The Pollen Press

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FUTURE ISSUES:

New Equipment

UPCOMING EVENTS:

SupplySide West
November 14th-15th
Las Vegas, NV
Booth # 29027

Apteka
December 9th-12th
Moscow, Russia
Booth # B-601

Visit to Graminex Pharma

Representatives from Graminex Pharma and Graminex USA in Moscow

In May this year representatives from Graminex Justin Ritter, Regulatory Affairs and Nick Wagner, Plant Manager visited Graminex Pharma in Moscow, Russia. The trip was very successful for the Graminex employees from the United States to have in-person meetings about the products currently being sold in Russia by Graminex Pharma and about potential new project developments.

Graminex Pharma showed the representatives the warmest hospitality with a visit to the Graminex Pharma office and a personalized site-seeing tour through the beautiful city of Moscow. Graminex looks forward to continuing our relationship with Graminex Pharma and returning for another visit in December for the Apteka 2013 Exhibition.

Spring Pollen Harvest 2013

Graminex is pleased to announce another successful pollen harvest. This year's rye crop came up extremely well early this spring. Ohio's growing weather stayed steady through the spring and early summer until harvest. Graminex was able to harvest and process the 2013 crop over a two week period. Currently our raw pollen material storage facility is at its maximum capacity.

The 2013 pollen harvest included an increase in the acreage from past years. This was made possible by farmland purchases that were made by Graminex. The continued acquisition of farmland directly by Graminex allows us to maintain total control over the farmland every year, including the years where the ground is not in a pollen rotation. This gives Graminex the unique opportunity to be able to offer the purest, 100% source controlled raw materials. Graminex strives to provide the highest quality Non-Solvent Flower Pollen Extracts to the world markets.

Graminex G63™: Effects on Liver Damage

What is hepatotoxicity?

Hepatotoxicity is the type of damage that occurs in the liver from toxic buildup of elements in the body. The liver itself functions as a site for the transformation of foreign substances and various chemicals into less harmful compounds. After that they are eliminated from the body. Different metabolic processes that complete these chemical transformations make it possible to reduce the fat solubility and change the biological activity of toxic compounds. By converting the toxins to inactive water soluble chemicals, the liver stops toxins from being deposited and accumulated in the body's fatty tissues. These newly created water soluble chemicals may then be eliminated from the body via the urine or bile. The liver completes this process for both endogenous substances, which originate from within the body (e.g. cholesterol or proteins) and exogenous substances, which originate from outside the body (e.g. chemicals or drugs). Because the liver plays a major role for these transformations, it is the most susceptible to drug induced injury from both over-the-counter medications (OTC) and pharmaceuticals.

What causes hepatotoxicity?

Chemicals that can cause damage to the liver are called hepatotoxins. Common hepatotoxins include alcohols, OTC pain relievers, prescription medications, various herbs and industrial chemicals. Among these hepatotoxins, drug induced liver damage accounts for 50% of all acute liver failures.[1] Depending on the hepatotoxin, different forms of damage may occur, including zonal necrosis, hepatitis, cholestasis, granulomas and neoplasms. Based on the severity of the different damages and the magnitude of disturbances to liver functions, large concentrations of hepatotoxins lead to acute liver failure. To test for liver damage a number of different biochemical markers are used as indicators including aminotransferases, alkaline phosphatase, cholinesterase and bilirubin. These biochemical markers show a direct correlation to the amount of damage present in the liver.

Flower Pollen Extract and its effects on hepatotoxicity

There are several clinical studies that have demonstrated the use of Flower Pollen Extract having beneficial effects in the event of hepatotoxicity. These studies have established the pollen extract's ability to prevent or reduce damage incurred by a variety of hepatotoxins including paracetamol, allyl alcohol, ammonium fluoride, ethionine, carbon tetrachloride and galactosamine. The various different hepatotoxins were administered to rats in conjunction with the pollen extract over a given period of time. The studies were designed to look at both therapeutic and prophylactic applications. Different biochemical indicators were monitored and liver cells were examined to determine if the pollen extract treatment was effective in reducing overall liver damage.

Ammonium Fluoride

A common hepatotoxin used for clinical studies on liver damage is ammonium fluoride. Ammonium fluoride is a compound that is used for etching glass, preserving wood and in printing and dying textiles. Prolonged exposure to this compound causes the destruction of the liver's functional units or lobules and an excessive accumulation of extracellular matrix proteins or liver fibrosis. Two studies have been completed demonstrating the benefits of pollen extracts on the liver after prolonged ammonium fluoride exposure. One of the studies conducted applied the pollen extract simultaneously with the ammonium fluoride.[2] This study found that when the pollen extract was administered at the same time as the intoxication, damage to the liver practically did not occur. There was a substantial reduction in the negative activity of the toxin and it even prevented the development of negative changes within the liver tissue.

