

From Natural Sources to Powerful Personal Care Ingredients

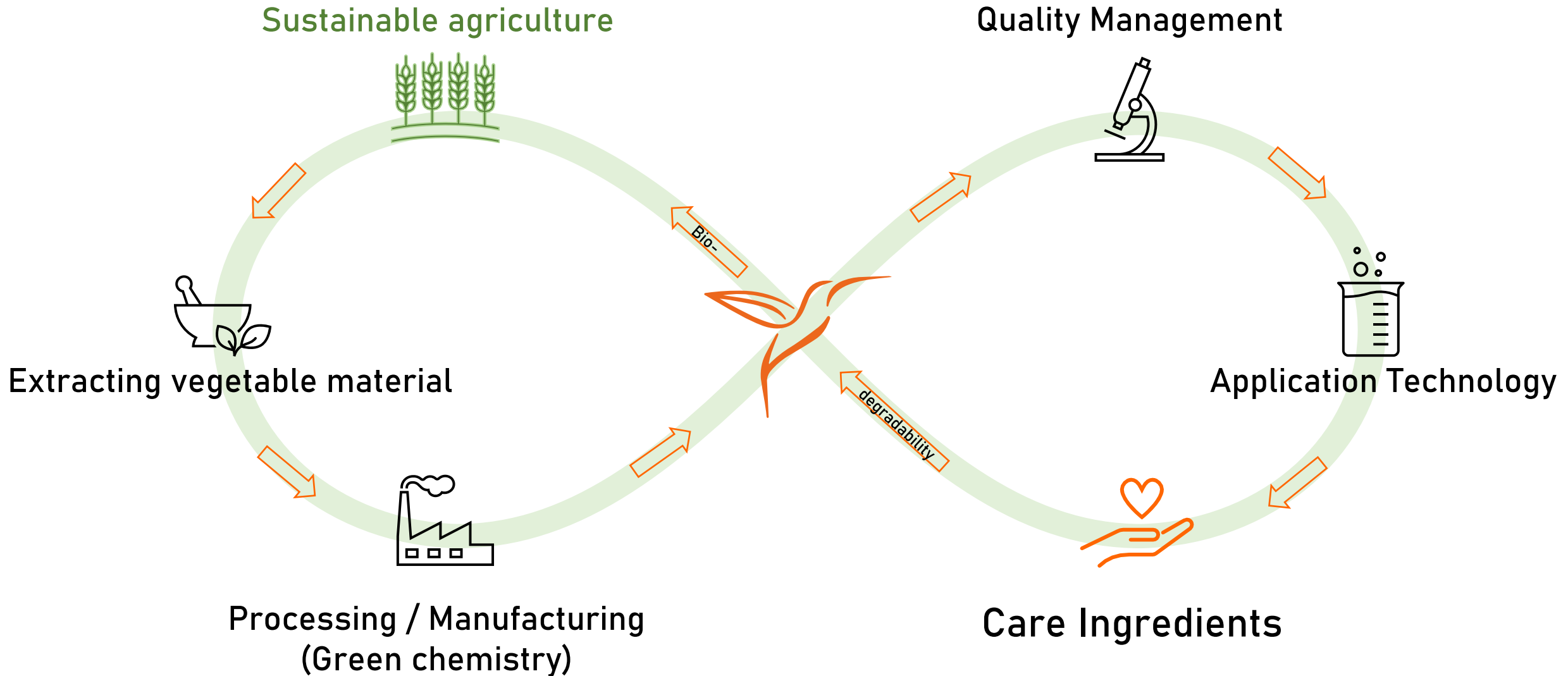
Keeping it Green in Personal Care

Royal Society of Chemistry Conference, March 2nd 2021

Dr. Fernando Ibarra, Managing Director Evident Ingredients GmbH



We Personally Care...



...for *sustainaquality*



Our functional and
natural ingredients:

Evicare[®]



Modern
preservation
has a new
name:

Evicide[®]

FOREVER

Evident Ingredients Product Range

Evicide® levulinate
Evicide® anise
Evicide® anise eco
Evicide® anisate eco
Evicide® cassia

Organic Acids

Evicide® MP 8
Evicide® levulinate S
Evicide® levulinate B
Evicide® PCG
Evicide® PBA
Evicide® BBC

Preservatives

Evicide® G 5 eco
Evicide® G 6
Evicide® G 8
Evicide® G 10
Evicide® GMCY
Evicide® GML

Boosting agents

Aromatic alcohols

Evicide® rose
Evicide® rose eco
Evicide® hyacinth
Evicide® magnolia

Evicare® toco mix
Evicare® toco soy
Evicare® toco canola
Evicare® toco sun
Evicare® toco acetate

