Alsiano strengthens its position within bioactives

Based on a cooperation with Solbar Industries, global leader in soy isoflavones, Alsiano has added a new interesting product to its range of bioactives

By Alsiano

Alsiano has entered a cooperation with Solbar, a research oriented company focused on cultivating the soybean to improve functional properties, strengthen health benefits and bring economical value.

Solbar isoflavones

Solbar has invested many resources in clinical research, standardization of processes and analytical methods. The result is the widest range of soy isoflavone extracts in the market today. The soy isoflavones are offered in concentrations of 3%, 10%, 15%, 20%, 30% and 40% total isoflavones with a minimum of 50% Genistin/Genistein forms and 6%-30% Saponins.

Key European regulatory authorities have recognized Solbar’s European Drug Master File (EDMF) for Solgen soy isoflavones. On-going validation processes are being conducted by QA experts and are available as a service to Solbar customers.

International researchers in soy isoflavones agree that selective estrogen receptor modules (SERMS) are less potent than typical hormone replacement therapies (HRT), with greater tissue selectivity. Natural soy isoflavones are considered as the foremost natural preventive treatment for menopausal symptoms worldwide.

Solbar’s products are non-GMO Identity Preserved, in compliance with the strictest standards and verified by the Plant Protection Inspection Service (Israel). Their manufacturing sites are certified ISO 9001:2000, HACCP, GMP-feed, Kosher and Halal.

Alsiano – wide range of bioactives

With soy isoflavones in its product range, Alsiano offers a broad range of bioactives including, among other products, the following:

- Extramel® (superoxidodismutase) from Seppic
- Wellmune® (1,3-1,6 beta glucan from yeast) from Biothera
- SharpPS™ (phosphatidylserine) and CardiaBeat™ (plant sterol/DHA) from Enzymotec
- Orafti® Synergy1 – oligofructose enriched inulin (Beneo-Orafti)
- Oatvantage™ – 1,3-1,4 beta glucan from oat (GTC Nutrition)
- ExGrape® Total – resveratrol (Grap’Sud)
Phosphatidylserine - a natural building block for the human brain

Sharp™ from the biotechnology company Enzymotec is a line of products responding to the increasing interest in supplements with an effect on cognitive functions

By Michal Bravman, Marketing Manager, Enzymotec

Brain and memory enhancers have recently become of great interest in the nutrition industry. Growth of the 50+ segment population and overall life expectancy, the urge and sometimes need to function mentally and physically at old age while facing an evident deterioration of physical and mental capabilities along with rapid changes in diet and disease prevalence, have all been important drivers of the supplement industry in general and that of the cognitive niche in particular. One of the most researched, scientifically validated cognitive supplements is phosphatidylserine (PS), a natural building block of the human brain.

Sharp™
Enzymotec, the Israeli developer and manufacturer of innovative active ingredients, offers a line of cognitive products based on different phospholipids. This line of products is being marketed under the brand name Sharp™. The company offers a high quality stand alone supplement, SharpPS™ (soy-based phosphatidylserine in an extensive line of grades and qualities including high purity and stability formulas), or a platform of more powerful effect by conjugating the PS to long chain polyunsaturated fatty acids (LC-PUFAs) at various saturation levels. The SharpPS™ GOLD, which represents contemporary state-of-the-art technology and research, is an exclusive conjugated PS-DHA compound developed to offer even greater cognitive effect than the currently available soy-PS (SB-PS).

Enzymotec is investing heavily in developing the next PS based generation by conducting extensive pre-clinical and clinical research. Thus, Enzymotec is currently running several clinical trials aimed to demonstrate the effect of the Sharp™ line on improving cognitive capabilities in elderly subjects suffering from cognitive deterioration. Efficacy is assessed by using a wide battery of cognitive tools.

Phosphatidylserine and its effect on cognitive functions
Several supplements have been shown to have an effect on memory and learning abilities. The most prominent one is PS, which has been shown to slow down and even reverse the deterioration of some of the age-associated cognitive functions, among which are short-term memory, remembering names, facial recognition and the capacity to learn new tasks1,2.

