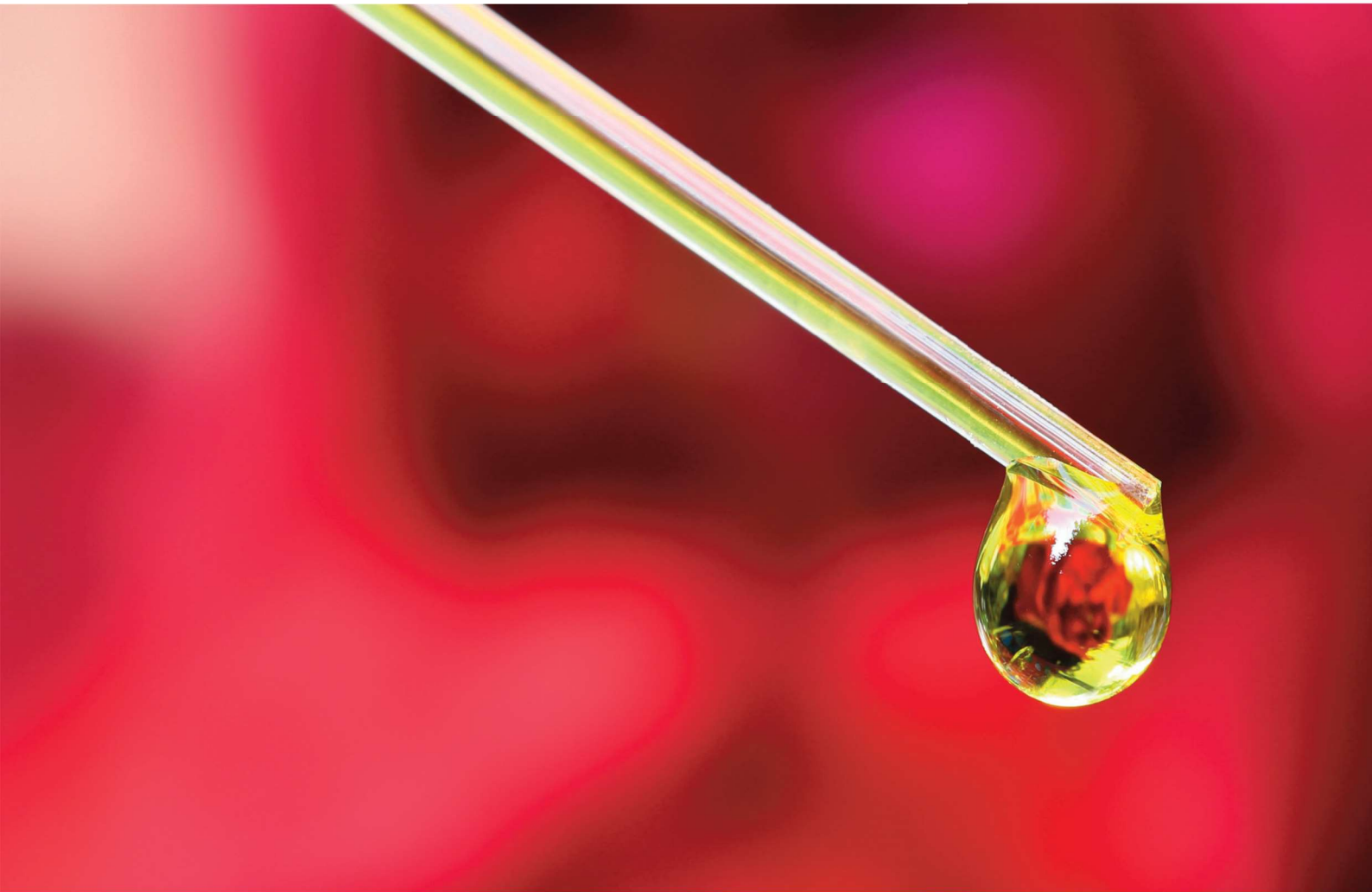


# M-STAT

The power of nature for an optimal cosmetic preservation



## INTRODUCTION

Nowadays cosmetic industry is increasingly moving towards a concept of well-being closely linked to that of naturality.

This trend also involves preservatives, a kind of ingredients often at the center of contentions regarding consumer safety and environmental protection.

In order to meet these needs, Naturalis has developed a preservative that combines two fundamental characteristics: complete naturality and effectiveness.

## WHAT IS IT:

M-STAT is an innovative, under patent, broad spectrum anti-bacterial/antifungal based on two natural molecules extracted from magnolia bark (Magnolol and isomer Honokiol) solubilized in Caprylyl Glycol.

Magnolol and Honokiol are two molecules obtained by CO<sub>2</sub> supercritical extraction from magnolia's bark, with a wide range of beneficial activities, such as anti-inflammatory and antioxidant.

In addition these compounds have an important antimicrobial action and, consequently, they can represent a valid alternative to synthetic preservatives.

In particular this blend shows a strong activity against bacteria (Gram + and Gram -) and against moulds and yeasts.

M-STAT is in liquid form and easy to use as natural and biodegradable preservative in cosmetics formulations.

