

**WHAT IS GLYCATION?**

As sugar molecules enter the body’s system, they migrate and attach to fat and protein cells – a process often referred to as glycation. The proteins in skin cells most susceptible to glycation are the same ones that make a youthful complexion so plump and buoyant — collagen and elastin. But when sugar molecules attach to these fat and protein fibers, they become discolored, weak, stiff and malformed, producing what is known as sugar by-products or Advanced Glycation End-products (a.k.a. AGEs). This in turn, presents itself in the form of wrinkles, saggy skin, and a loss of radiance.

In addition, AGEs also makes the skin more vulnerable to UV light. According to New York-based dermatologist Cheryl Karcher, MD, “Number one, the glucose makes the cells abnormal; and number two, it creates free radicals. So you get a double whammy when it comes to aging.” Lifestyle choices such as smoking also influence how quickly the effects of AGEs are seen in the skin. One of the biggest signs of glycation in smokers is the premature yellowing of the skin. The free radical damage from both UV light and smoke reduces the number of antioxidants in the skin, using up its antioxidant potential to address the normal glycation process.

While glycation may not be completely stopped, it can be slowed. From a dietary standpoint, forswearing white sugar, high-fructose corn syrup (which studies have shown increases the rate of glycation by 10 times, compared with glucose) and simple carbs is a start. However, it is important to note that refined sugar isn’t the only perpetrator of AGEs.

Whole grains, fruits and vegetables turn to glucose when digested too— though in less damaging fashion. And even if we could completely eliminate all types of sugar from our diets, we shouldn’t as it is an essential fuel for cells and energy metabolism and is critical for our body’s health.

**ANTI-GLYCATION IN SKIN CARE**

Skin care, too, will make a difference. In the 80’s, a biochemist named Anthony Cerami, PhD, found that aminoguanidine molecules can block glucose-collagen pairs from forming, thus presenting us with the base for all anti-glycation formulations. For many years this was a key ingredient in Rhonda Allison formulas.

**WHY THE NAME AGE less?**

The superior benefits of Rhonda Allison’s unique serum is not a “miracle” ageless wonder product, it is a very complex creation that has a goal to support skin in aging less. With continued long-term use a skin will begin to slow its aging process and maintain a healthier appearance. As well the name defines the very pulse of this formula as one that is designed to reduce AGE anti-glycation end-products.

**SCIENCE PROVES VALUABLE OUTCOMES**

With revolutionary ingredients, powerful antioxidants and advanced science, Rhonda Allison’s enhanced anti-glycation serum, AGE less, pushes the forefront of cutting edge science. Since the body has a process where old collagen is broken down by enzymes and new collagen is generated, with the aid of this anti-glycation product, the old glycated collagen can be reduced and replaced by un-glycated collagen for younger-looking skin.

**PRIMARY BENEFITS OF AGE less SERUM**

- Minimizes redness and sensitivity
- Holistic antioxidant – goes directly to cell
- Renews firmness and skin elasticity
- Diminishes inflammation
- Lessens signs of skin fatigue
- Awakens skin for a luminous, radiant glow

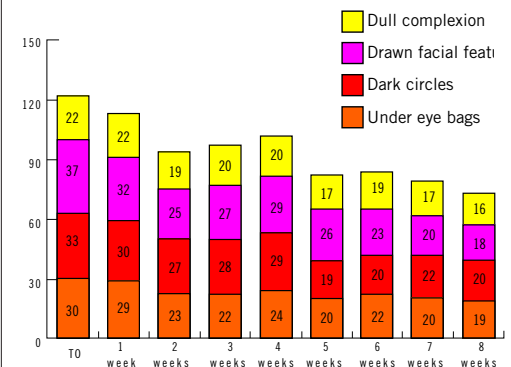
**FOCUS INGREDIENTS:**

**ALBIZIA JULIBRISSIN (MIMOSA OR ASIAN SILK) BARK EXTRACT** - Reduces the cause and signs of fatigue on the skin, protects and builds collagen, improves dermal fiber quality and the appearance of dark circles, under eye bags and drawn facial features.