A second study conducted with ammonium fluoride recorded data on various biochemical indicators including aminotransferases, alkaline phosphatase, cholinesterase and bilirubin.[3] It was demonstrated that under intoxication with ammonium fluoride alone there was a rise in the activity of aminotransferases and alkaline phosphatase, and a decrease in cholinesterase. There was also a rise in the bilirubin levels tested in the blood serum, providing evidence that liver damage was occurring. A prophylactic application of pollen extract in this study was able to normalize the enzymatic activity of the biochemical indicators and lower bilirubin levels, demonstrating a beneficial effect on the liver.

Paracetomal

Another common hepatotoxin is paracetomal, or acetaminophen, a commonly used OTC analgesic. Paracetamol toxicity is the most common cause of acute liver failure in the United States and the United Kingdom.[4] During the course of paracetomal intoxication biochemical indicators respond as previously mentioned with the addition of a decrease in glutathione. Glutathione is a natural antioxidant present in the liver that prevents liver damage from occurring. Levels of glutathione are often measured as an indicator for liver damage.

When pollen extract was administered therapeutically the survival rate of the animals was increased, glutathione levels were increased and on physical examination, the hepatic lesions were decreased.[5] The role of glutathione was found to be significant for the mechanism of action of the pollen extract in protecting the liver. An additional study indicated the normalization of the biochemical indicators of necrotic changes occurring in hepatic cells.[6] In reference to paracetomal toxicity, these studies clearly display the hepatoprotective effects of the pollen extract.

Other hepatotoxins

Other studies that have been conducted using Flower Pollen Extract to show support for liver function have used allyl alcohol and galactosamine. Studies that looked at allyl alcohol intoxication involved application of the pollen extract after intoxication and monitoring the biochemical markers for therapeutic effects.[7,8] Both studies found that the pollen extract had a significant beneficial effect on the blood serum levels of biochemical indicators associated with allyl alcohol intoxication, including aminotransferases, alkaline phosphatase, and bilirubin. Other studies conducted with galactosamine, a hepatitis inducer, proved that pollen extracts brought about a rapid, significant reversion to normal or almost normal aminotransferases and alkaline phosphatase activity as well as normal bilirubin levels.[8,9] This indi-

cates a prevention of much of the damage caused by galactosamine in the liver. Various other studies have been completed showing Flower Pollen Extract's hepatoprotective effect on the liver under intoxications with different organic solvents and toxic compounds.[10,11]

Conclusions

Flower Pollen Extract has been used historically for a variety of health indications including liver support. The unique growing, manufacturing process and exact standardization methods provide a Flower Pollen Extract raw ingredient that goes beyond and is superior to the normal botanical extracts and bee pollen on the market. The chemical makeup of each batch of Graminex Flower Pollen Extract™ is the same each and every time it is manufactured, so finished goods contain the same levels of nutrients every time.

There is evidence in all of these clinical studies that supports the use of pollen extract as a hepatoprotective substance both therapeutically and prophylactically, especially when dealing with various intoxications with hepatotoxins. (Table 1) It has been demonstrated that pollen extract can effectively normalize biochemical indicators and enzymatic activity associated with hepatotoxicity as well as reduce hepatic lesions and liver damage. Flower Pollen Extract may be considered as a useful supplement for the support of healthy liver functions, especially when dealing with hepatotoxicity.

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3. Mysliwiec, Z., Roczniki Pomorskiej Akademii Medyeznej, 1993, 39, 71-79.

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Summary of clinical study findings on hepatotoxicity with Flower Pollen Extract

Hepatotoxin	Application Method	Results
Ammonium Fluoride	Prophylactic	1. Damage to the liver practically did not occur.[2] 2. Prevented negative liver changes from occurring.[2] 3. Normalized the disorder involving enzymatic and lipid parameters.[3]
Paracetomal	Prophylactic Therapeutic	1. Increased the survival rate of animals.[5] 2. Decreased hepatic lesions. [5] 3. Hepatoprotective effects displayed by normalization of biochemical indicators associated with necrotic changes.[6]
Allyl Alcohol	Therapeutic	1. Significantly reduced serum enzyme elevations induce by intoxication.[7] 2. Reduced damage to the liver.[8] 3. Normalized the activity of transaminase, phosphatase and bilirubin.[8]
Galactosamine	Prophylactic Therapeutic	1. Prevented much of the damage actually caused by intoxication.[8] 2. Showed a rapid, significant reversion to normal or almost normal aminotransferases and alkaline phosphatase activity, as well as the bilirubin level.[9]
Ethionine	Prophylactic	1. May be used for effective protection of liver cells from toxic actions.[8]
Carbon Tetrachloride	Therapeutic	1. Mitigated damage to the liver.[8]
Organic Solvents	Prophylactic	1. Normalized impairments affecting the enzymatic and lipid parameters.[10]
Testosterone	Therapeutic	1. Normalized biochemical indicators of necrotic changes, testifying to the hepatoprotective effects on hepatic cells.[11]

