

# A Synopsis of the Herbs used in LERA<sup>®</sup> Adaptogen Blend & LERA<sup>®</sup>-VG



Sunrise Global Trading, LLC

"A Little Company Doing Big Things"

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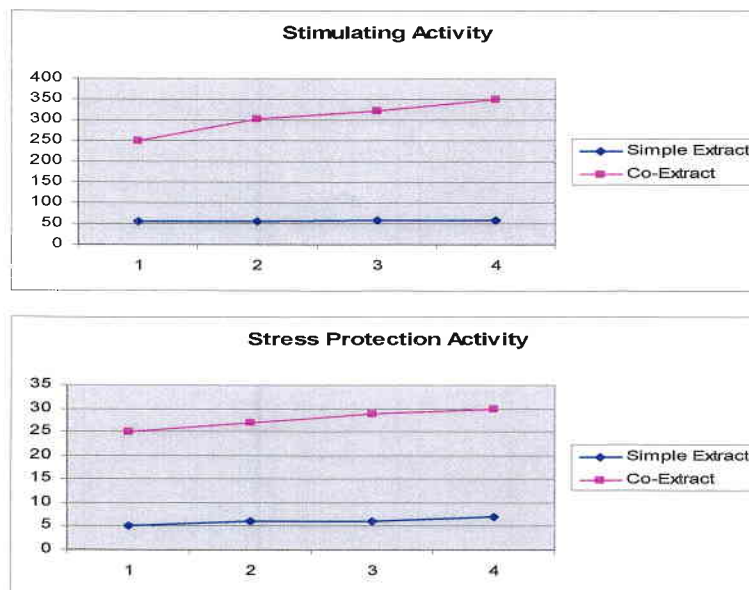
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## A Synopsis of the Herbs used in LERA<sup>®</sup> Adaptogen Blend & LERA<sup>®</sup>-VG

LERA<sup>®</sup> Adaptogen Blend is a unique blend of adaptogens combined by a proprietary process called co-extraction. Dr. I.I. Brekhman, who many call the Father of Adaptogens, devoted his life to the discovery and application of natural substances that would have the greatest benefit to mankind. Brekhman was determined to combine the herbs having the greatest benefit into one "elixir." This was a very challenging project. The plant substances have different consistencies, gravities and components that, when combined in a cocktail type blend (simply combining the various herbs), many of the biologically active substances fall out or precipitate rendering the blend biologically useless.

Co-Extraction is a process of quantifying the active substances in the plants and calculating the desired results based on experience in extraction. The plant parts are processed according to a carefully calculated and meticulous process that yields a homogenous blend or extract, each of the bioactive substances being readily available. The resulting blend is very stable and has been shown to have a long and useful shelf life.

Analysis of the resulting blend surprised even Dr. Brekhman who expected that the resulting substance would have a greater benefit than the sum of the parts. Laboratory analysis of the stimulating activity shows that the LERA<sup>®</sup> blend has a biological benefit that is 5.5 times greater than the sum of the parts as measured in a cocktail blend. Brekhman was satisfied with the results and was determined that his research would now contribute to better health and well-being.



- Testing co-extracts has proven that the stress protective activity exceeds by 5.5 times the stimulating and stress protective activity from individual extracts in the case of these particular studies.

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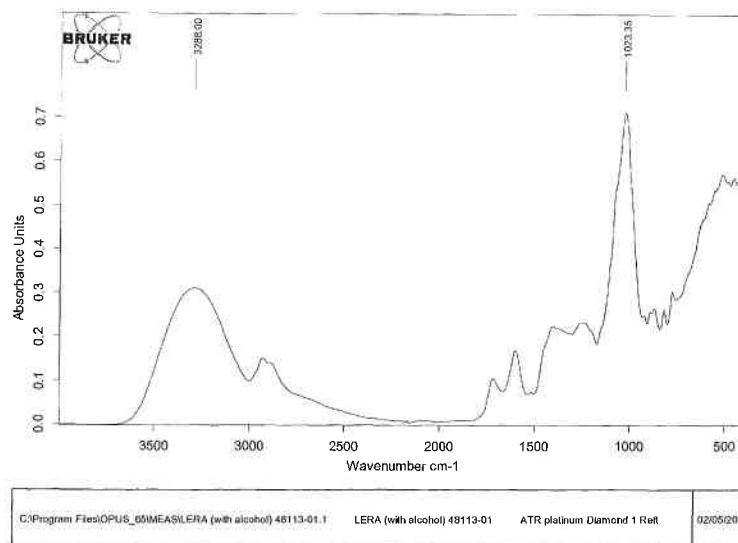
# Product Validation

