, et al.; US Patent 5,861,415).

The research institutions involved include UCLA School of Medicine, University Hospitals



of Cleveland, MD Anderson Cancer Center, Rutgers University, Tufts University School of Medicine, Massachusetts General Hospital, Brown University, Penn State University, and others in the United States and worldwide.

The multifunctional health benefits of the curcuminoids are well researched and these antioxidant compounds are potentially useful in preventing inflammation and several types of cancer (Shishodia, et al.; 2005). A common spice used in South Asian cooking, turmeric and more appropriately the curcuminoids have been preclinically and/or clinically validated for beneficial effects in a number of disease conditions ranging from Alzheimer’s disease to cystic fibrosis.

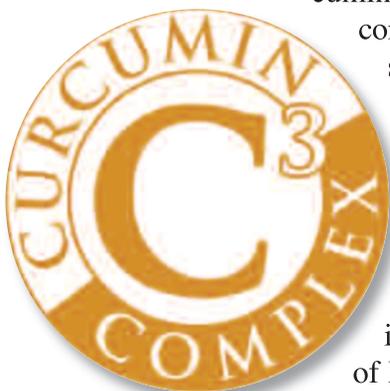
The antioxidant effects of curcuminoids combined with their known inhibitory effects on cyclooxygenase 2 (Cox-2) render them useful as ingredients in anti-aging formulations, and in topical formulations designed to maintain general skin health and integrity. Oxidative stress and inflammation are major players in the aging process. The anti-inflammatory role of curcuminoids is well established. Curcuminoids have been shown to inhibit nuclear factor kappaB (NFkB) a transcription factor that triggers inflammatory mediators. NFkB has been implicated in a variety of chronic disease conditions ranging from cardiovascular diseases to cancer (Kumar, et al.; 2004).

A recent study postulates that curcumin can potentially slow down aging process (Salvioli, et al.;2007) and is therefore potentially delays senescence and the onset or progression of many age-related diseases.

## References:

1. Goel, A. et al. **Cancer Lett**; 2001, 172(2):111-8
2. Kumar A, et al. **Journal of Molecular Medicine** 2004;82:434-48.
3. Salvioli S, et al. **Evid Based Complement Alternat Med**. 2007; Jun;4(2):181-190.
4. Shahed AR et al. **Transplant Proc**. 2007; 33(6):2988
5. Shishodia, S et al, **Journal of Molecular Medicine** 2004; 82:434-48.

“The information presented in the “Current Issues” Newsletter from Sabinsa Corporation is for information purposes only. It is abstracted from web and print media sources. Readers are advised to refer to the original sources for additional information.”





## Sabinsa's Scientist Addresses Complementary Healthcare Council in Australia

Sabinsa Corporation of Australia was represented by Vladimir Badmaev, M.D., Ph.D., Vice President, Scientific and Medical Affairs, at the CHC's (Complementary Healthcare Council)

Sponsors' Obligations Conference held recently in Sydney, October 31st - November 1st. The diverse range of speakers and content at the Conference focused on the theme of *Evidence* in use and practice of complementary medicine in Australia and other countries worldwide. The CHC organized the event to provide information and education on matters affecting the dynamically growing industry of complementary medicine in Australia. Dr. Vladimir Badmaev presented paper titled "Evidence Gathering Methods: Curcuminoids from *Curcuma longa* in the fight against cancer and age related disorders". The presentation summarized several years experience of Sabinsa Corporation in preclinical and clinical studies of the phenolic compounds curcuminoids from *Curcuma longa* in cooperation with MD Anderson Cancer Center, Houston TX, and the UCLA School of Medicine and Dentistry, Los Angeles CA. Some of the presented data were recently published: Zhang L, Fiala M, Cashman J, Sayre J, Espinosa A, Mahanian M, Zaghi J, Badmaev V, Graves MC, Bernard G, Rosenthal M. J Alzheimers Dis. 2006 Sep; 10(1):1-7.