Antioxidants

Emulsifiers

Evicare® GSC
Evicare® GSC pof
Evicare® GOC
Evicare® PGPR
Evicare® GB
Evicare® GO

Emollients

Evicare® silk
Evicare® pure
Evicare® solve
Evicare® lipotex
Evicare® lipotex pof

Actives

Evicare® complex 1
Evicare® complex 3
Evicare® complex 12
Evicare® deo
Evicare® TEC
Evicare® wintergreen

Evident Ingredients Product Range: **natural** vs **synthetic**

Evicare® deo

Evicare® TEC

Evicide® rose eco

Evicide® magnolia

Evicide® anise eco

Evicide® anisate eco

Evicide® levulinate

Evicare® toco acetate

Evicare® toco mix

Evicare® toco soy

Evicare® toco canola

Evicare® toco sun

Evicide® G 5 eco

Evicide® cassia

Evicare® silk

Evicare® complex 1

Evicare® complex 3

Evicare® complex 12

Evicide® GMCY

Evicide® GML

Evicare® GSC

Evicare® GSC pof

Evicare® GOC

Evicare® PGPR

Evicare® GB

Evicare® GO

Evicare® lipotex

Evicare® lipotex pof

Evicare® solve

Evicare® pure

Evicare® wintergreen

Evicide® levulinate S

Evicide® levulinate B

Evicide® MP 8

Evicide® G 6

Evicide® G 8

Evicide® G 10

Evicide® PCG

Evicide® PBA

Evicide® BBC

Evicide® hyacinth

Evicide® anise

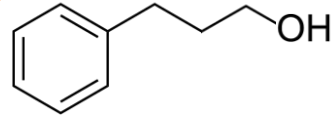
Evicide® rose

**natural personal
care ingredients.**

for every skin type.

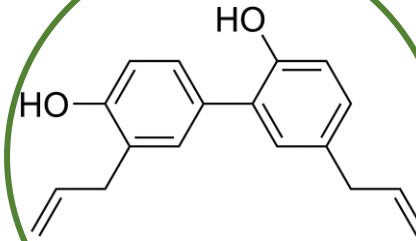


Evicide® Aromatic Alcohols



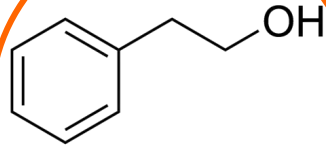
Phenyl-propanol

Mild Floral
scent



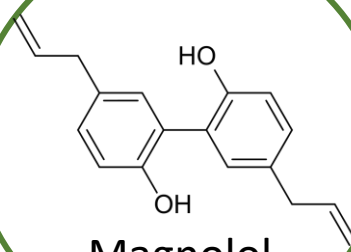
Honokiol

pH-
independent



Phenethyl-
alcohol

Fungicidal
action



Magnolol

Preservative
concept
from nature

Evicide® rose
Evicide® rose eco
Evicide® hyacinth
Evicide® magnolia

Evicide® range: Aromatic alcohols

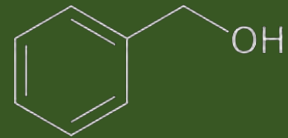


Are non-listed preservatives better than registered preservatives?

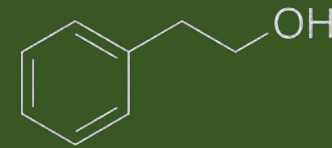
Benzylalcohol, a listed preservative belongs to the same chemical family like Phenethylalcohol and Phenylpropanol which are not registered as preservatives.

Being *chemically* very similar, their antimicrobial effect is, too. However, *legally* they belong to different groups.

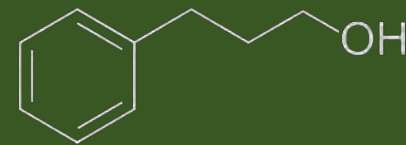
Phenoxyethanol comes from a different process, belongs to a different chemical group, but is also similar in shape and chemical properties.