*Albizia Julibrissin*

Glycation of mitochondrial proteins reduce a cell’s ability to produce energy which also reduces its ability to respond to mechanical stresses or “cellular fatigue”. However, clinical studies have shown extract from the bark of the Albizia Julibrissin tree to protect skin cells from agents which glycate their proteins by reducing sugar, visibly reducing the cutaneous signs of fatigue and leaving skin looking refreshed and buoyant.



**Reduction in signs of facial fatigue in the morning, with use of Albizia Julibrissin Bark Extract applications, (20 volunteers)**

**The under eye bags** - index fell from a score of 30 to a score of 24 (TR 1 month, -20%) and then to 19 (T2 months, -37%)

**The dark circles** - index fell from a score of 33 to a score of 29 (T 1 month, -12%) and then to 20 (T 2 months, -40%).

**The drawn facial features** - index fell from a score of 37 to a score of 29 (T 1 month, -22%) and then to 18 (T 2 months, -51%).

**The dull complexion** - index fell from a score of 22 to a score of 16 (T 2 months, -27%).

After 2 months of treatment, the volunteers reported their objective signs of fatigue to be mild or non-existent. A few volunteers tried a method of taking standardised photographs at home and were able to illustrate the results they obtained.



TO



T2

**N-HYDROXYSUCCINIMIDE/CHRYSLIN COMPLEX** – Reinforces firmness and tone and facilitates the elimination of blood pigments responsible for dark circle coloration and local inflammation. Infra-orbital shadows or “dark circles” under the eye are due to the accumulation of hemoglobin and its colored degradation products (biliverdin, bilirubin, and iron) in the dermis and epidermis. Chrysin stimulates the enzyme (UGT1A1) leading to the clearance of bilirubin. N-Hydroxysuccinimide makes the iron soluble, allowing it to be eliminated.

**IN VITRO TEST**

- **Ability Of NHS To Bind Iron**  
The decrease in color indicates the iron complexation by N-Hydroxysuccinimide/Chrysin Complex.
- **Anti-Inflammatory Effect**  
Measurement of PGE2 release by keratinocytes and fibroblasts after UVB irradiation. (PGE2 is a maker for skin inflammation.)  
With the N-Hydroxysuccinimide/Chrysin Complex the PGE2 levels released were reduced, demonstrating its anti-inflammatory activity to be similar to that of aspirin.
- **Stimulation Of Expression Of Ugt**  
Cells in culture are incubated for 3 days with Chrysin. The gene expression for UGT,A, is determined by RT-PCR.  
Chrysin strongly stimulates the expression of the enzyme involved in the clearance of bilirubin (the end product of hemoglobin degradation).

**IN VITRO**

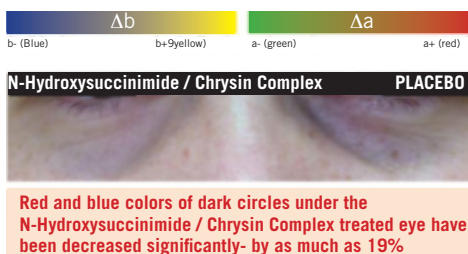


**CLINICAL STUDY**

22 female volunteers applied a gel containing 2% N-Hydroxysuccinimide / Chrysin Complex to the contour of the eye, and to the other a placebo, for 56 days. The antidarkening circle effect was assessed by image analysis. The change in the color parameters (L,a,b system) was measured using specific software.

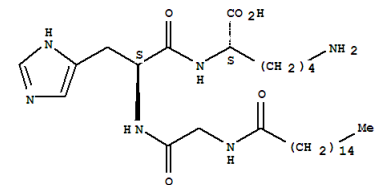
	Δa	Δb
Variation	-12.5%*	10%**
Rate of volunteers with improvement	72%	63%
Variation for volunteers with improvement	-19.5%	+19%

\*significant/TD 9p-0.01    \*\*significant/TD (p-0.05)



**PALMITOYL TETRAPEPTIDE-7** - Targets the underlying cause of dark circles to prevent excessive formation of these pigmented by-products and diminish their unsightly appearance around the eyes. Palmitoyl Tetrapeptide-7 is a complex peptide that enhances the skin’s own capacity to eliminate pigmented by-products of hemoglobin and increase the skin density to better support the microvascular network around the eyes, helping to alleviate inflammation which can lead to vessel fragility.