The conference was highlighted by Dr. Kerryn Phelps of the University of Sydney's School of Public Health and former President of the AMA (Australian Medical Association) who gave a thought-provoking opening speech. 'Evidence', she declared, is the "peacemaker" between allopathic or the western conventional health paradigm and the complementary health paradigm. She called for appropriate education of GP's in undergraduate, postgraduate and continuing education and concluded by speaking about equity issues in the provision of complementary health treatments arguing that unless the due recognition is given to complementary health treatments, affordability and access will separate patients into those who can afford to pay for them and those who cannot.

## NEW U.S. PATENT GRANTED:

## SABINSA ISSUED PATENT FOR PROCESS OF MANUFACTURING RESVERATROL AND RELATED POLYPHENOLS

Sabinsa Corporation is proud to announce that on August 7, 2007, it has secured U.S. Patent No. 7,253,324 protecting the process for the synthesis of biologically active polyphenolic compounds by novel dealkylation. This process of aromatic poly o-demethylation is applicable in the manufacturing of polyphenols such as resveratrol, oxyresveratrol and gnetol.

"The review, acceptance and issuing of this patent by the U.S. Patent and Trademark Office was completed in only six months, which is a testament to the hard work of our scientific team and the thoroughness of the information that was submitted with the patent application on the process, scientific support and previous references on the subject," stated Muhammed Majeed, Ph.D., founder and CEO, Sabinsa Corporation. "This represents our 34th patent worldwide and underscores our continued innovation surrounding manufacturing processes for herbal extracts, phytonutrients and specialty fine chemicals."

This patent covers a wide range of applications in the multi-step synthesis of pharmaceuticals and fine chemicals. This streamlined manufacturing process enables easy access to several known polyphenols and simplifies the course of action for discovering unknown polyphenolic compounds. Sabinsa has applied this patented process to manufacture stilbene-polyphenols exhibiting various health benefits such as resveratrol, oxyresveratrol and pterostilbene.

## Resvenox™

**Resveratrol. Polyphenolic. Antioxidant.**



an ingredient of  
Sabinsa Corporation

# Sabinsa Corporation Unveils Manufacturing Facility In India

*Facility allows Sabinsa to better serve global nutrition market while growing local economy*

Sabinsa Corporation has increased its manufacturing services, in-house laboratory capabilities and production capacity in 2007 by completing construction of a \$6 million manufacturing facility in Hyderabad, India. The state-of-the-art building and its 100 estimated employees will manufacture herbal extracts and phytochemicals for world markets including the U.S., Europe and Japan.

Located in India's Genome Valley, the new plant covers an area of 200,000-square-feet with a dedicated 60,000-square-foot area which houses a series of testing labs and manufacturing equipment to ensure optimum quality control, in addition to providing headquarters for Sabinsa's research and development operations. Sabinsa currently operates five additional manufacturing facilities throughout India. This plant, like the others uses effluent water treatment systems and is environmentally conscious and friendly.

"Increased demand for our scientifically backed ingredients coupled with tremendous business opportunity in the Genome Valley presented an ideal opportunity to grow our business and establish a new manufacturing plant in India," said Dr. Muhammed Majeed, founder of Sabinsa Corporation. "We are pleased to have the tools to better serve our customers while providing a range of employment opportunities

that will allow both Sabinsa and the local economy to flourish."

The new plant focuses on the Sabinsa's aggressive efforts to develop and research new, innovative and efficacious products to meet the needs of customers and consumers. Sabinsa also submits to regular audits from NSF International to ensure adherence to their Good Manufacturing Practices standards. Manufacturing processes, sanitation standards, pest control methods, personnel training, product testing practices and standard operating procedures are verified to ensure they meet with their stringent GMP criteria.

Sabinsa currently operates five additional manufacturing facilities throughout India and has marketing offices in the USA, Australia, Europe, Japan, Malaysia and South Africa.



## Launch of Herbal Reference Standards from Sabinsa

*Herbal reference standards from Sabinsa Corporation set to improve standards in the growing herbal industry.*

Sabinsa Corporation has launched the first suite of herbal reference standards in a planned series of reference materials for world markets including the U.S., Europe and Japan.