LERA<sup>®</sup> Adaptogen Blend and LERA<sup>®</sup>-VG (Vegetable Glycerin) are evaluated against recognized standards for botanical validation. Each herb used in LERA<sup>®</sup> must meet stringent pharmacopeia standards in Russia (GOST). This includes identification using \_\_\_\_\_

As part of the validation processing the final product has been measured by both HPLC and FTIR (Fournier Infrared Technology). This process essentially provides a thumbprint of the herbal complex and this measurement is completed periodically to compare batches and seasonal changes in the natural plant extract.

As an added measure the same standards are used to measure the VG version of LERA<sup>®</sup>. LERA<sup>®</sup>-VG is processed using roto-vacuum technology to remove the alcohol portion of the complex extract and replacing the alcohol with Kosher vegetable glycerin. Below is a chart comparing the original adaptogen blend in alcohol and the same herbal blend in the vegetable glycerin base. The correlation is 96.04% that confirms that the biological active substances that are present in the original material are also present in the vegetable glycerin (alcohol removed) version. This difference can be explained in part, because glycerin alone has polyphenols that can interfere with the measure of some of the polyphenols in the native blend.

## FTIR LERA<sup>®</sup> Adaptogen Blend



**Eleutherococcus senticosus** (Rupr. & Maxim.) Maxim.  
[*Araliaceae*]

SCN<sup>1</sup>: Eleuthero

Syn: *Acanthopanax senticosus* (Rupr. & Maxim) Hams

PN: ci wu jia (root & rhizome)

OCN<sup>2</sup>: Siberian ginseng, Ussurian thorny pepperbush

CAS No.:

USE: Prior Use DSHEA 1998 / CRN Addition / GRAS – Medicinal

Plant Part Used: Root

One of the most studied adaptogens and probably the first herbal species that received this definition. It is one of the main ingredients for every adaptogenic formula; it must be in any stress-protective formula according to the definition. It possesses a broad spectrum of biologically beneficial activity including, but not limited to:

- a. Stress-protective
- b. Longevity and vitality
- c. Increases physical and mental energy
- d. Natural aphrodisiac
- e. Anti-senility and memory improvement
- f. Increases the function of the adrenal glands
- g. Decreases the symptoms of diabetes
- h. Treatment of exhaustion and debilitation from chronic disease
- i. Lowers blood cholesterol levels
- j. Antioxidant properties
- k. Immune system booster
- l. Improves physical performance in athletes
- m. Increased endurance
- n. Memory improvement
- o. Anti-inflammatory
- p. Chemo protective
- q. Anti-viral protection
- r. Radiological protection



*Eleutherococcus senticosus* is mildly tonifying. It is neutral energetically and so is appropriate for daily use. Taken regularly, it enhances immune function, reduces cortisol levels and inflammatory response, and it promotes improved cognitive and physical performance. It was shown that *Eleuthero* successfully treated bone marrow suppression caused by chemotherapy or radiation, angina, hypercholesterolemia, and neurasthenia with headache, insomnia, and poor appetite.

<sup>1</sup> SCN = Standard Common Name

<sup>2</sup> OCN = Other Common Name

## **Crataegus laevigata (Poir.) DC. [Rosaceae]**

Syn: *Crataegus oxyacantha* auct.

OCN: English hawthorn; May tree; white thorn

CAS No.:

USE: Prior use DSHEA 1998

Plant Part Used: Fruit (Berries)

### **Hawthorn**

Extract of Hawthorn berries contains a variety of flavonoids and proanthocyanidins that are powerful antioxidants, which exert a beneficial effect on the entire cardiovascular system. The herb is also responsible for a dilating effect on the blood vessels that results in lowering blood pressure and a decreased incidence of angina. Recent clinical studies have shown promise in the use of Hawthorn for the treatment of Congestive Heart Failure (CHF).

