



LABORATOIRES
SÉROBIOLOGIQUES
Division de **Cognis** France

MYOXINOL™ LS 9736

THE VEGETAL ANSWER TO SMOOTH
EXPRESSION LINES

SKIN

EXPRESSION LINES

There are 2 main mechanisms in wrinkle formation: biological (aging of cells, oxidation or glycation of macromolecules...), and mechanical, when face muscles are involved.

Facial muscles are responsible for the formation of dynamic wrinkles: horizontal and vertical frown lines across the forehead, crow's feet around the eyes and "naso-labial" lines around the mouth.

As long as biological aging mechanisms have not altered the skin's mechanical properties, these lines are reversible and the skin recovers a smooth appearance when facial muscles relax.

But when biological and mechanical factors are combined, the skin loses its elasticity and its ability to return to its initial state, prior to muscle contraction.

The dynamic wrinkles become permanent, generating "expression lines".

A recent advance in the cosmetic dermatology industry, Botox® injections, offers to erase these dynamic wrinkles by inhibiting facial muscle contraction.

To answer the need for a topical, gentle alternative to drastic procedures, Laboratoires Sérobiologiques have developed MYOXINOL™ LS 9736, with targeted activity against expression lines.

MYOXINOL™ actually goes further, as its efficacy against mechanical parameters of aging is complemented by biological benefits, offering a comprehensive anti-wrinkle approach (patented).

DEFINITION / COMPOSITION

MYOXINOL™ LS 9736 is a complex of oligopeptides obtained by biotransformation of native proteins from the seeds of *Hibiscus esculentus* L. (*okra*).

Hibiscus trees grow mainly in South Asia and Africa. Their seeds are widely used in traditional medicine, but also as a food source due to their high nutritional value.

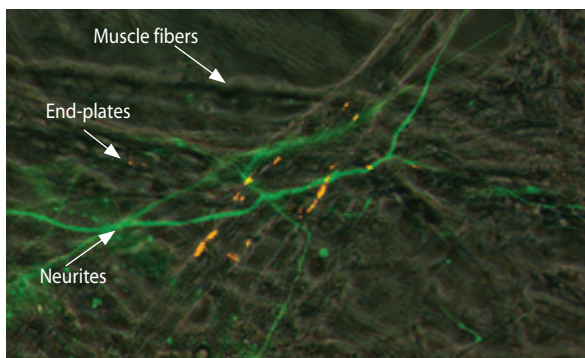


Fig. 1 - Co-culture of muscle fibers-neurons.

SKIN BENEFITS

We have demonstrated the efficacy of oligopeptides from Hibiscus seeds to reduce muscle contraction (*in vitro* demonstration), reducing the formation of expression lines.

This Botox®-like* activity is complemented by efficacy against biological aging, helping to preserve optimal skin elasticity.

This comprehensive anti-aging approach is demonstrated by a long term clinical evaluation (topical application).

COSMETIC USE

- Facial anti-age.
- Topical answer to smooth expression lines.
- Eliminate or reduce frequency of invasive procedures.

DOSAGE / SOLUBILITY / MODE OF INCORPORATION

- 1. Dose of use:** 0.5 to 2%.
- 2. Solubility:** MYOXINOL™ LS 9736 is soluble in water, insoluble in oils and fats.
- 3. Mode of incorporation:** MYOXINOL™ LS 9736 must be dissolved in 3 times its weight of water heated at 45 - 50°C, then incorporated into the cosmetic product below 50°C, during the finishing process or at room temperature for cold processing.

ANALYTICAL CHARACTERISTICS

- 1. Aspect:** fine powder, beige to pale yellow, of characteristic odor.
- 2. Specifications:** upon request.

TOLERANCE

Good.

EFFICACY

Test summaries overleaf.

STORAGE

In its original container, at 15 - 25°C.

INCI NAME

Hydrolyzed Hibiscus Esculentus Extract (and) Dextrin.

MANUFACTURER

Laboratoires Sérobiologiques, division de Cognis France

* Botox® - registered trademark of Allergan Inc.

ACTIVE INGREDIENT FOR COSMETOLOGY

EFFICACY TESTS

INHIBITION OF MUSCLE CELL CONTRACTION, *IN VITRO*

Aim

MYOXINOL™ LS 9736 wrinkle reduction potential was assessed by an innovative system comprising a co-culture of muscle cells with neurons, which spontaneously displays rhythmically regulated contractions. This system mimics the hyperactivity of facial muscles responsible for the formation of expression lines. MYOXINOL™'s inhibitory effect was evaluated by measuring the frequency of contractions. Carisoprodol, a known muscle relaxant, was used as a benchmark.

Protocol

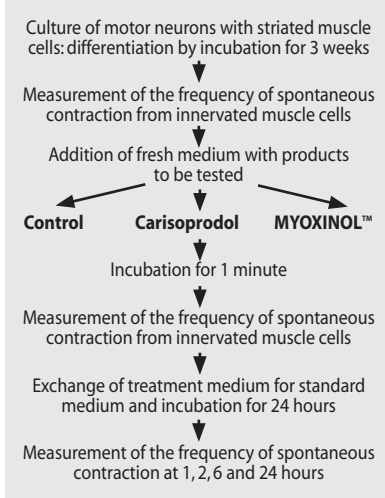


Fig. 2 - Schema of protocol.

