

LEMA-14A

From Magnolia a Natural
Multi-Functional Ingredient



COSMOS
APPROVED

LEMA-14A

From Magnolia a Natural Multi-Functional Ingredient

LEMA-14A represents Naturalis' effective response to the increasingly request by the cosmetic market for natural active ingredients and preservatives capable of guaranteeing skin safety and respect for the environment.

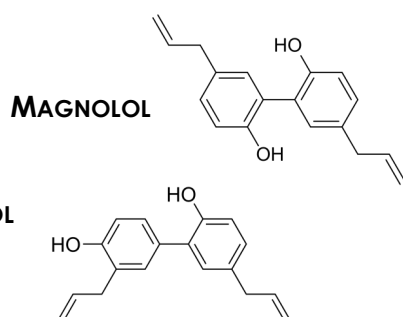
LEMA 14-A is an innovative multifunctional active ingredient based on the properties of two natural molecules extracted from magnolia bark as Magnolol and Honokiol (obtained by supercritical CO₂ extraction) and dissolved in sodium levulinate.



LEMA-14A NATURAL INGREDIENTS

LEMA-14A is extremely effective in formulation as a mild antimicrobial, anti-oxidant and anti-inflammation ingredient. It can be used to formulate any kind of cosmetic product in a concentration between 0.3 and 1.0%

Thanks to its liquid form, LEMA-14A is very easy and ready to use in cosmetic formulations.



ANTI-MICROBIAL

Preservative activity against bacteria, molds, fungi, and yeasts

ANTI-OXIDANT & ANTI-INFLAMMATORY

Reduce inflammatory signals and dermal matrix degradation

The total biodegradability of LEMA-14A makes it an environmentally friendly ingredient.

Its very low toxicity means that it can also be used in products developed for particular subjects such as very young children and adults with skin disorders or sensitive skin.

For all these properties it is a natural multi-functional ingredient working as preservative for cosmetic formulations and as effective active ingredient for skin care, oral care and sun care products.



FEATURES

LEMA-14A formulation is very effective for the improvement of skin cells health thanks to the full range of benefits for the skin provided by the unique molecules extracted from Magnolia bark.

- Radical Scavenger
- Anti-inflammatory
- Anti-Lipid Peroxidation
- Anti-Bacterial
- Anti-Yeast and Molds
- Totally Biodegradable

COSMETIC USE & LEVELS

LEMA-14A is used in cosmetic formulations as:

- Preservative Booster
- Anti-age
- Anti-acne
- Anti-plaque
- Soothing
- Deodorant

As Preservative Booster

- Emulsion 0,5 - 0,8%
- Toiletries 0,5 - 0,8%
- Wet wipes 0,4 - 0,6%

As Active Ingredient

- Anti-Age 0,4 - 0,6%
- Anti-Plaque 0,3 - 0,5%
- Anti-Acne 0,4 - 0,6%
- Deodorant 0,3 - 0,5%

LEMA-14A PRESERVATIVE BOOSTER

LEMA-14A shows significant antibacterial efficacy against:

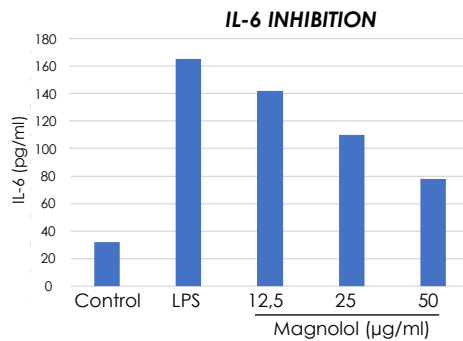
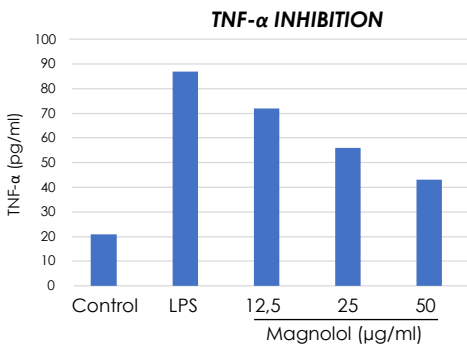
- ◇ Gram -
- ◇ Gram +
- ◇ Yeast
- ◇ Molds

LEMA-14A improve anti-bacterial function of every preservative system in cosmetic products

Bacteria (gram -)	MIC	Bacteria (gram+)	MIC
Enter. gergoviae	0.25 %	Staph. aureus	0.20 %
Escherichia coli	0.25 %	Staph. epidermidis	0.20 %
Klebsiella pneum.	0.20 %		
Pseudomonas aerug.	0.25 %		
Pseudomonas fluor.	0.20 %		
Pseudomonas putida	0.20 %		
Yeast	MIC	Molds	MIC
Candida albicans	0.35 %	Aspegillus niger	0.35 %
		Penicillium funicul.	0.35 %

LEMA-14A ANTI-INFLAMMATION

LEMA-14A shows anti-inflammatory activity thanks to its unique composition. Magnolol is well known for its anti-inflammatory effects by inhibition of inflammatory cytokines production which are responsible for the activation of NF-kB and MAPK signalling.