PS serves as a building block in all our body membranes, yet most abundantly in the brain. (cont. on page 3)
neurodegenerative diseases (bovine spongiform encephalopathy). Therefore, it is not surprising that over the past century the average dietary consumption of phosphatidylserine was markedly lowered. From a previous daily consumption of phosphatidylserine of ~250 mg, the Western society diet nowadays provides between 180 mg (carnivores) to 50 mg (vegetarians) of phosphatidylserine per day.

**PS as a dietary supplement**

PS has been used as a dietary supplement for over two decades. Historically, it was produced by an extraction from bovine brains. When mad-cow disease emerged, the industry shifted from bovine source to a lecithin (soy-derived) source that has been shown to have similar effect on cognition. Numerous clinical trials have been conducted with PS prior to the publication of two qualified health claims by the American Food and Drug Administration (FDA). The first claim states that “phosphatidylserine (PS) may reduce the risk of cognitive dysfunction in the elderly”, while the second claim states that “phosphatidylserine (PS) may reduce the risk of dementia in the elderly”. PS has also emerged from this extensive clinical examination with an excellent safety record.

In Europe, no health claim is currently allowed, but PS as a dietary supplement has been approved for use from its inception.

**The aging of the population**

During the last century, the life expectancy has been rising sharply and is expected to continue to rise in nearly all populations throughout the world. There are currently 600 million people in the world who are aged 60 years or older. This figure is expected to double itself by 2025 and reach 2 billion by 2050.

In Scandinavia, there are approximately 8.3 million persons over the age of 50, constituting 34% of the population.

**References:**


**The deterioration of mental health during aging**

Numerous observational studies have shown that age is associated with cognitive impairment, which is unfortunately among the most prevalent age-associated health concerns. It is thought that about 40% of persons aged 65 or older have age associated memory impairment. Mild cognitive impairment represents a more severe form of memory loss and is often defined by significant memory deficits without functional impairments. About 10% of persons aged 65 years or older have mild cognitive impairment, and nearly 15% of them develop Alzheimer’s disease.

PS is ordinarily consumed in pills, softgels or capsules. Consumption of 300 mg PS is generally recommended for a period of 4-6 weeks (initiation) and subsequently 100 mg/day as a maintenance level.
Plant extracts with anti-inflammatory effects

Research has shown a connection between inflammation and metabolic syndrome. Alsiano offers a range of plant extracts with excellent anti-inflammatory properties

By Annette Strarup, Area Sales Manager, Alsiano A/S

The classical view of inflammation is pain, swelling, reddening and warmth as when we have an upper respiratory tract infection (URTI). Inflammation is a part of the natural defence of the body against infections, irritations, toxins and other foreign intruders (foreign molecules). The white blood cells and cytokines are being mobilized to protect against these intruding components.

Sometimes this natural balance of the immune system is disturbed and the defence is turned into a condition of inflammation that is chronic. The chronic inflammation can in the early phase lead to obesity, memory loss and problematic skin – and when becoming severe it can lead to dementia, heart diseases and cancer. The natural defence may become uncontrollable not only for persons with inflammation diseases such as arthritis, but also for healthy people who are exposed to irritants such as food allergies, toxins, sugar, animal fat, paradentosis, stress, lack of exercise, etc.

The connection between inflammation and weight gain

New research has found that inflammation is the most important factor leading to weight gain, especially when there is an imbalance in blood sugar due to insulin resistance (pre-diabetes).

The biggest source of inflammation is the adipocytes (fat cells) around the belly. The adipocytes produce the hormone called leptin, which reduces appetite, and also cortisol. The adipocytes also produce the anti-inflammatory molecules, cytokines, including IL-6 and TNF-alfa. These fat cells are very busy controlling appetite, hormones and inflammation.

The molecules that are produced in the fat cells create damage in the metabolism by:

- Increasing inflammation
- Increasing appetite
- Reducing fat burning (thermogenesis)
- Producing stress hormones

This leads to weight gain, metabolic syndrome or pre-diabetes. The weight gained creates even more inflammation thus creating even more weight gain, etc. Intake of anti-inflammatory extracts, makes it possible to break this vicious circle, reducing the inflammation in the body and by this lose weight.