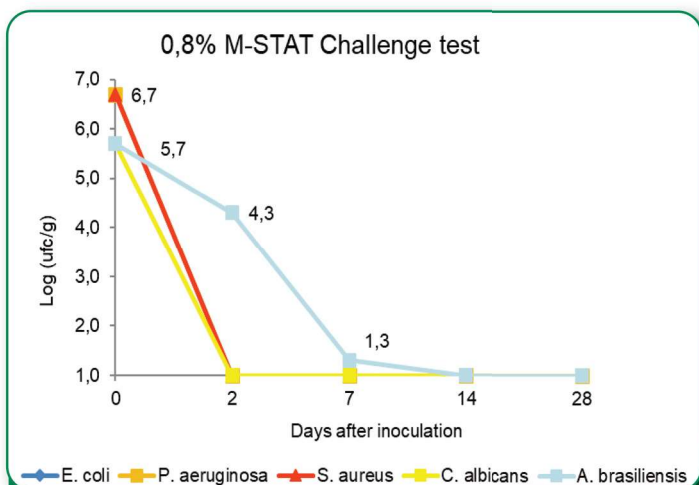
## PROPERTIES

- Effective against Gram + and Gram -
- Effective against moulds and yeasts
- Radical scavenger
- Anti-inflammatory
- Anti-lipid peroxidation
- Good compatibility with anionic and non-ionic surfactants
- Resistant to hydrolysis
- Biodegradable 100%

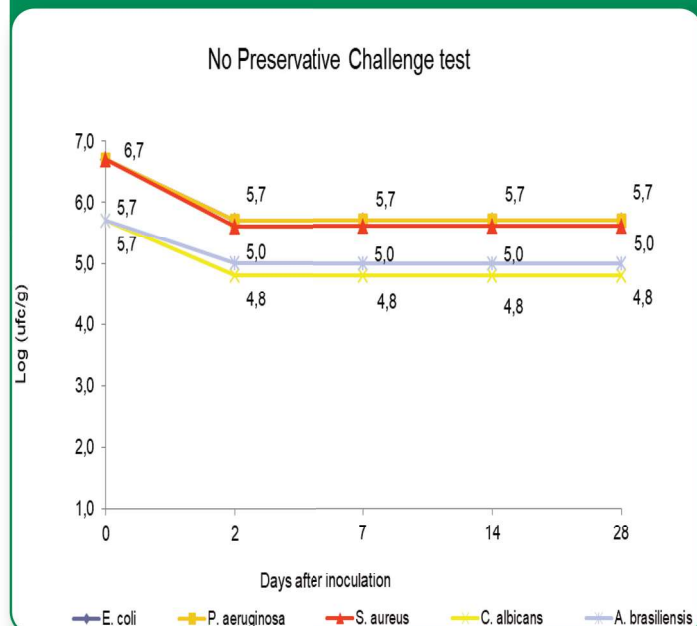
## ANTIMICROBIAL ACTIVITY

Antimicrobial activity of M-STAT was assessed by defense. The challenge test was carried out using 0,8% of M-STAT as preservative system in cosmetic formulations. After pre-determined periods of time, the survival kinetic of bacteria Gram+ (Staphylococcus aureus) and Gram- (Escherichia coli, Pseudomonas aeruginosa), yeast (Candida albicans) and mould (Aspergillus brasiliensis) was evaluated in compliance with ISO method 11930:2012 (European Regulation 1223/2009). As shown, the antibacterial/antifungal efficacy was demonstrated by the reduction of cells survival.