#### **Uses in Modern Medicine:**

Hawthorn seems to work in two main ways. For one, it dilates the blood vessels, especially the coronary arteries that nourish the heart muscle. The activity of Hawthorn may help to lower blood pressure and reduce angina. As the arteries dilate, or open wider, pressure throughout the blood vessel system is lowered. Hawthorn berry has been described as the "cardio herb," secondary to the following positive effects exerted on the cardiovascular system:

- Decreases cholesterol levels
- Decreases angina (chest pain) by dilating the cardiac blood vessels
- Prevents congestive heart failure by improving the contractions of the cardiac muscles, very similar to the prescription medication Digitalis
- Lowers blood pressure
- Promotes a regular cardiac rate and rhythm
- Improves general circulation
- The dilating effect (hence the potential to decrease blood pressure) of Hawthorne berry is why the herb is an important part of the Physicians Select Weight Loss Supplement. The Hawthorne berry reduces the potential for increased blood pressure that may result secondary to the actions of the Ephedrine and some of the other stimulate herbs in the Physicians' Select proprietary blend.



## **Aralia elata** (Miq.) Seem. [*Araliaceae*]

SCN: Japanese aralia

Syn: *Aralia mandchurica* Rupr. & Maxim.

OCN: Chinese angelica tree, Japanese angelica tree

CAS No.:

USE: GRAS

Plant Part Used: Root

*Aralia* is a powerful adaptogen sometimes called Manchurian Thorn Tree. *Aralia* is a tree-like plant growing to 18 feet tall with large thorns and very large leaves. *Aralia* blooms in its 5th year with small white flowers. The fruit of *Aralia* is spherical. Gathering periods are September and October. Roots and rhizomes are used.

- Chemical composition / benefit is from saponins A,B,C and aralosides A, B & C.
- It has a general tonic effect and stimulates the central nervous system.
- Stimulates glucocorticoid function of adrenal glands.
- Increases oxidative-restorative processes
- Strong antitoxic action
- Folk medicine uses include: Grippe and cold.



## Viburnum opulus L. [*Caprifoliaceae*]

SCN: Cramp bark

OCN: guilder rose; high-bush cranberry

CAS No.:

USE:

Plant part used: Fruit

Viburnum, sometimes called High Bush or European Cranberry, is a relative newcomer to adaptogen formulas. Recent studies have shown that Viburnum contains higher amounts of proanthocyanidins than grape seeds. In addition, Viburnum contains a high amount of vitamin and complex organic acids. In experiments on stress-protective activity, where Eleuthero was used as a reference standard, Viburnum demonstrated similar stress-protective benefits.

Viburnum extract is shown to be a very effective pharmacological modulator of carbohydrate and lipid metabolism under varied and unfavorable environmental stress conditions. It restores the energy supply by protecting the aerobic glycolysis pathways. Viburnum is shown to help preserve the body's pool of low molecular weight antioxidants (vitamin E and glutathione), increase the antiradical activity of the liver and serum, prevent oxidation of LDLP, and reduces cholesterol level in the blood.

More recent studies show that Viburnum extract could be used as a modulator for ethanol metabolism thus reducing the harmful influence alcohol has on the liver and generally on the entire body.

The primary role of Viburnum in the LERA™ formula is the pharmacological regulation of carbohydrate and lipid metabolism and improving the ability of the antioxidant protective system of the organism.

The principal activity has to do with the polyphenols complex, which includes as an essential component, a complex array of oligomeric proanthocyanidins (OPC's), sometimes called the "hormone of youth." Complex proanthocyanidins, together with low-molecular fractions, contain a high amount of high-molecular weight proanthocyanidins that can reach the most remote parts of the gastrointestinal system, providing marked anti-toxic action. Further, the polyphenolic complex of Viburnum contains catechins and flavonols. Viburnum contains a high amount of organic acids and reduced carbohydrates that directly improve the restoration and activation of energy metabolism. (Krebs cycle). Viburnum is a very good source of natural vitamin C, P and K and Viburnum contains carotenoids.