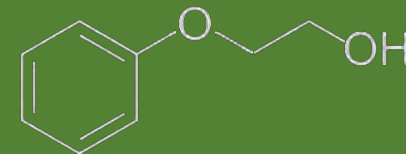
Benzylalcohol



Phenethylalcohol



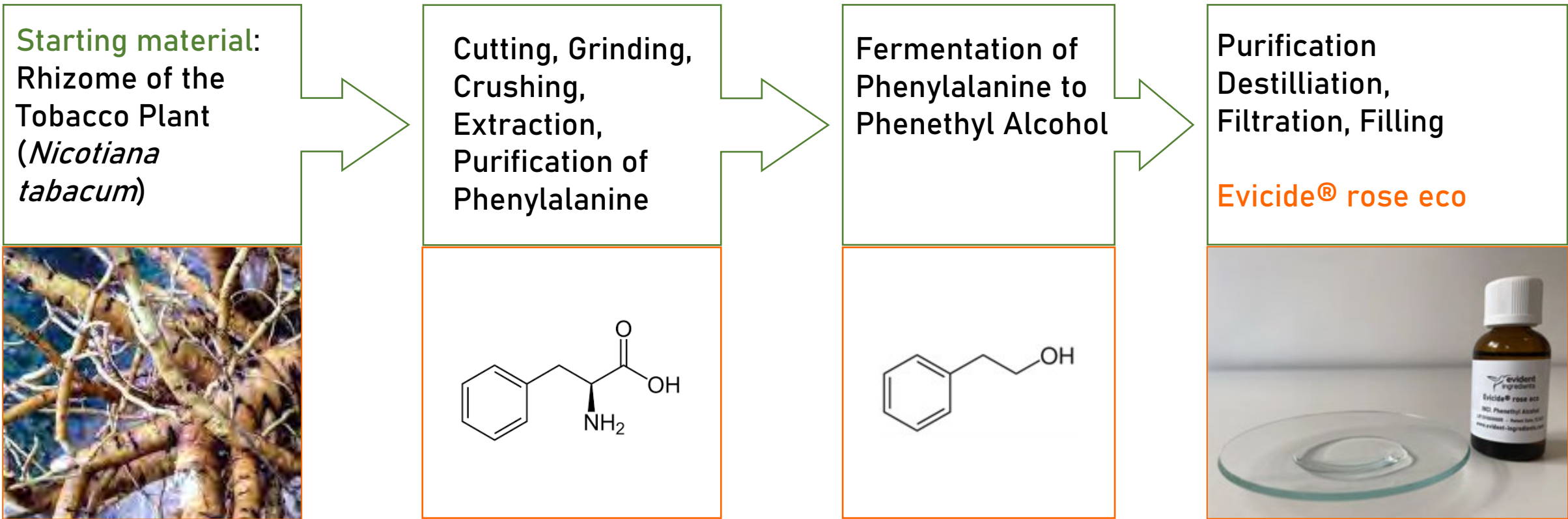
Phenylpropanol



Phenoxyethanol

What is the best? You decide for your project!

Evicide® rose eco – Production



Only physical treatment and fermentation used throughout the whole manufacturing process.