Plant extracts reducing inflammation

Some of the most exciting research in recent years has focused on phytonutrients which can reduce inflammation. Here is a selection of plant extracts that can reduce inflammation:

- Ginger extract
- Curcumin extract
- Rosemary extract
- Sarsaparilla extract
- Yerba Maté extract
- Cocoa extract

This is a selection of plant extracts that can reduce inflammation: ginger, curcumin, rosemary, sarsaparilla, yerba maté, cocoa.

Ginger extract

An extract of the rhizome of the perennial plant Zingiber officinalis. Ginger extract contains a number of different phenolic compounds, some of which display anti-inflammatory and anti-oxidant properties.

Curcumin

A phytonutrient pigment from the plant Curcuma longa - commonly known as turmeric. Curcumin blocks the formation of reactive species and possesses anti-inflammatory properties as a result of inhibition of cyclooxygenase (COX) and other enzymes involved in inflammation.

(continues on page 5)
Rosemary
Rosemary officinalis is a herb commonly found in the Mediterranean countries. Rosemary has been reported to have strong anti-oxidant characteristics. The strong antioxidant activities of rosemary are caused mainly by phenolic diterpenes, carnosol, carnosic acid and rosmarinic acid. Rosmarinic acid helps to block synthesis of leukotriens (a cause of allergic inflammation) and prostaglandin 2.

Sarsaparilla
From the woody wine Smilax officinalis growing in the rain forest. It is the root part of the plant that is utilized. Sarsaparilla has anti-inflammatory properties demonstrated in several in vitro and in vivo studies. Sarsaparilla contains plant steroids including sarsapogenin, smilagenin og stigmast-terol.

Yerba Maté (Paraguay tea)
Maté extract comes from the South American rain forest and provides a complex combination of xanthin alkaloids including caffeine, theopylin and theobromines. Studies have shown that maté may stimulate adrenal glands to produce cortisteroids which help suppress inflammation and immune response caused by allergies. Another study claims that LDL oxidation is inhibited by maté.

Cocoa extract
Cocoa extract from cocoa beans is composed of cocoa flavanols that have an influence on the inflammatory pathway as demonstrated by several studies. The flavanols modify the production of pro-inflammatory cytokines and the synthesis of eicosanoides5.

Alsiano can provide you with samples
Alsiano can provide you with samples of the above mentioned products or recommend other plant extracts with anti-inflammation properties. Alsiano has partners all over the world within plant extracts, and we can supply extracts from almost any geographical area of your interest.

Metabolic syndrome
There is an increasing number of people with metabolic syndrome in Europe including Scandinavia. Metabolic syndrome is a complex of obesity, insulin resistance and dyslipidemia, which increases the risk of prevalent diseases such as cardiovascular disease and type 2-diabetes.

The metabolic syndrome is characterized by a group of metabolic risk factors in one person. They include:

- Abdominal obesity (excessive fat tissue in and around the abdomen)
- Atherogenic dyslipidemia (blood fat disorders — high triglycerides, low HDL cholesterol and high LDL cholesterol — that foster plaque build-ups in arteries)
- Elevated blood pressure
- Insulin resistance or glucose intolerance (the body can’t use insulin or blood sugar properly)
- Prothrombotic state (e.g. high fibrinogen or plasminogen activator inhibitor–1 in the blood)
- Proinflammatory state (e.g. elevated C-reactive protein in the blood)

People with metabolic syndrome are at increased risk of coronary heart disease and other diseases related to plaque build-ups in artery walls (e.g. stroke and peripheral vascular disease) and type 2 diabetes. The metabolic syndrome has become increasingly common in the United States. Estimates indicate that over 50 million Americans have it.

The dominant underlying risk factors for this syndrome appear to be abdominal obesity and insulin resistance. Insulin resistance is a generalized metabolic disorder, in which the body can’t use insulin efficiently. This is why the metabolic syndrome is also called the insulin resistance syndrome.