There is a rapidly growing awareness both at consumer and regulatory levels of the need for phytochemical reference standards and other assurance control methods throughout the supply chain to ensure the validity, safety and quality of end products. The growth, sophistication, and maturation of the herbal market around the world have inevitably lead to the issue of how herb quality can be obtained and maintained.

Extracted from natural plant materials, Sabinsa's range of standards are used to identify, verify and quantify the accurate concentration of the key active compounds or the markers. The standards can also be used to check for identification, assay, purity test and toxic or adulterating plant material.

Sabinsa's Reference Standards are user friendly and allow producers to run their own in-house tests to achieve industry-validated results, simply and quickly. They are now available for better quality control of products derived from plants.

"We provide the standards with scientific rigor and offer effective solutions that achieve the integrated view of the customer in the total supply chain," said Dr. Muhammed Majeed, founder of Sabinsa Corporation. Our launch of the Sabinsa's range of botanical and nutraceutical reference standards is timely for producers of dietary supplements, functional foods and other plant-derived healthcare products to achieve the validated results for the products.

Sabinsa also recommends which phytochemical reference standard to be used for a specific botanical or nutraceutical product and can provide the customers with cost-effective supply of botanical extracts and their reference standards.



## RESIDUAL PESTICIDE ANALYSIS: REGULATORY UPDATE

The method described in the "Pesticide Analytical Manual" published by US FDA (Multiresidue methods Volume I 3rd Edition 1994, Updated October, 1999) is currently used to quantitate residual pesticides and herbicides in natural extracts. This method is time consuming, and necessitates using a specific pesticide "reference standard" for each and every such component. The number of pesticide/herbicide compounds that can be identified by this method is therefore limited by the complexity of the method.

On November 29, 2005, the Japanese government published a "positive list" system for the regulation of pesticides, feed additives and veterinary drugs. Maximum Residue Limits (MRL) are set for 758 chemicals, while 65 other compounds are exempted from regulation. Fifteen substances must have no detectable residues. Other agricultural chemicals not mentioned specifically, have a uniform MRL of 0.01ppm. **The regulation is in effect from May 29, 2006.** With the appearance of this list international customers (Japan, Europe and USA) now wish to test products for the 758 chemicals identified therein.

### Sabinsa Ensures Compliance

Sabinsa Corporation has identified the GC-MS method and GC-MS Library from Agilent Technologies, to enable efficient testing. This method and software enable the rapid identification of 926 pesticides and endocrine disrupters (the test per sample is completed in about two minutes, the conventional method takes two days to complete). In addition carcinogenic compounds such as polycyclic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCB) and Sudan dyes can also be quantified. The database contains all the analytes specified for GC/MS analysis in the new Japanese "positive list" regulations.

This is the fastest, most comprehensive, most accurate method for screening food samples.

#### References:

1. [www.agilent.com](http://www.agilent.com)
2. Introduction to positive list system for agricultural chemical residues in foods department of safety, Ministry of health, labor and welfare. <http://www.mhlw.go.jp/english/topics/mrls/mrls.html>



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70 Ethel Road West, Unit #6,  
Piscataway, NJ 08854, U.S.A.  
Tel: +1-732-777-1111

750 South Innovation Circle,  
Payson, UT 84651, U.S.A.  
Tel: +1-801-465-8400

[www.sabinsa.com](http://www.sabinsa.com)

## SABINSA MANUFACTURING

### Advantages:

- ✓ International Regulatory Expertise
- ✓ Primary Manufacturer From Field To Market
- ✓ Custom Extraction & Ingredient Development
- ✓ Proven Quality Supplier For Nearly Two Decades

### Services:

- ✓ Stick Pack Manufacturing
- ✓ Tablets, Capsules, Customized Blends
- ✓ Granulation, Roll Compaction, Blending
- ✓ Dedicated Curcumin Manufacturing Facility



801.465.8400

[manufacturing@sabinsa.com](mailto:manufacturing@sabinsa.com)