Evicide® rose / rose eco

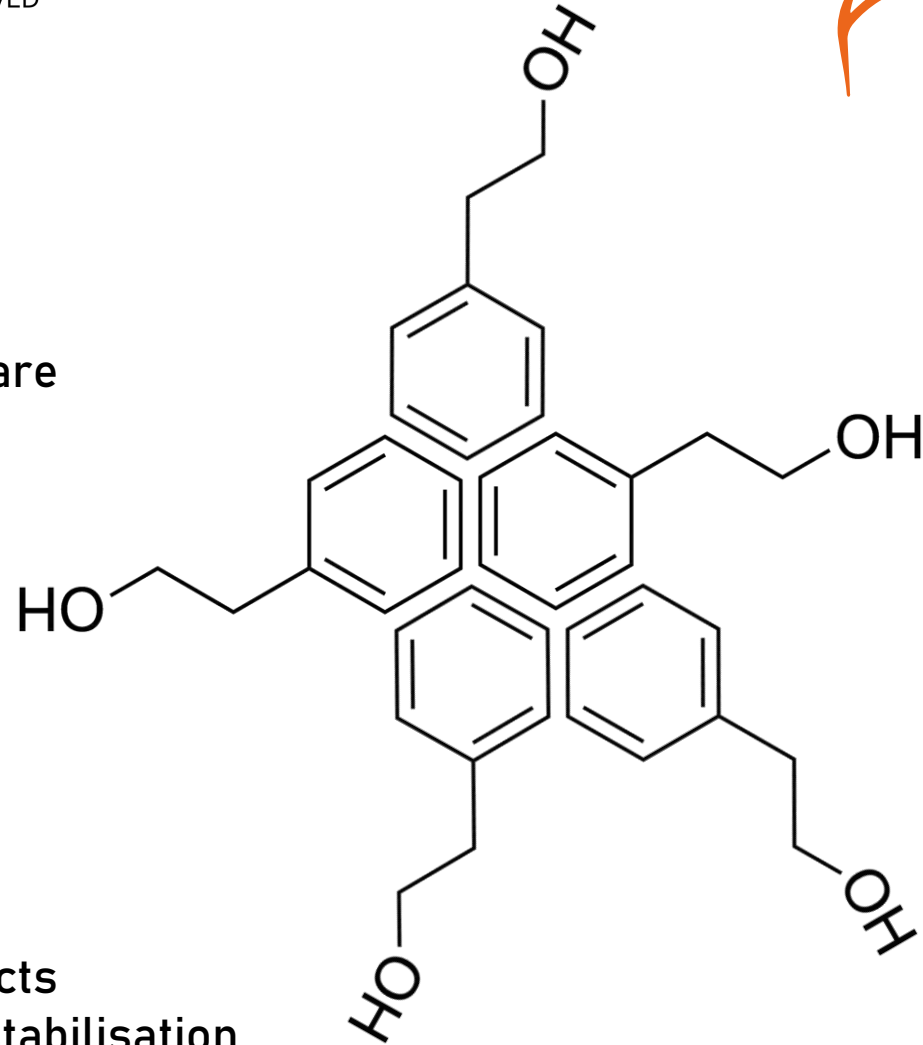


INCI: Phenethyl Alcohol

Function: Masking, Perfuming, Antimicrobial

Use: Preservation in Toiletries, Skin Care & Sun Care

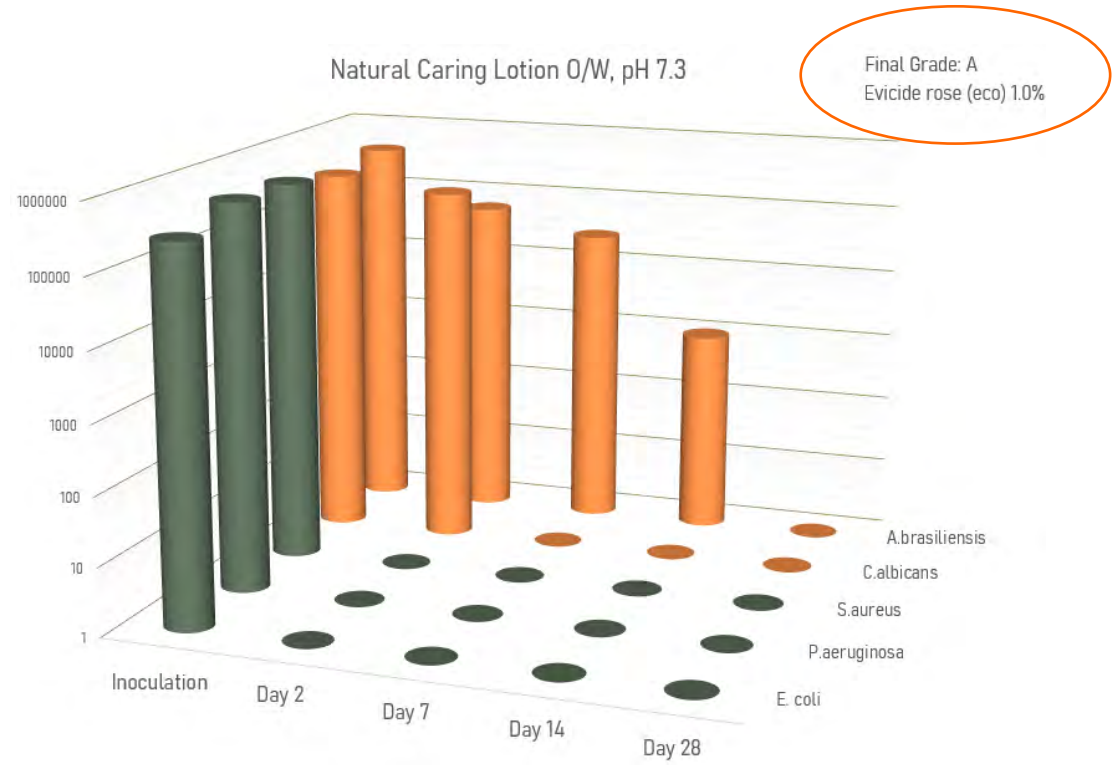
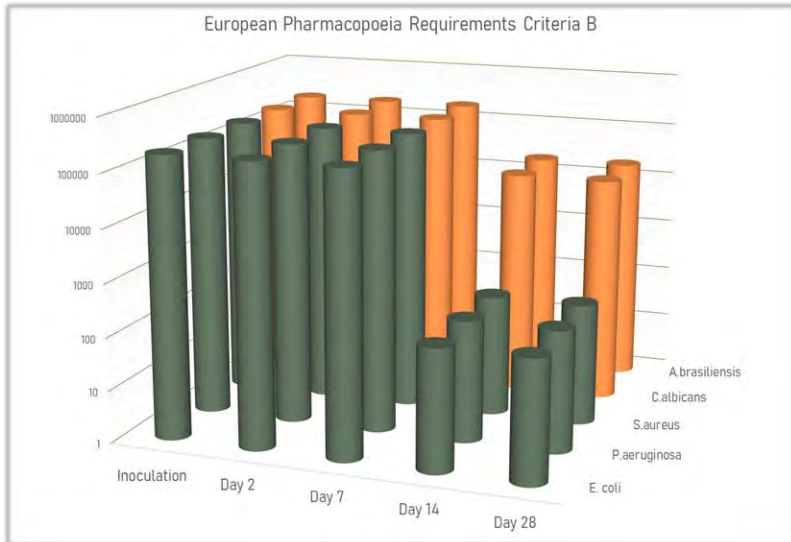
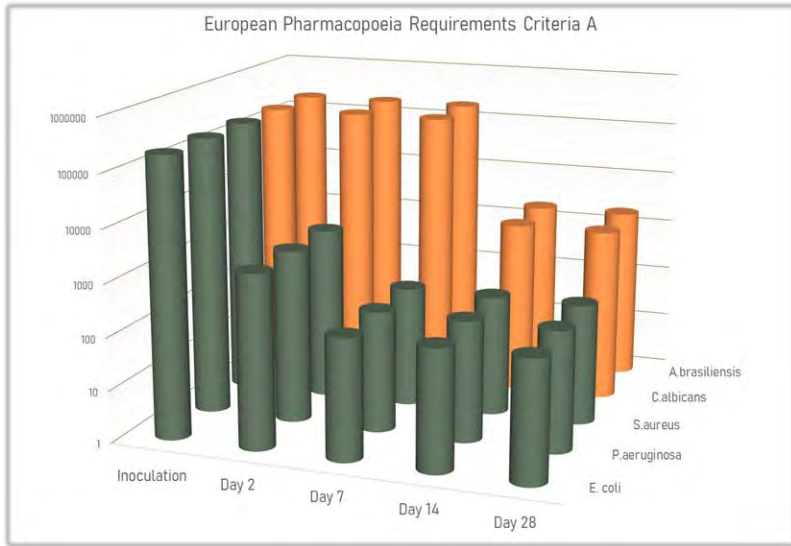
- pH-independent
 - Slight rose-smell
 - Compatible with surfactants
 - For Shampoos and hair care products
 - Perfect for emulsions – no destabilisation
 - Heat stable and easy to use
 - Recommended dosage: 0.3 - 1.0%