References
(3) Ultrametabolism, Mark Hyman, Scribner NY, 200
(4) The textbook of Functional Medicine, www.functionalmedicine.org

Article 335
LYCOAT® coating suits your plant extract tablets so well

LYCOAT® from Roquette does not interact with plant extracts and is therefore a perfect choice for film coating of plant extract tablets. Quick coating time, pH-independent disintegration time and film robustness are examples of some of the other benefits that LYCOAT® offers.

By Elham Blouet, Pharmaceutical Project & Development Manager, Roquette

Nutraceutical tablets are very popular as consumers are looking for natural and traditional medicines. According to the database GNPD Mintel review (Global New Products database), herbal-botanical claims represent 27% of the VDS (Vitamins and Dietary Supplements) product launches in 2007. This reflects the consumer’s consciousness of the medicinal properties attributed to plants and their extracts. Among the plants used, green tea and ginseng are the most favoured followed by ginkgo, echinacea and garlic.

Herbal extracts are usually very difficult to formulate, for the following reasons:

- Very hygroscopic
- Usually waxy products
- Poorly compressible, difficult to bind and poor flowability
- Used often in high doses, making the formulation even more difficult.

Film coating of herbal tablets is a common practice as it makes it possible to mask unpleasant taste, odour and colour often associated with plant extracts. Because of food regulatory restrictions, no synthetic polymers such as PVA or PEG can be used. As a consequence, only few polymers are suitable. In addition, some plant extracts can be incompatible with natural origin film coating polymer.

LYCOAT® a natural origin coating polymer reveals total inertness and full compatibility with plant extract, as illustrated by a case study with green tea extract. LYCOAT® has food (E1440) and pharmaceutical regulatory status.

Benefits and performances of LYCOAT® for film-coating
LYCOAT® is ROQUETTE’s modified pea starch film coating polymer developed for a quicker quality coating.

Besides the quick coating time, LYCOAT® has a number of other benefits to offer:

- Simple preparation: no problem with lump or foam formation
- Complete aqueous dissolution at room temperature with traditional mixing equipment
- Neutral suspensions
- Low viscosity for substantial cost savings
- Reduction of process time thanks to quick coating

In addition, LYCOAT® exhibits excellent coating performances and gives a glossy and high quality film:

- pH-independent disintegration time
- Brilliant appearance
- Film robustness means tablet strength

Inertness of LYCOAT® in connection with plant extract: green tea extract
The inertness of LYCOAT® coating versus HPMC types was demonstrated through trials carried out on green tea tablets containing 40% of green tea continues page 7
extract (80% polyphenol content). Tablets were coated using ready-to-use film-coating products based either on LYCOAT® (ReadiLYCOATTM) or on HPMC. The appropriate coating conditions for ready-to-use film coating systems containing LYCOAT® or HPMC were applied using conventional coating equipment. A target of 3.2% weight gain was applied.

Friability, hardness, disintegration time and dissolution profile (polyphenol content) of coated tablets versus uncoated ones were evaluated using standard EP/USP methods and equipment. The resulting data are shown in table 1 and figure 1 respectively.

As demonstrated by the above results, the HPMC film-coating of green tea extract tablets increases significantly the tablet hardness and disintegration time, whereas a negligible non-significant increase is observed with the LYCOAT® film-coating. This difference between HPMC and LYCOAT® is further confirmed by the dissolution profile data (figure 1) that shows a marked increase in dissolution time for the HPMC coated green tea extract tablets whereas the LYCOAT® coating does not have any impact on the dissolution rate. The LYCOAT® coated green tea extract tablets display a dissolution profile matching that of the uncoated tablets.

![Figure 1: Influence of coating LYCOAT® vs HPMC on dissolution profile of green tea extract tablets (as measured by polyphenol content)](image)

These results observed can be explained by a physicochemical interaction between the green tea extract and the HPMC which hinders the polyphenol dissolution. A gel-like mixture is formed when the HPMC and the green tea extract are mixed together whereas no interaction occurs between the LYCOAT® and the green tea extract (figure 2).

The above case study is one illustration of the inertness of LYCOAT® in connection with plant extracts which can be used in vitamins and dietary supplements. This inertness on top of its other benefits and performances will make LYCOAT® one of the reference film coating and an ideal polymer for nutraceutical film-coatings.