Preparations of Viburnum have pronounced hepatoprotective activity, which is demonstrated in normalization of carbohydrate-lipid metabolism in the liver and with various adverse effects on the body, including physical stress, exposure to natural stressors, toxic substances and effects of adverse environmental conditions. Viburnum is highly efficient in the use of prophylactic remedy for accelerating the restoration of metabolic processes in the liver after exposure to stress factors and chemical toxins. Preparations of Viburnum are non-toxic and safe for prolonged use.

Preparations including Viburnum are recommended as a food supplement for stress management, chronic fatigue syndrome and for prophylaxis of dysfunctions under conditions of rapidly changing environmental, climatic and social conditions. Viburnum can aid in preventing seasonal diseases such as colds, influenza and as a remedy to accelerate the adaptation to dramatic fluctuations in temperature, especially in the winter period. Viburnum is effective as a preventative in reducing the toxicity of alcohol and has been shown to slow the degenerative processes of aging. Viburnum has liver protective activity and may assist working medical preparations in restoring liver function in post hepatitis situations.



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## Rhaponticum carthamoides (Wild) Iljin

**Syn:** *Stemmacantha carthamoides*

**Russian:** Leuzea

**CAS No.:**

**USE:**

**Plant Part Used:** Root, rhizome

Rhaponticum is plant indigenous to the Lake Baikal region and distributed throughout Eastern Siberia. Traditionally the Siberians consumed Rhaponticum tea mixed with *Rhodiola rosea* root as a natural stimulant in cases of fatigue and general weakness after an illness and as an energizing remedy after the long Siberian winter.

After more than 25 years of research and clinical studies, *Rhaponticum carthamoides* rhizome has been added to the Official Russian Pharmacopoeia and is recommended as "the herb for increasing work efficiency, athletic performance and recovery after muscular workloads."

**Photochemistry:** Key active constituents responsible for the specific anabolic effect of *Rhaponticum carthamoides* is a mixture of more than 10 ecdysterones including 20-beta-ecdysterone.

**Pharmacology:** According to Russian researchers, the *Rhaponticum* extract stimulates muscle protein synthesis by increasing the activity of the polyribosome. Polyribosomes are the cellular compartments where the actual protein synthesis takes place. Researchers extracted and purified various ecdysteroids from *Rhaponticum* and found that the ecdysteroids increased the mass of the developing quails<sup>3</sup> in a dose-dependent manner, with the rate of increase proportional to the ecdysteroid content. It was evident that the plethora of growth-promoting, vitamin-like effects induced by *Rhaponticum* is mediated by ecdysteroids. However, it is important to point out that the mixture of ecdysterones was found to be responsible for enhancement of muscle protein synthesis. The research indicated that the whole extract of *Rhaponticum carthamoides* containing mixture of ecdysterones, possesses a much superior physiological activity compared with the activity of purified individual constituents.

*Rhaponticum* extract considerably increases the working capacity of tired skeletal muscles and increases their content of glycogen, ATP and Creatine Phosphate. The most popular sports formula traditionally includes the extracts of *Rhaponticum* and *Rhodiola rosea*.

A preparation formulated with *Rhaponticum* and *Rhodiola rosea* should be more widely used not only by professional athletes, but also in the everyday life of healthy persons as a tonic for increasing intellectual and physical work capacity. It could successfully be used against fatigue and for improving the learning and memory processes without harmful effects on the body.



### **Rhaponticum carthamoides - A Powerful Natural Anabolic**

<sup>3</sup> Quails: Enteritis; Enteritis Bronchitis

## Rhodiola rosea L. [Crassulaceae]

SCN: Rhodiola

Syn: Sedum rosea (L.) Scop.

PN: jong jing tian (whole plant)

OCN: Arctic rose; golden root, king's crown; roseroot; rosewort; snowdown rose.

CAS No.:

USE: Prior use DSHEA (rose hips)

Plant Part Used: Root, flower

*Rhodiola rosea* has been categorized as an adaptogen by Russian researchers due to its observed ability to increase resistance to a variety of chemical, biological, and physical stressors. It is a popular plant in traditional medical systems in Eastern Europe and Asia with a reputation for:

- Stimulating the nervous system
- Improving depression
- Enhancing work performance
- Improving sleep
- Eliminating fatigue
- Preventing high altitude sickness
- Stress-protective activity
- Treating asthenia conditions (decline in work performance, sleep disturbances, poor appetite, irritability, hypertension, headaches, and fatigue)



Receiving an extract of *Rhodiola rosea* improves physical fitness, psychomotor function, mental performance, and general well-being, reductions in mental fatigue, improved sleep patterns, a reduced need for sleep, greater mood stability, and a greater motivation to study.