**PALMITOYL OLIGOPEPTIDE** – A matrikine, or messenger peptide, specifically involved in repairing damage to the cutaneous matrix to provide pro-youth benefits. Palmitoyl Oligopeptide stimulates cell communication and then repairs the age related skin damage. Palmitoyl Oligopeptide is chemotactic, attracting fibroblasts and monocytes onto the site of matrix repair.



*Palmitoyl Oligopeptide Molecule*

**PLANTAGO LANCEOLATA (PLANTAIN) LEAF EXTRACT** – Extracted using plant stem cell technology; repairs loss of firmness, elasticity and smooths the skin and increases skin density and thickness, visibly brightening senile pigmented spots and preventing melanin overproduction by strengthening and soothing the melanocyte environment. One of the most praised herbs in history, Plantain has been used to cure headaches and as an antidote to poisonous bites. Recent research has also shown it to contain wound-healing and anti-inflammatory properties in addition to preventing oxidative stress known

to trigger melanin production, effectively reducing skin senescence (the scientific term for aging).

In addition, Plantain Extract is the first active ingredient to successfully demonstrate a targeted action on microRNAs involved in the regulation of cellular senescence and extracellular matrix breakdown (MMPs) to prevent the decline of protein synthesis that worsens with age and is associated with unsightly phenotypic changes. MicroRNAs, one of the most exciting discoveries over the past years, are small non-coding molecules but now recognized as the most fundamental regulators of the genome (up to 90% of the genes).

Plantain Extract, issued from plant

stem cell cultures, is a break-through in age-reducing cosmeceuticals. In humans, skin stem cells are located in the basal layer where 2-7% of cells are stem cells. Their primary roles are to replenish dying cells and regenerate damaged tissues. Using real plant stem cells to trigger the rejuvenation of the skin delays the natural aging process by maintaining the activity of skin stem cells.

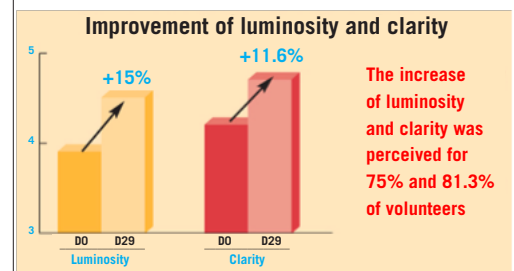
The intracellular fluid found inside cells of selected plant stem cells are rich in specific factors relevant to protect and maintain the function of skin stem cells. The aging of skin stem cells leads to a decreased capacity for repair, an increased incidence of degenerative diseases, and an increased incidence of cancer in tissues that contain stem cells. However, research has proven the application of plant stem cell extract increases protection of skin stem cells against UV-radiation, promotes lifespan of stem cells, and a reduces skin wrinkles.

**SACCHAROMYCES/XYLINUM BLACK TEA FERMENT COMPLEX** – Enhances skin radiance and clarity, while plumping and smoothing to help maintain skin firmness and youthfulness; smoothes and freshens the skin due to its anti-glycation activity and its re-densifying effect on the adipocyte (fat cell) population and helps with vascular irrigation. Based on fermentation of sweet black tea by symbiosis of two micro-organisms, it provides a lipo-filling effect without surgery. Cosmetically, this black tea ferment complex is recommended for use in skin care, particularly anti-aging or skin smoothing type products.

Traditionally produced as a fermented

beverage from sweet black tea in Tibet, this unique ferment complex is known as the “long life mushroom”, a name derived from its appearance and feel. It is believed to confer longevity and is often even referred to today as the “elixir of long life”, referring to its health and medical benefits. Rich in organic acids, antioxidant properties and vitamins, this unique complex improves overall skin quality and has been clinically proven to enhance the appearance of radiance by 15%, clarity by 11%, as well as decrease olive skin tones by 23% and increase healthy pink tones by 20%.