Results

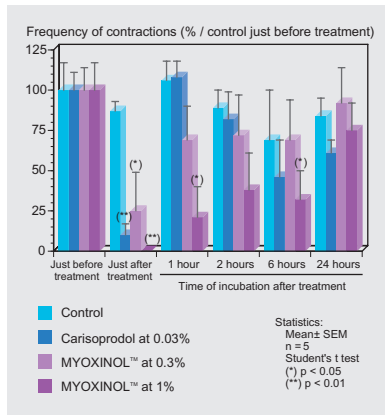


Fig. 3 - Effect on the frequency of contraction of the innervated muscle cells as a function of the incubation time.

Conclusion

MYOXINOL™ LS 9736 has significant efficacy to reduce muscle cell contraction.

This effect is longer lasting than the benchmark, yet completely reversible after 24 hours, providing evidence of the harmlessness of MYOXINOL™ on the long term.

MYOXINOL™ inhibits the mechanical factor responsible for expression lines formation.

ANTI-OXIDANT EFFECT, *IN VITRO*

To complement the efficacy versus mechanical parameters, we have demonstrated MYOXINOL™'s ability to prevent biological aging via antioxidant properties. Free radicals play a predominant role in aging of both components of human skin: cells and extracellular matrix. The oxidation of the dermal macromolecules of the extracellular matrix results in deterioration of skin's mechanical properties.

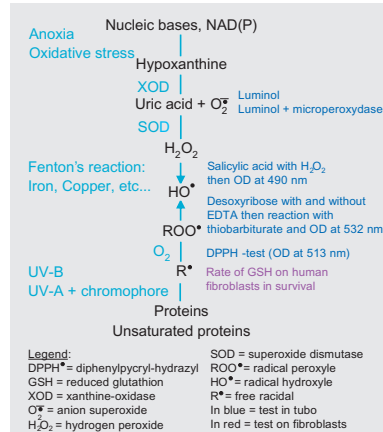
Cell protection against free radicals

Aim

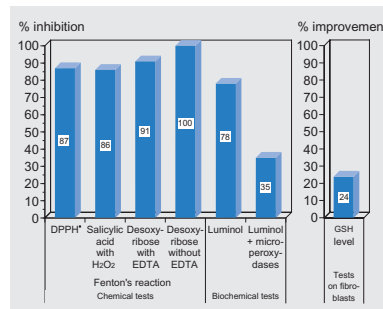
Evaluation of the anti-free radical capacity of MYOXINOL™ by a battery of chemical and biochemical tests, *in tubo* and *in vitro*.

These tests cover primary radical forms as well as secondary reactive forms of oxygen.

Protocol

Fig. 4 - Principle of the anti-free radical screening: chemical, (enzymatic) biochemical tests and on human fibroblasts in survival *in vitro*.

Results

Fig. 5 - Results of the anti-free radical screening: chemical, biochemical tests and on human fibroblasts in survival *in vitro*.

Conclusion

MYOXINOL™ LS 9736 has shown good anti-free radical activity and has activated the natural defenses (reduced glutathione) of the cells against the deleterious effects of free radicals. MYOXINOL™ prevents oxidative damage, thus protecting skin from biological aging.

ANTI-WRINKLE ACTIVITY (CLINICAL TEST)

Due to its combined efficacy versus both mechanical and biological factors, MYOXINOL™ LS 9736 displays long term anti-aging properties.

Aim

Demonstration of the anti-wrinkle activity of a cream containing 1% MYOXINOL™ versus placebo.

Protocol

12 healthy female volunteers with expression lines, especially in the crow's foot area. Twice a day treatment of the face for 3 weeks. Double blind, with randomization. Quantitative measurement of wrinkle depth by image analysis.

Results

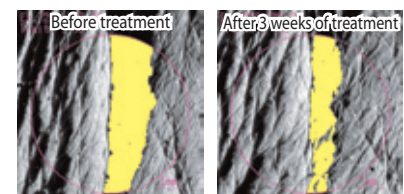


Fig. 6 - Anti-wrinkle activity of MYOXINOL™, evaluated by image analysis. Illustration on 1 subject (issued shade detected in yellow, proportional to the wrinkle's depth).

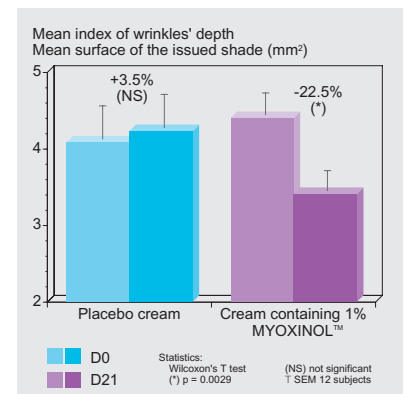


Fig. 7 - Study of the anti-wrinkle activity of MYOXINOL™ by image analysis versus placebo. Mean evaluation on 12 volunteers of the index of wrinkles' depth, after 3 weeks of treatment.

Conclusion

MYOXINOL™ LS 9736 has a strong anti-wrinkle capacity, due to its ability to reduce facial muscle contraction via a protective efficacy towards oxidative stress.

Due to its mechanisms of action, MYOXINOL™ LS 9736 particularly targets the prevention and smoothing of expression lines.