## Sorbus aucuparia (L.) [*Rosaceae*]

SCN: Mountain ash

Syn: *Pyrus aucuparia* (L.) Gaertn.

OCN: European mountain ash; rowan

CAS No.:

USE:

Plant Part Used: Fruit

Sorbus or Mountain Ash contains high amounts of natural carotenoids: vitamin C, PP and substances with P-vitamin activity. It is used as a cholagogue<sup>4</sup> agent. Preparations of Sorbus possess the ability to reduce the lipids in the liver and cholesterol in blood. Sorbus has been shown to reduce arterial pressure and has an action known also at a urolithiasis<sup>5</sup>

Sorbus appears in LERA<sup>®</sup> mainly as an excellent a source of natural vitamins and carotenoids.

In traditional medicine, Sorbus fruit, flowers, and leaves are used. The plant parts possess cholagogue and diuretic properties influencing urolithiasis in the kidneys and urinary tract, and also possess anti-inflammatory, haemostatic, aid capillary-tonic activity. Sorbus is used for its vitamin, astringent, easy laxative, sudorific<sup>6</sup> action. Studies show that Sorbus helps to lower blood pressure, raise coagulability of blood, and is used as an agent for lowering the fat content in the liver and cholesterol in blood.

This quality of Sorbus greatly benefits use in the conditions of atherosclerosis.



The use of the active substances contained in Sorbus increase the resistance of the body to oxygen deprivation. Sorbus strengthens the organism, promotes restoration of metabolism and is very good for the treatment of headaches. Sorbus may have an additional benefit in the struggle against certain cancers. The Mountain Ash also has an application for chronic constipation accompanied by disease of cholic pathes.

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<sup>4</sup>cholagogue: promotes discharge of bile

<sup>5</sup> urolithiasis: formation of urinary calculi

<sup>6</sup> sudorific: sudden increase, large amount

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## **Inonotus obliquus** Pers.: Fr.) Pilat [*Hymenochaetaceae*]

SCN: Chaga

OCN: Clinker polypore

CAS No.:

USE:

Plant Part Used: Mushroom body

Chaga is a non-toxic type of mushroom (fungi) commonly referred to as Lingzhi in China or Reishi in Japan. Lingzhi has a long history of use in Traditional Chinese Medicine. Its legendary effects on good health and vitality are now well supported by modern research studies.

Chaga has been used for centuries as a cancer cure, diabetes, stomach ailments, blood disorders, bronchitis, liver damage, hypertension, tumors and other antibacterial or antiviral infection.

Preparations from Chaga can be applied as active biogenic stimulators, which increase protective forces of the human body, stimulate the central nervous and neurohumoral systems, improve metabolism including activation of metabolism in cerebral tissue, regulate the activity of cardiovascular and respiratory systems, stimulate the homogeneity (increase the level of leukocytes), act as an over-all strengthening means, increase the resistibility of the body to the infectious diseases, possess antipyretic properties during internal and local application, strengthen the cytostatic activity of anti-tumorigenic preparations, inhibit the increase of tumors, causing their gradual regression and slow down the development of metastases, i.e. possess cytostatic action.

Chaga helps to restore the natural resistance processes of the organism and increases its protecting mechanisms directed towards the fight with malignant tumors. Furthermore, preparations of Chaga possess spasmolytic, diuretic, antimicrobial and reparative properties. These normalize the activity of the gastrointestinal tract and intestinal micro flora; they contribute to the cicatrization<sup>7</sup> of stomach ulcers and duodenum and manifest expressed gastro protective properties. Beverages made of the fungus reduce arterial and venous pressure and decrease the rate of pulse

The primary reason Chaga is included in LERA® is its cytostatic action as well as all other documented beneficial properties.

