Splint&Slim Great bougainvillea

To remodel skin

A STORY

The great bougainvillea | *Bougainvillea spectabilis, Nyctaginaceae*

A tropical climber with paper flowers

Discovered in Brazil and named after the family name of the French explorer and admiral de Bougainville when he made his travel around the world (1766-1769), that climbing plant grows very quickly and spontaneously in South America. Imported in several tropical areas, it shows a lot of assets to adapt itself to its environment: quite hardy, it grows in the Northern hemisphere too and, thanks to its curved thorns, it knows how to develop on several supports, in the sun or in the shadow. First used as ornamental plant, it is little known for medicinal use, whereas many studies reveal several activities, against bacteria or lipids, anti-oxidant...

Key points

An active plant cell
Developed to deliver the highest amount of original active molecules.

A high tech natural ingredient
Created to preserve and improve the identity and the benefits of a natural product.

A remodeling action
Correct unbalances to get a better control on weight.

Because skin changes when we gain extra weight, it is necessary to balance its composition again. To get a skin firmer, finer, looking smoother.

PRODUCT BENEFITS

Slimming

Slimming

Decreases the thickness of skin. Increases lipolysis. Makes drainage easier.

Softening

Contributes to restore the original suppleness of skin.

Firming

Contributes to densify the dermis. Helps to improve or restore the dermis functions, skin resistance. Limits skin sagging and slackening.

To be used in skincare or bodycare products such as cream, fluid, serum, balm, lotion, milk, etc. In any skincare product intented to give skin tonicity.

NAOLYS

Related products | ALL FIBER BOOSTER CHINESE HIISCUS | FIBER BOOSTER PLUS SAFFRON | TOTAL GENERATION CURRY PLANT

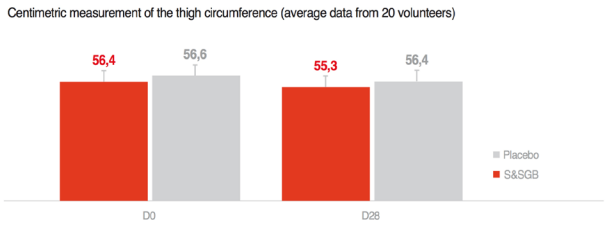
HOW IT WORKS

Splint&Slim Great bougainvillea: correcting unbalances at the levels of hypodermis and dermis

Splint&Slim Great bougainvillea acts at two levels. At the level of the extra-cellular matrix of dermis, by increasing the synthesis of fibers, proteoglycans, collagens and elastin, fibers that create supporting tissues and their network that supports all skin. At the level of the hypodermis, it boosts the lipolysis by improving the burst of triglycerides stocked by adipocytes and by stopping the fixation of two molecules on their receptors, because that fixation limits lipolysis. Yet the over-stocking of lipides can induce alterations of adipocytes, like inflammation.
Thanks to those actions, skin gets back a balanced composition and can better fulfil its essential functions, like protecting and regulating body temperature.

Clinical study

Slimming effect - after 28 days - daily use



Decrease of the tigh conference by 1.1 cm

After 28 days of treatment
- 89% women declared that their skin seemed toned and firmer
- 81% women declared that their body was slightly remodeled
- 70% women declared that the product had a slimming effect

Conditions of the study

→ Study made on 20 women from 34 to 64 years old during 28 days
→ Assesment made by centimetric measurement
→ Emulsion with 0.1% of Splint&Slim Great bougainvillea (powder).

Technical information Formulating Splint&Slim Great bougainvillea

INCI name of cells	**form**	**aspect**	**concentration**	**dispersible**
bougainvillea spectabilis leaf cell extract	cells (100%) as a powder	beige powder	starting at 0.1%	in any formulation

in vitro testing results

Study of the lipolysis - hypodermis level

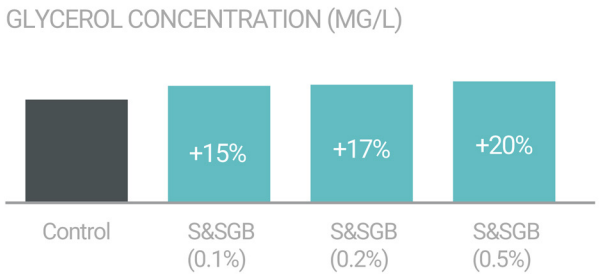
To act on the fat stocked in skin we need to focus on the hypodermis (or adipose tissue), the thickest and deepest layer of skin (thick up to 3 cm on the abdomen). The adipose tissue represents 15 to 20% of the weight of an adult and up to 50% for an obese adult : it is an energetic reserve essential for the human body. In women the adipose tissue concentrates on breast, hips, thighs and buttocks, zones that correspond to energetic reserves that decraese when we abstain from eating or when you do physical activity or when the body needs to fight against cold.