**This alpine extract has also been shown to**



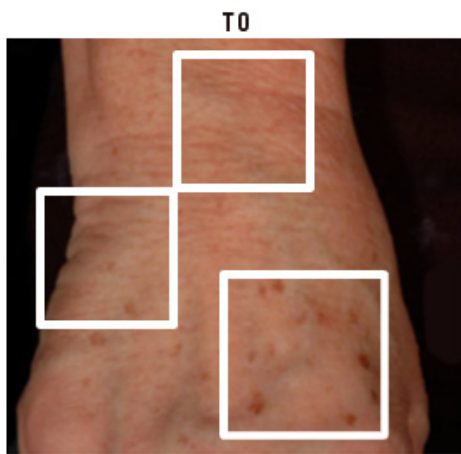
**significantly plump and smooth the skin to leave a fresh and clear complexion, and radiant, firm skin.**

**ROSMARINYL/CAFFEYL/GALLYL GLUCOSIDE**

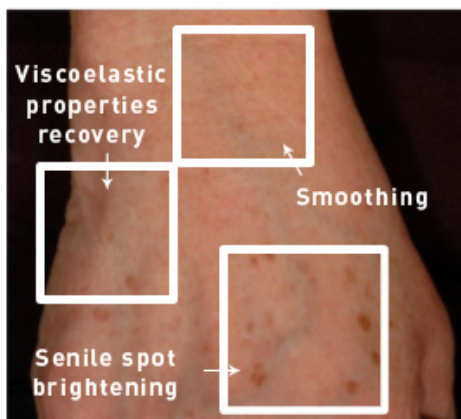


**COMPLEX** - A unique 5 in 1 active complex to prevent skin redness and improve rosacea; controls all the major skin inflammation factors and reduces neovascularization mechanisms while brightening skin tone.

A pure active ingredient obtained by enzymatic modification of natural plants hydroxybenzoic acid and hydroxycinnamic acids, by means of a proprietary biotechnology process, this is a unique complex that has been tested under dermatological

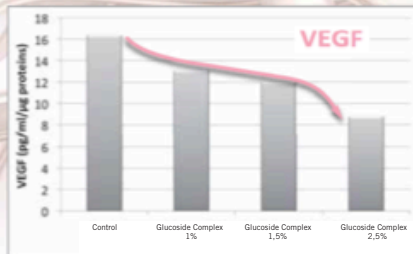


**T2 Months**



## REDUCTION OF NEOVASCULARISATION

Glucoside Complex Controls Vascular Glucoside Complex Growth Factor



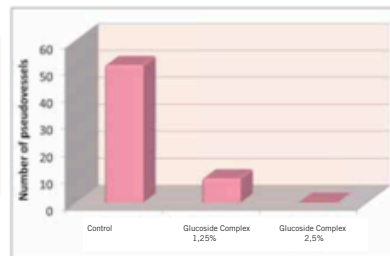
Keratinocytes extracted from a clinical human skin sample, and incubated with Glucoside Complex during 48h00.

Kératinocytes extraits d'un échantillon clinique de peau humaine et cultivés en présence d' Glucoside Complex pendant 48H00

GLUCOSIDE COMPLEX BLOCKS NEO-VESSELS GROWTH



Microvascular endothelial human skin cells (HskMEC) cultured on Matrigel with or without Glucoside Complex during 17 hours. Quantification of the number of neo-blood vessels created upon time. (dashed line : contour of a neo vessel)

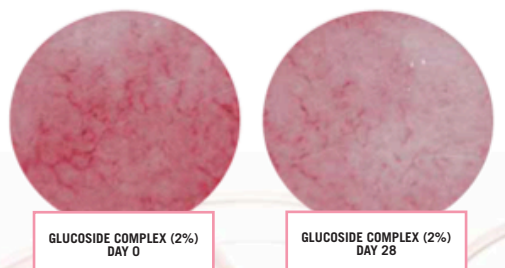


Cellules endothéliales microvasculaires de peau humaine (hskmec) cultivées sur matrigel avec ou sans glucoside complex pendant 17h. Quantification du nombre de neo-vaisseaux sanguins formés au cours du temps. (Ligne hachurée: contour d'un neo-vaisseau).

## CLINICAL EVALUATION ON SKIN

GLUCOSIDE COMPLEX REDUCES ROSACEA

7% To 12% improvement in 28 days



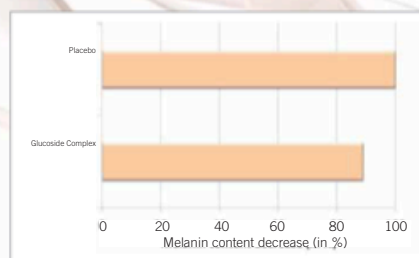
Clinical evaluation versus placebo on a panel of women have rosacea. \* respectively on 50% and 30% of women who tested the product.