Documented as early as 4600 years ago, ancient Asian folk medicine practitioners relied upon Chaga, a medicinal mushroom, to maintain a healthy life energy balance ("Chi"), preserve youth, promote longevity, and boost the body's immune system to fight viral, bacterial, fungal and parasitic maladies. As a folk medicine, Chaga was ingested by the local people of the Siberian mountain regions in tea or powder form, inhaled from smoke, and applied to the skin for healing of injury or rash. Indigenous people from that area have been documented to live beyond 100 years of age and attribute their long and healthy lives to the use of Chaga.

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<sup>7</sup> Scar formation

The Chinese Monk, Shen Nong, proclaimed Chaga as a superior class medicinal herb for its diverse and complete homeopathic properties. In his work Shen Nong Ben Cao Jin, the first of the three ancient medical books that serve as the foundation of Traditional Chinese Medicine, Shen Nong extols the virtues of Chaga. To this day, Traditional Chinese Medicine practitioners have applied Chaga as a remedy for serious human viruses and disease, including anti-viral applications such as influenza, anti-inflammatory treatment of stomach ulcers, the arrest and reversal of tumor growth. Further uses include balancing the endocrine system in the treatment of diabetes, anti-oxidant uses in detoxifying the body, and as a daily supplement for the overall balancing of the body's immune system and genoprotective properties increasing longevity of life.



Siberian Chaga, *Inonotus obliquus*, naturally found in the black birch forests of the Siberian mountain regions, is the most potent of all the varieties of Chaga mushrooms. Chaga is a parasitic carpophore that enters a wound on a mature tree then grows under the bark until it blisters through the bark forming a grotesque black charcoal-like conk on the tree trunk, hence the Latin epithet "Obliquus." Chaga conk grows with the tree over a 5 to 7-year period, thriving in the harsh Siberian winter environments, absorbing life-sustaining nutrients from the black birch tree, until the conk flower fully ripens, falling to the forest floor, followed shortly by the death of the host tree, completing a 20-year micro-ecological cycle.

Russian culture has embraced the medicinal uses of Siberian Chaga, and its uses have spread westward to the Urals and Baltic regions of the European continent. In the 12<sup>th</sup> Century, Czar Vladimir Monomah was treated with Chaga (for symptoms most probably of lip cancer). Nobel Laureate Alexander Solzhenitsyn was awed by the healing powers of Chaga to treat cancer during the 1950's in his investigative research of patient treatment in provincial Siberian hospitals in his famous work, The Cancer Ward. Today, Chaga tea is commonly used in Russian cultures as a family cupboard remedy to support a healthy immune system. The post-antibiotic world of Western Medicine is now beginning to study, evaluate, and test Chaga for the active compounds underlying its historically understood homeopathic benefits. As with many other natural medicinal foods and herbs, the modern medical and scientific community is coming to understand that whole supplements like Chaga, offer a complex balance of active compounds, delivery mineral structures, and co-agents, more effective to sustaining a healthy immune balance than isolated compounds synthesized from these natural products.

The primary active compounds discovered in Siberian Chaga are a variety of triterpenes and sterols including Lanosterol, Ergosterol Inotodials, Saponins, and Polysaccharides. Modern research is now beginning to demonstrate that these compounds are effective for human maladies treated by folk medicine practitioners with natural products, without toxic side-effects for millennia. Arguably, the most well known western research conducted on the use of Chaga has been performed by Dr. Kirsti Kahlos and her team at the School of Pharmacology, University of Helsinki, Helsinki, Finland. Studies validate the immuno-modulating impact of Lanosterol-linked triterpenes effective as a flu vaccination and for anti-tumor applications. Institutional studies at the University of Tokyo, Japan, have determined the effectiveness of Inotodials in the destruction of certain cancerous carcinosarcomas and mammary adenocarcinomas. The Melanin complex produced by the Chaga mushroom demonstrates high antioxidant and genoprotective effects (Melanin Complex from

Medicinal Mushroom *Inonotus Obliquus*, *Journal of Medical Mushrooms*, 2002, vol. 4). The polysaccharide beta-glucan, also present in Chaga, is proven to be effective at inhibiting mutagenic and immuno-modulating effects of cancerous tumors by triggering immune system response ( SP Wasser, 2002, Institute of Evolution, University of Haifa, Israel).