Wellness News: Graminex Health Program

Graminex has begun a new Health Program that encourages healthier eating and healthier lifestyles while at work. An overall weight of all the employees was recorded for the starting weight at the beginning of May. The goal is to reduce this by 100 pounds by the end of summer.

Employees submit new weights biweekly to gauge how well the program is working. The company has encouraged employees to walk more within the facility while conducting daily business as well as a voluntary outside walk for 30 minutes of each day.

So far the program has resulted in a substantial weight loss and employees leading a healthier lifestyle at work. Graminex hopes to make a difference in our employee's lives by not only improving their health but by making Graminex a healthier place to work.

Product Spotlight: Pollenique Juvenescent™ Eye Renew

Pollenique Juvenescent™ Eye Renew is a unique skincare formula developed around Graminex G60WS Flower Pollen Extract™. Graminex G60WS™ is a concentrated form of water soluble pollen extract. This along with other innovative ingredients makes Pollenique Juvenescent™ Eye Renew a must for those looking to improve the appearance of the skin around and especially beneath the eyes or the periocular area.

The skin beneath the eyes is extremely sensitive because it very thin. It is up to 10 times thinner than the skin on the rest of the face. Overtime the skin loses its elasticity and firmness, causing slackening. This natural process causes eye bags to form. What you are seeing is the underlying fat pads that are located beneath the skin underneath the eye. As we age the ligaments and muscles that serve as support structures begin to weaken, making these fat pads more visible. Increased sun exposure, environmental exposures and smoking facilitate this process. In addition to this, the periocular area is subject to almost constant movement from blinking and various facial expressions. Rubbing and tugging on this tissue while experiencing allergies, crying, removing makeup, and inserting and removing contact lenses can also lead to a decrease in skin elasticity.

Pollenique Juvenescent™ Eye Renew has been developed for both men and women to help diminish eye bags and to improve the brightness and appearance of the skin around the eyes. The addition of Graminex G60WS Flower Pollen Extract™ infuses a unique combination of invigorating active molecules, all naturally derived from nature's building blocks for new life. These actives include both essential and non-essential amino acids, vitamins and minerals. When applied daily the actives stimulate the skin cells to protect themselves from external aggressors. These include daily exposures such as sun, oxidative elements, pollution and inflammatory agents. Graminex G60WS™ demonstrates many skin benefits that lead to a diminished appearance of signs due to the everyday aging process.

Another active ingredient in Pollenique Juvenescent™ Eye Renew is *Cecropia obtusa*. ZThis active has been demonstrated to reduce the appearance of cellulite underneath the eye. This accumulation of cellulite occurs from restricted blood flow and lymphatic fluid concentration. By removing these concentrations of fluids, toxins and fat cells, the periocular area appears less swollen and brighter. In vitro tests have shown that *Cecropia obtusa* has the ability to induce lipolysis of adipocytes, or fat cells. As these adipocytes are broken down, eye bag volumes and appearances diminish.

The combination of distinctive ingredients found in Pollenique Juvenescent™ Eye Renew creates a beneficial skin care product for those who would like to reduce the signs of aging around the eyes. For more information about this product or Pollenique's other skin care products please contact us at **sales@graminex.com** or **1-419-278-1023**.

Halal Certification

In October of 2012 Graminex received it's new Halal Certification for our raw material products. This certification includes our Graminex G63™, G60™, G60WS™, GFX™ and NAX™ Flower Pollen Extracts. After a facility inspection and records review by the Islamic Food and Nutrition Council of America (IFANCA), Graminex was granted its certification. "With Graminex now being Halal Certified, we can guarantee our products and their components comply with the strict guidelines under Islamic Dietary Law," stated Justin Ritter, Regulatory Affairs. This certification is an important step to ensuring that Graminex will continue to provide the purest, high quality raw materials to the industry by meeting the individual needs of its customers. For questions or more information please contact Justin Ritter, Regulatory Affairs at **jritter@graminex.com**.

THE ISLAMIC FOOD AND NUTRITION COUNCIL OF AMERICA

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Suggestions or submissions for future articles can be emailed to the Editor Colleen May at bugs@graminex.com