In the hypodermis, adipocytes contain a unique lipidic vacuole full of triglycerides, that represent 95% of the cell size. Crowd in, adipocytes are separated by fibres, many blood capillaries and unmylienated nervous fibres. The quantity of triglycerides in adipocytes varies according to two metabolic processes. The lipogenesis or synthesis of lipids - then store - is made with triglycerides fatty acids from food origin and glucose, it is stimulated by the insulin, a pancreatic hormone. Lipolysis or the hydrolisis of lipids - or destock - consists in the transformation of triglycerides in fatty acids and glycerol ; it is stimulated by catecholamines (adrenalin and noradrenalin) and glucagon (a pancreatic hormone).

To check the activity of Splint&Slim Great bougainvillea in lipolysis, Naolys decided to study its activity on 3 major components involved in lipolysis (the degradation of lipids), the glycerol and two key receptors in the inhibition of the lipolysis.

The glycerol
It is a product of the lipolysis (hydrolysis of lipids), and, for our body a source of energy. With properties and a structure close to sugar, that alcohol is made of a chain of three atoms of carbon. Each of these atomes can be linked with a fatty acid to get a mono, di or triglyceride.

Study of glycerol



Increase of the rate of released glycerol

→ At concentrations of 0.1%, 0.2% and 0.5%, increase of the rate of the realeased glycerol in the medium of culture respectively of 15%, 17% and 20%

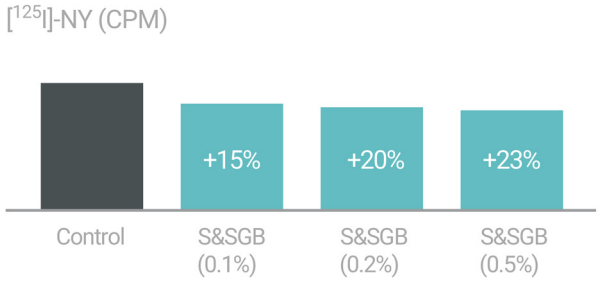
Two receptors of the adipocytes
A membran receptor is a protein located on the cell membran. They receive messages.

The receptor of the neuropeptide Y
It is activated by the neuropeptide Y, a hormon protein, that stimulates appetite through a hypothalamic effect. It decreases also the thermogenesis of adipocytes and contributes to obesity.

The receptor alpha 2 adrenergic
It is activated by the release of the noradrenalin (a neuro-transmettor of the sympathic nervous system, a very important precursor of the adrenalin). It inhibits lipolysis.

When Splint&Slim Great bougainvillea is in competition with receptors, it reduces their effect, therefore increases lipolysis. Then, to better evaluate the activity Splint&Slim Great bougainvillea, Naolys decided to test it with caffein, a molecule from a natural origin known for its slimming effect.

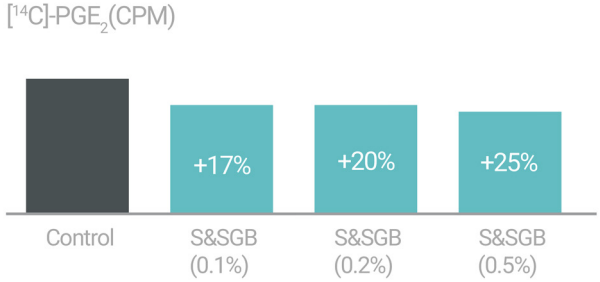
Study of the receptor of neuropeptide Y



Competition towards the receptor of neuropeptide Y

→ At concentrations of 0.1%, 0.2% and 0.5%, competition of the product towards the receptor of the neuropeptide Y respectively of 15%, 20% and 23%

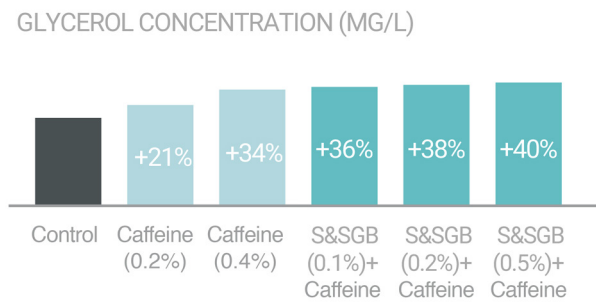
Study of the receptor alpha-2 adrenergic



Competition towards the receptor alpha-2 adrenergic

→ At concentrations of 0.1%, 0.2% and 0.5%, competition of the product towards the receptor alpha-2 adrenergic respectively of 17%, 20% and 25%

Study of glycerol - with caffeine



Increase of the rate of released glycerol

→ At concentrations of 0.1%, 0.2% and 0.5%, increase of the rate of glycerol released in the medium of culture respectively of 36%, 38% and 40%, when the positive controls of caffeine only of 0.2% and 0.4% are respectively by 21% and 34%

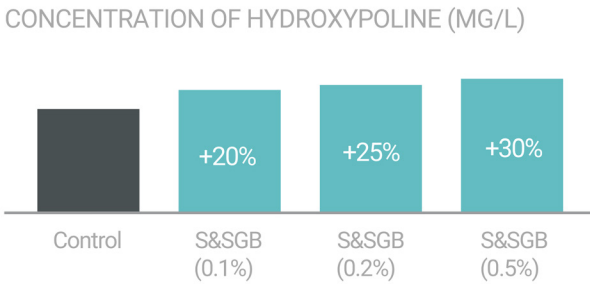
Study of the extra-cellular matrix - dermis level