## Challenge test emulsion without preservative



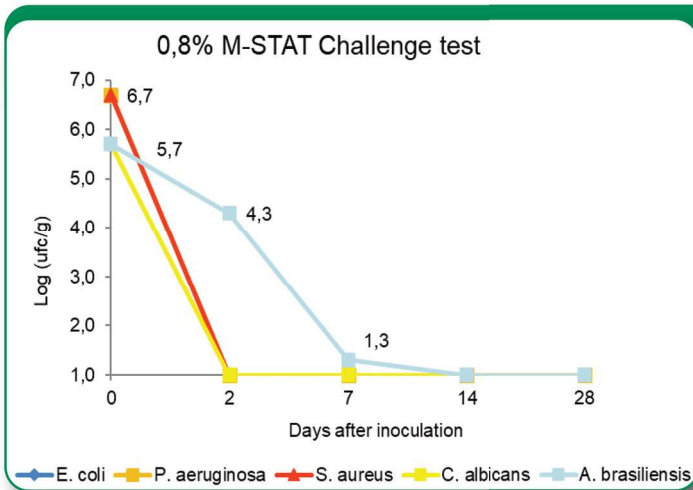
## Challenge Test On A O/W Emulsion



# M-STAT

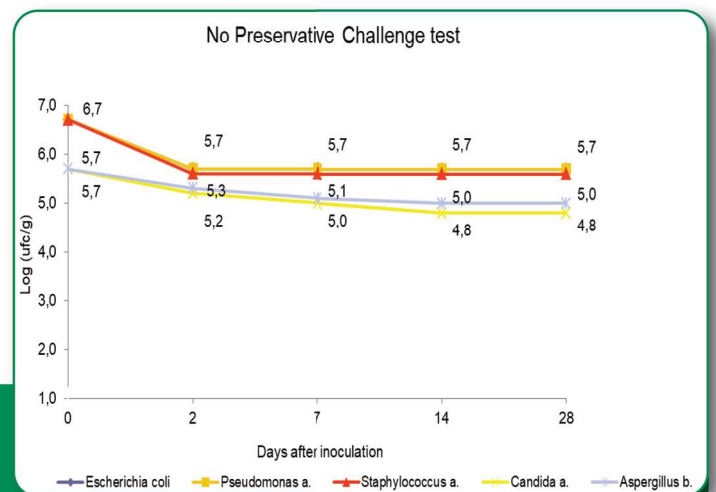
EMULSION+M-STAT	%	NO PRESERVATIVE EMULSION	%
AQUA	to 100	AQUA	to 100
GLYCERIN	2,0	GLYCERIN	2,0
XANTHAN GUM	0,1	XANTHAN GUM	0,1
PEG-100 STEARATE	2,5	PEG-100 STEARATE	2,5
GLYCERYL STEARATE	2,0	GLYCERYL STEARATE	2,0
CETEARYL ALCOHOL	4,0	CETEARYL ALCOHOL	4,0
ETHYLHEXYL PALMITATE	7,0	ETHYLHEXYL PALMITATE	7,0
ISOPROPYL PALMITATE	5,0	ISOPROPYL PALMITATE	5,0
M-STAT	0,8	-	-

Composition of the emulsions



Challenge test shampoo with 0,8% M-STAT

## Challenge Test On Shampoo



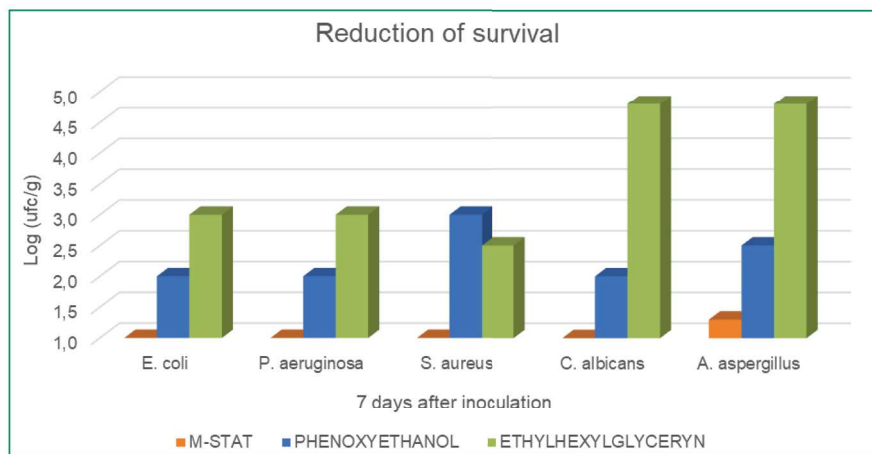
Challenge test shampoo without preservative

AQUA	to 100	AQUA	to 100
SODIUM LAURETH SULFATE	27,0	SODIUM LAURETH SULFATE	27,0
COCAMIDOPROPYL BETAINE	6,0	COCAMIDOPROPYL BETAINE	6,0
COCO GLUCOSIDE	2,0	COCO GLUCOSIDE	2,0
POLYQUATERNIUM-10	0,2	POLYQUATERNIUM-10	0,2
NaCl	1,0	NaCl	1,0
M-STAT	0,8	-	-

Composition of the shampoo



## M-STAT SIGNIFICANTLY REDUCES BACTERIA, YEAST AND MOULD SURVIVAL



*Reduction of germs after 7 days in an O/W emulsion with M-STAT (orange columns), with Phenoxyethanol (blue columns) and with Ethylhexylglyceryn (green columns)*

### SAFETY DATA

The product has been tested to evaluate the irritative potential on the skin

- IN VITRO TEST ON RECONSTRUCTED HUMAN EPIDERMIS (MatTEK Corp US): Negative
- IN VIVO PATCH TEST: Negative
- IN VIVO REPEATED PATCH TEST: Negative

**M-STAT IS COMPLETELY  
NON-IRRITANT FOR THE SKIN**

**COSMETIC USE:** Natural preservative

#### TYPICAL PROPERTIES:

- Appearance: Clear liquid
- Color: From yellowish to light brown
- Density: 0,9-1,1 g/ml
- INCI name: Magnolol (and) Honokiol (and) Caprylyl Glycol

**DOSAGE:** 0,6-1%

**OPTIMUM PH:** 4.0-8.0

**HANDLING PROCEDURES:** 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:** 5 and 20 kg tanks

**SHELF LIFE:** Store in unopened containers for 2 years

#### 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 for skin

**COMPLIANT WITH REGULATION:** China, EU, US

#### MANUFACTURER

Naturalis Srl – Italy Product N° LE-1801



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