The outgrowths of *Inonotus obliquus*, a parasitic fungus growing predominantly on old birch trees, are used in folk medicine from the 16th century as anti-tumor, stimulant, blood-purifying, and pain-relieving preparations [1]. In the many-century history of using these preparations, the leading role belonged to Russian and Polish researchers. As long ago as in 1955, a tincture and a thick extract (*Befungin*) of *Inonotus obliquus* were recommended (after numerous clinical tests) for use in practice as a means of treating chronic gastritis, dyskinesia of the gastrointestinal tract, and cancer of the stomach, lungs, and genital organs [2]. Abroad, preparations from *Inonotus obliquus* are still treated as rather mysterious, related to the peculiarities of slavonic folk medicine [3].

It was established that the birch fungus *Inonotus obliquus* is a nontoxic substance and exhibits no significant side effects. Aqueous tinctures of this fungus relieve pain, improve the general condition, and relieve heartburn [1]. According to a report of the National Cancer Institute (USA) published in 1960, birch fungus preparations administered in the early stages of tumor growth provide effective treatment of lung and stomach cancer [4].

Preparations from Chaga are used as active biogenic stimulators which raise the protective power of an organism, stimulate the central nervous and neurogumoral<sup>8</sup> systems, enrich metabolism, including activation of metabolism in the cerebral tissue, recover activity of the inhibited enzyme systems, regulate activity of cardiovascular and respiratory systems, stimulate hemopoiesis<sup>9</sup>, react as general health improving agents, raise body resistance to infectious diseases, possess anti-inflammatory properties, enhance cytostatic activity of antitumor preparations, detain growth of tumors, invoke their gradual regression and slow down development of metastasizes, i.e. possess cytostatic action.

In addition, Chaga preparations possess spasmolytic, diuretic, antimicrobial, reparation properties, normalize activity of the gastrointestinal tract and intestinal micro flora, promote cicatrisation<sup>10</sup> of ulcers of the stomach and duodenum and show expressed gastro protective properties. Mushroom decoction<sup>11</sup> lowers arterial and the venous blood pressure, reduces the pulse rate. Chaga preparations possess general adaptogenic properties.

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<sup>8</sup> Neurogumoral: increase the activity of estrogens

<sup>9</sup> Hemopoiesis: raise level of leucocytes

<sup>10</sup> cicatrisatio: formation of scar tissue

<sup>11</sup> Decoction: reduction by water (boiling)

## **Schisandra chinensis** (TURCZ.) Baill. [*Schisandraceae*]

SCN: schisandra

PN: hua zhong wu wei zi; wu wei zi (fruit); nan wu wei zi (fruit)

OCN: northern schizandra, schizandra

CAS No.:

USE: Prior Use DSHEA 1998,

Plant Part Used: Seed

Schisandra is among the most important herbs in Chinese Traditional medicine. Schisandra is the most popular tonic herb worldwide. At the same time, it helps the body adapt to stress and nourishes the nervous system.

### **Traditional Uses:**

Schisandra is said to increase energy, replenish and nourish the viscera (internal abdominal organs such as intestines) and improve vision, boost muscular activity and soothe both coughs and digestive problems, rejuvenate skin, and improve sexual endurance. The herb is also used as a tonic for the treatment of chronic fatigue.

**1) Sexual enhancer** – helps to produce increased sexual fluids and sexual endurance and overall strength.

**2) Beauty enhancement** – the herb has been used for centuries as a youth preserver making skin supple, moist and radiant.

**3) Memory improvement** – used in China for centuries as a memory enhancement and to promote a generalized feeling of well-being.

**Physiology:** Schisandra is known for its ability to increase levels of nitric oxide, which is an important component of erection physiology. In a cascade of events that starts with erotic thoughts and/or physical sensations, nitric oxide is released from nerve endings in the penis. Nitric oxide acts as a relaxant that allows blood vessels to dilate, supplying increased blood flow and swelling of the tissues. This increase in the flow of blood also creates increased tension on the blood vessel wall, which activates the release of more nitric oxide. The increased release of nitric oxide further allows the blood within the penis to dilate, increasing both the length and girth of the penis.