Evaluation clinique versus placebo sur un panel de femmes ayant de la couperose. \* respectivement sur 50% et 30% de femmes qui ont testé le produit.

Clinical tests under dermatological control. tests cliniques sous contrôle dermatologique.

GLUCOSIDE COMPLEX IMPROVES SKIN COLOR

11% of brightening in 28 days



same protocol as above. Quantification of skin melanin content by Siascopy. \* on 75% of women who tested the product.

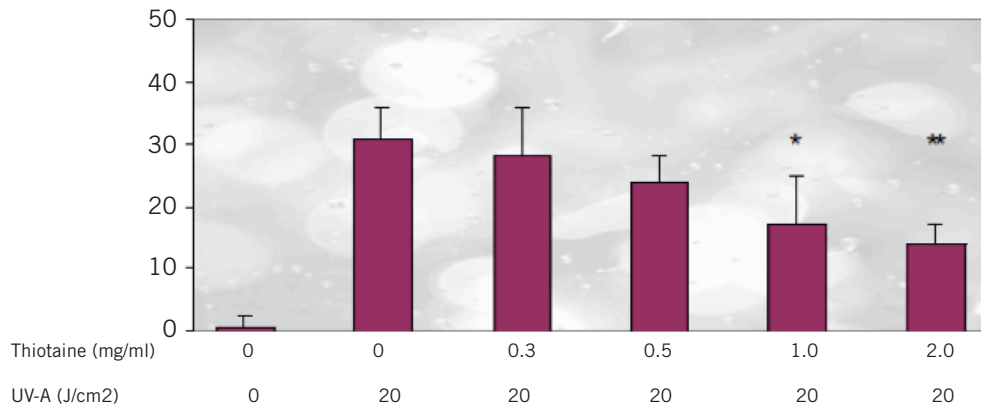
Même protocole que ci-dessus. Quantification de la teneur en mélanine par Siascopy. sur 75% des femmes ayant testé le produit.

control and is perfectly compatible for all skin types including sensitive, red and irritated skins.

**ERGOTHIONEINE (THIOTAINE) – A natural, powerhouse amino acid and holistic, broad spectrum antioxidant found in food plants that minimizes the signs associated with skin aging such as fine lines, wrinkles and sagging.** Thiotaine works as a scavenger of hydrogen peroxide, acting as a fungal metabolite that cannot be endogenously synthesized by mammals – it must be taken up in the diet or applied topically. Thiotaine also acts as a clarifier, working as a metal chelator like Kojic Acid, inhibiting tyrosinase and melanin. It is found most prominently in organs or cells where oxidative stress is especially high and is not significantly degraded or metabolized, excreted intact in the urine, as opposed to the other antioxidants, which are metabolized.

As an antioxidant and energy source, Thiotaine is a molecule that helps assure efficient use of oxygen for more efficient energy production, reducing 8-oxo-guanine synthesis and MMP-1 release. In fact, many consider energy to be the moving force of life, a fundamental and indispensable element in cellular activity. All cells must produce energy to survive, and oxygen consumption is fundamental to the process.

In addition, studies show the effect of Thiotaine on MMP-1 mRNA expression in cultured normal human fibroblasts, exposed to UV-A. MMP-1 mRNA in human fibroblasts was elevated 1.25-fold at 24 h post UV-A irradiation. Thiotaine reduced MMP-1 mRNA expression levels in a dose-dependent manner, indicating



Thiostaine-suppressed MMP-1 production induced by UCV-A irradiation. Human fibroblasts were exposed to UV-A at a dose of 20 J/cm<sup>2</sup> in the presence of various concentrations of Thiostain in HBS. MMP-1 activity and cell numbers were measured after UV-A irradiation for 24 hours. n = 4 Significance: \*p < 0.05; \*\*p < 0.01.

Thiostaine down-regulated MMP-1 mRNA expression of fibroblasts induced by UV-A irradiation, thus reducing the effects of sun damage to the skin.