In the dermis, the extra cellular matrix (ECM) is made of different non cellular components, and provides not only essential physical scaffolding for the cellular constituents but also initiates crucial biochemical and biomechanical cues that are required for tissue morphogenesis, differentiation and homeostasis. It is made of water, polysaccharids and proteins; the two main classes of macromolecules are proteoglycans and fibrous proteins like collagens, elastins, fibronectins and laminins synthetized by fibroblasts, the dermis cells.
Actually the ECM is a highly dynamic structure that is constantly being remodeled, either enzymatically or non-enzymatically. The ECM generates the biochemical and mechanical properties of skin, such as its tensile and compressive strength, elasticity, and also mediates protection by a buffering action that maintains extracellular homeostasis and water retention.
With ageing, the synthesis of the different macromolecules made by fibroblasts decreases, then the biochemical cues in the ECM are modified, therefore its properties decrease too.

Studies about 3 components of ECM: proteoglycans, collagen, GAG, elastin and MMP3
The different studies on the components of the ECM run by Naolys have been made on culture of fibroblasts.

Naolys studied the synthesis of the 3 types of proteoglycans made by fibroblasts, which is a very precise study.
Proteoglycans are made of a combination of a protein and a GAG. As they are made of long O-glycolized chains, they are like « water traps ». Indeed they have buffering, hydration, binding and force-resistance properties.
Collagen is the most abundant fibrous protein within the interstitial ECM and constitute the main structural element of the ECM; they provide tensile strength, regulate cell adhesion, support chemotaxis and migration, and direct tissue development.
GAG (or glycosaminoglycans) are important acids that have very strong capacities in water retention. There are many GAG, including hyaluronic acid.
MMP3 (or Stromelysin-1) is an enzyme of the ECM that is involved in the breakdown of the ECM and tissue remodeling. It degrades collagen types II, III, IV, IX and X, proteoglycans and fiber proteins.

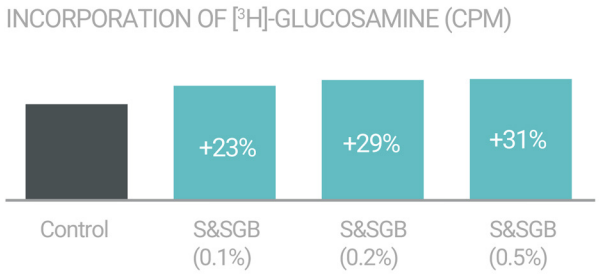
Study of the synthesis of collagen



Increase of the collagen rate

→ At concentrations of 0.1%, 0.2% and 0.5%, increase of the collagen rate respectively by 20%, 25% and 30%

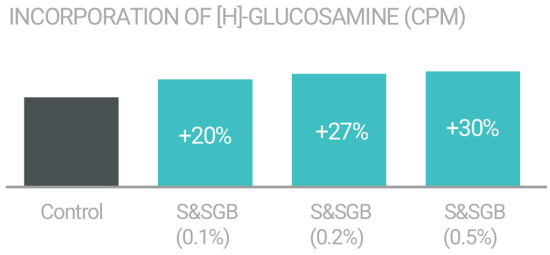
Study of glycosaminoglycans



Increase of the glycosaminoglycan rate

→ At concentrations of 0.1%, 0.2% and 0.5%, increase of the glucosaminoglycan rate respectively by 23%, 29% and 31%

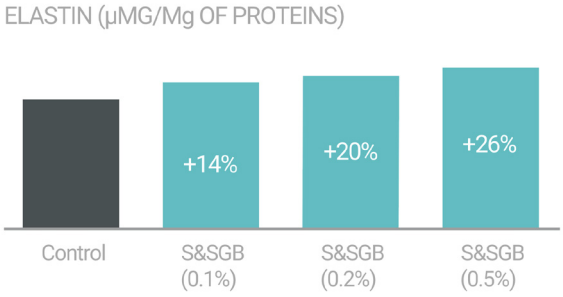
Study of the synthesis of proteoglycans



Increase of the matrix proteoglycans rate

→ At concentrations of 0.1%, 0.2% and 0.5%, increase of the matrix proteoglycans rate respectively by 20%, 27% and 30%

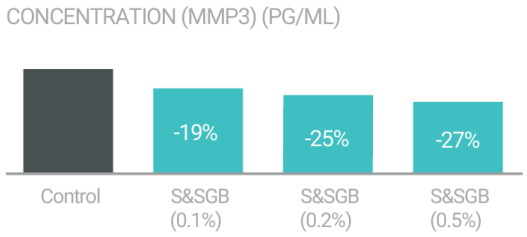
Study of the elastin



Increase of the elastin rate

→ At concentrations of 0.1%, 0.2% and 0.5%, increase of the elastin rate respectively by 14%, 20% and 26%

Study of the expression of the metalloproteinase 3



Decrease of MMP3

→ At concentrations of 0.1%, 0.2% and 0.5%, decrease of the MMP3 respectively by 19%, 25% and 27%