**Table 1: Influence of coating on tablet characteristics**

<table>
<thead>
<tr>
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<th>Friability</th>
<th>Hardness (N)</th>
<th>Disintegration time (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncoated tablets</td>
<td>None</td>
<td>108</td>
<td>26 min 50 sec</td>
</tr>
<tr>
<td>LYCOAT® formulation coating</td>
<td>None</td>
<td>117</td>
<td>28 min 53 sec</td>
</tr>
<tr>
<td>HPMC formulation coating</td>
<td>None</td>
<td>137</td>
<td>67 min 46 sec</td>
</tr>
</tbody>
</table>

**Article 336**

Figure 2: LYCOAT does not interact with green tea extract contrary to HPMC
Organic soluble fibres from agave

Alsiano has entered into a co-operation agreement with Nekutli, Mexican producer of certified organic soluble fibres derived from Blue Agave. These products complement the range of dietary fibre ingredients, enabling Alsiano to offer an organic alternative.

Organic soluble fibres
Metlin and Metlos are branched inulin and FOS extracted from Blue Agave. Agave is an excellent source of inulin and FOS due to its high content of these ingredients (up to 28% wet basis) and an almost perfect DP distribution. This allows Nekutli’s proprietary separation and purification technology to obtain a FOS rich product, Metlos, or an inulin rich product, Metlin. Both products are organically certified, making Nekutli one of the few suppliers of organic soluble fibres in the market so far.

Applications
Metlin and Metlos can provide very interesting functionalities since the branched structure makes them extremely soluble in cold water (up to 15% at 4°C), which allows their use in applications where solubility is the key.

Metlin and Metlos can be used in many organic applications such as nutrition bars, powder blends, and tablets. Depending on the application, the two products can be used to increase the fibre content, improve the texture or mouth-feel, reduce the sugar and/or calories and in general convey the message that organic products and fibres are good for your health. These are all properties that up till now have been almost impossible to obtain in organic products, thus leaving these products at a very traditional level.

Offering an organic alternative, Metlos and Metlin complements Alsiano’s range of dietary fibre ingredients that, among others, comprises the following:

- Oligofructose enriched inulin
- Inulin
- Oligofructose liquid
- Wheat fibre
- Citrus fibre
- Cocoa fibre
- Barley fibre
- Dextrin

About Nekutli
Nekutli is a Mexican corporation formed by farmer groups and native American organizations that agreed to work under rules of fair-trading and the promotion of organic farming.

Today, the corporation represents over 60,000 farmers and operates in 17 states throughout the Republic of Mexico.
New product guide for fermentation and formulation

Alsiano has launched a new leaflet to give producers using fermentation and formulation in their manufacturing process an overview of the products offered by Alsiano for fermentation, purification and formulation.

We are pleased to announce that we have launched a new guide in our series of product guides.

The aim of this new product guide for fermentation and formulation is to provide an overview of the products that Alsiano offers to those who use fermentation in their manufacturing process.

The product guide is divided into two separate parts: fermentation and formulation. Fermentation covers the ingredients used in the fermentation process, and formulation deals with the processes following the actual fermentation.

If you would like to receive a copy of our inspiration guides, please let us know: we can either send them to you or set up a meeting during which we can present them to you.

Article 338
The Alsiano Pharma team

It is always nice to be able to put a face on the person you talk to over the telephone or e-mail. So here we are...

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health & nutrition

Sales support

Pharmaceuticals - cosmetics
health & nutrition

Pharmaceuticals - cosmetics
health & nutrition

We wish you all
a Merry Christmas and
a Happy New Year

New Seppic production unit

To meet the growing demand for their film-coating products and give their customers a better service in terms of flexibility and responsiveness, SEPPIC decided at the end of 2007 to invest in a new production unit at the Castres site for a range of SEPIFILM Colourless, SEPIFILM White and SEPISTAB products. This unit is currently in the final qualification phase and will be fully operational from the beginning of 2009. The quality of the products manufactured at the new plant will remain unchanged. Thus, the construction of the new entity is in line with GMP.