It should also be noted that Thiostaine recycles vitamin C similar to vitamin E. In the presence of vitamin C, the oxidized form of ergothioneine is repaired by a rapid reduction ( $k = 6.3 \times 10^8 \text{ M}^{-1} \cdot \text{s}^{-1}$ ) producing ascorbyl radicals, a crucial step in the biosynthesis of collagen, which gives the skin its firmness. This co-operative interaction between ergothioneine and ascorbate, similar to that previously observed between vitamin E and ascorbate, may contribute to essential biological redox protection (protection against oxidative damage).

**MAGNOLIA GRANDIFLORA BARK EXTRACT – A broad spectrum anti-inflammatory.** Used in the past as a traditional Chinese medicine to treat cough, anxiety and allergic diseases, Magnolia Grandiflora Bark Extract has been shown to inhibit the stinging discomfort caused by sensitive skin and provides free radical scavenging protection of skin cells. Its effects may also help reduce dark circles by inhibiting platelet aggregation factor responsible for clumping of blood platelets under the surface of the skin.



Magnolia Grandiflora

**CETEARYL / SORBITAN OLIVATE – A complex combination of fatty acids from pure olive oil with a distinctive property to self-emulsify in hydrophilic or lipophilic milieus; reduces skin water loss, has a high moisturizing effect, is hypoallergenic (clinically tested on humans) and biomimics the skin.**

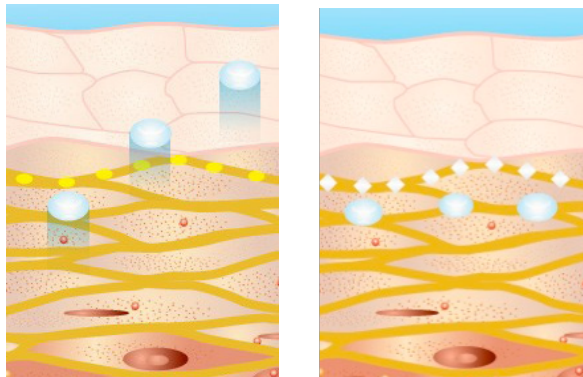


Figure 1: Non-compatible lipid compositions may provoke instability in the skin barrier. The result is trans-epidermal water loss.

Figure 2: Cetearyl / Sorbitan Oliviate physiologically integrates into the skin barrier to reinforce its integrity. The result is water retention.

This unique property comes from a new technology which re-balances the original fatty acid chains distribution. The homogeneous dispersion of the physical filters over the skin provides more complete protection for the skin against both UVA and UVB rays.

Due to its special structure, Cetearyl/ Sorbitan Oliviate also forms highly stable and dermo-compatible liquid crystals which are similar to the lipids of the cutaneous barrier, making it able to physiologically integrate in the stratum corneum and to carry its efficacy to deeper layers of the skin. And because of its restructuring and thickness properties, it is able to provide skin tonicity and elasticity.

Olive Oil is rich in essential fatty acids and antioxidants and has the ability to neutralize damaging free radicals. Due to its natural olive origins, Sorbitan Oliviate penetrates quickly and exhibits a very high moisturizing effect. Moisturizers made with Cetearyl / Sorbitan Oliviate are pure, smooth and silky and are suited to those with severe sensitivities to cosmetic ingredients.

**INGREDIENT DECK:**

Aqua (Water), Hamamelis Virginiana (Witch Hazel) Water, Glycerin, Alcohol, Albizia Julibrissin Bark Extract, Palmitoyl Tetrapeptide-7, Palmitoyl Oligopeptide, Fructooligosaccharides (D-Beta), Glucosamine HCl (D), Plantago Lanceolata Leaf Extract, Saccharomyces/ Xylum/Black Tea Ferment, Rosmarinyl Glucoside, Gallyl Glucoside, Caffeyl Glucoside, Ergothioneine (L), Magnolia Grandiflora Bark Extract, Chrysin, Hydroxyethylcellulose, N-Hydroxysuccinimide, Xanthan Gum, Caprylic/Capric Triglyceride, Caprylyl Glycol, Cetearyl Oliviate, Steareth-20, Sorbitan Oliviate, Alcohol Denat., Phenoxyethanol