**Modern Day Uses:**

Today, Schisandra is used for:

- Impotence – secondary to Schisandra's ability to dilate blood vessels, men report improved erections.
- Anti-hepatotoxic –Schisandra contains lignans that are known to have liver protective qualities including liver regeneration properties. Lignans also interfere with a compound known as platelet activating factor that is responsible for some properties of inflammation.
- Antioxidant – the herb also has some other antioxidant properties other than just Vitamin E.
- Adaptogenic properties – helps the body adapt to changes associated with stress from physical, mental, chemical and environmental sources.
- Cardiovascular system - the herb is also responsible for dilating the blood vessels, hence, improving circulation, lowering blood pressure and improving heart function.
- Respiratory system – the herb acts as an expectorant (promoting the clearing of lung mucus), and cough-suppressant.

Schisandra is very safe for long-term use in the amounts recommended in the proposed formulation.

## Glycyrrhiza Uralensis Fisch. Ex DC [*Fabaceae*]

SCN: Chinese Licorice

PN: gan cao (root & rhizome)`5

OCN: licorice, Ural licorice

CAS No.:

USE: GRAS / Prior use DSHEA 1998 / CRN Addition

Plant Part Used: Root, rhizome

- Adaptogen
- Mild natural steroid benefits
- Adrenocorticotrophic activity
- Anti-inflammatory
- Expectorant
- Anti-allergenic
- Estrogenic
- Anti-cancer action
- Uses in folk medicine:
  - Lung disease
  - Ulcers
  - Cancer



- Distribution: Northern Caucasus, Western Siberia, Central Asia, Kazakhstan.
- Appearance: Perennial herbaceous plant with powerful root system. Horizontal sprouts extend up to 6 ft. from the plant. Light violet flowers.
- Gathering period: All year.
- Useful parts: Roots & rhizomes.
- Chemical composition: Liqueraside, glycyrrhizinic acid, glycyrrhizin flavonoids & flavonol.

### Safety Notes – Glycyrrhizinic acid

Licorice as used in the adaptogen blend, LERA® is a part of a complex extract. Licorice is generally recognized as safe when taken as directed.

Licorice is recognized as an adaptogen thus by definition is safe. Additional properties of Licorice include antiviral, anti-diuretic, anti-inflammatory, anti-oxidant, anti-tumor, demulcent, expectorant, hepatoprotective and immunomodulator.

Licorice contains sweet-tasting triterpenoid saponins collectively known as glycyrrhizin. It also contains isoflavones such as genistein, demulcent polysaccharides and anti-inflammatory flavonoids.

Safety ranges from 10 – 20 mg per day for a tincture having a ration of 5:1.

There are many warnings in the medical and popular literature about the dangers of licorice. At the same time, it has been used safely and frequently in European, Middle Eastern and Chinese medicine for millennia.

Licorice in excess can cause a condition known as hyperdosteremia, in which a person retains sodium, loses potassium and develops elevated blood pressure. This condition usually does not occur when the herb is used in small amounts in a formula. LERA® total recommended daily serving is up to two mL and licorice represents 5% of that amount. Thus we are speaking of 0.085 mL or less than 10 mg per day. This is well within all safety ranges and far below a level where glycyrrhizin acid would present any health issues.

Cases of licorice-induced hyperaldosteremia usually involve eating excessive amounts of licorice solid extract as found in real licorice candies, chewing tobacco and in licorice tea.

For anyone who is taking large amounts of licorice for an extended period of time, eating a diet that is high in potassium and low in sodium and checking blood pressure regularly are recommended.

**In conclusion, the licorice that is in the adaptogen blend known as LERA® is well within the safety range and there is no need to use DGL (deglychrrhized licorice) in this product. Two mL of our blend contains the equivalent of less than 0.001 mg of *G. uralensis*. Species of this genus contain anywhere from 4 – 10% by weight glycyrrhizin. So at most, the use of the blend gives a person 1.0 mcg of glycyrrhizin. Glycyrrhizin is on the GRAS list in the USA and the EU considers 200 mg per day to be safe. In the body, glycyrrhizin is converted to 18(beta)-glycyrrhetic acid, which is a very potent hepatoprotective agent. We are at a safe level with our product, and the benefits of including glycyrrhizin vastly outweigh any potential risk.**

Reference:

1. Adaptogens: Monographs on Adaptogens, David Winston and Steven Maimes, 2007.