Magnolol inhibits lipopolysaccharide (LPS)-induced cytokine production in a dose-dependent manner.

Cells were treated with LPS alone or LPS plus different concentrations (12.5, 25, or 50 µg/ml) of Magnolol for 24 h.

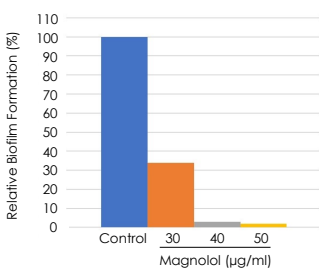
Levels of TNF-α and IL-6 in culture supernatants were measured by ELISA.

LEMA-14A ORAL CARE ACTIVITY

IN VITRO ACTIVITY AGAINST S.MUTANS

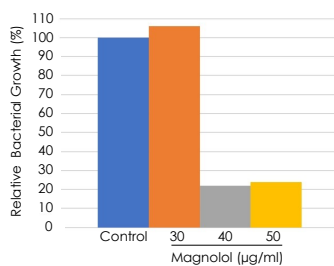
The anti-bacterial efficacy against bacterial growth and biofilm formation of *Streptococcus mutans*, the main responsible for dental plaque and cavities, was assessed in vitro.

ANTI-BIOFILM ACTIVITY



S.mutans was inoculated in BHI-S broth for 24h at 37°C. Biofilm formed on well surfaces were stained eluted. The OD was then measured at 571 nm.

BACTERIAL GROWTH INHIBITION



S.mutans was inoculated in BHI broth for 24h at 37°C and the OD of each well measured at 620nm

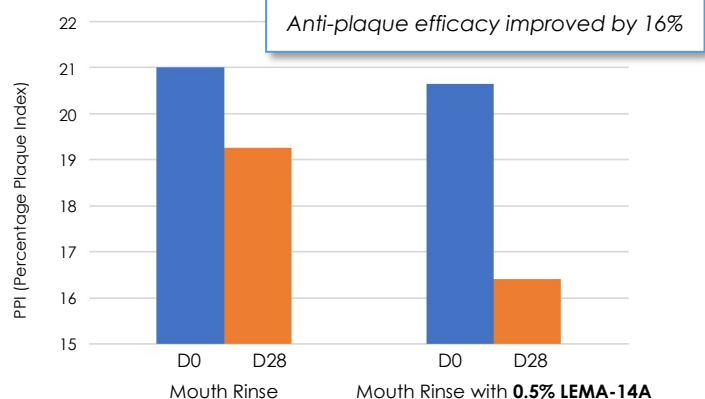
IN VIVO EFFICACY AGAINST DENTAL PLAQUE USING QLF PLANIMETRIC TECHNIQUE

Quantitative Light-induced Fluorescence allows the quantification of dental plaque relying on natural fluorescence of the plaque.

Teeth photographs were analysed using image manipulation software to isolate specific plaque area.

PPI (Percentage Plaque Index) was calculated as follow:

$$\text{Tooth Plaque Area} / \text{Total Tooth Area} * 100$$



INCI NAME

Magnolol/Honokiol, Sodium Levulinate

COSMETIC USE

Preservative Booster & Oral Care Active

TYPICAL PROPERTIES

Appearance: Liquid

Color: from Light Yellow to Orange

Density: about 1,14 g/ml

DOSAGE: 0,6-1%

OPTIMUM pH as Preservative Booster: Up to 5.5

HANDLING PROCEDURE

The product must be stored at a temperature not lower than 25°C. In case of solidification of the product: heat to bring it back to the liquid state. Keep containers closed when not in use, avoid light.

PACK SIZE AVAILABLE: 5kg, 20kg ad 50kg pails

SHELF LIFE: Store in unopened containers for 12 months

CERTIFICATION STATUS

- Natural product
- GMO Free
- Allergen Free
- Not tested on animals

SAFETY & TOXICITY

Reference COMMISSION REGULATION (EC) No 987/2008 of 8 October 2008 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH):

- non-irritating

CONFORMITY

- Natrue
- Ecocert
- COSMOS

COMPLIANT REGULATION

US - EU - China - Japan

MANUFACTURER

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