Evicide® rose / rose eco



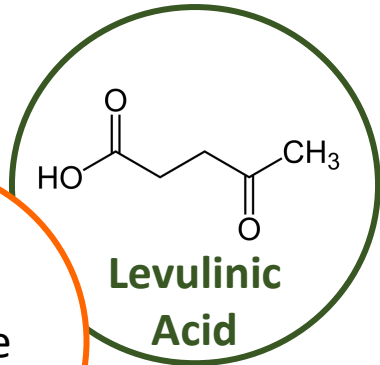
Requirements for passing the preservative efficacy test vs our results



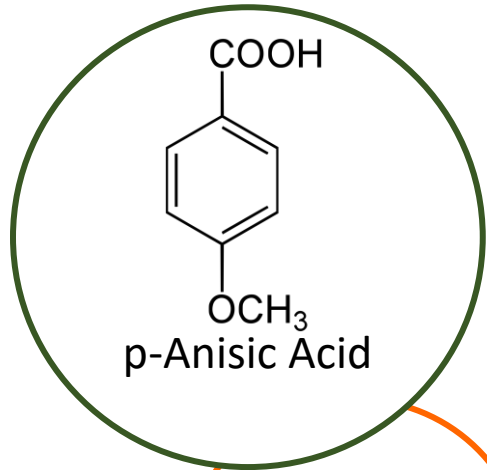


**Natural Preservation
in perfect harmony with your
formulation needs**

Evicide® Organic Acids



Bactericide

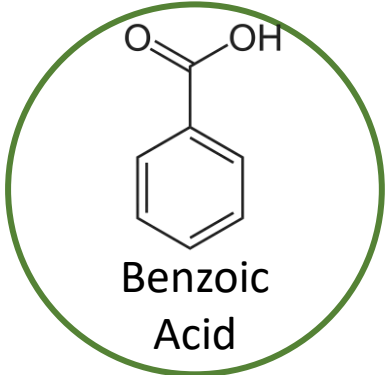


Fungicide

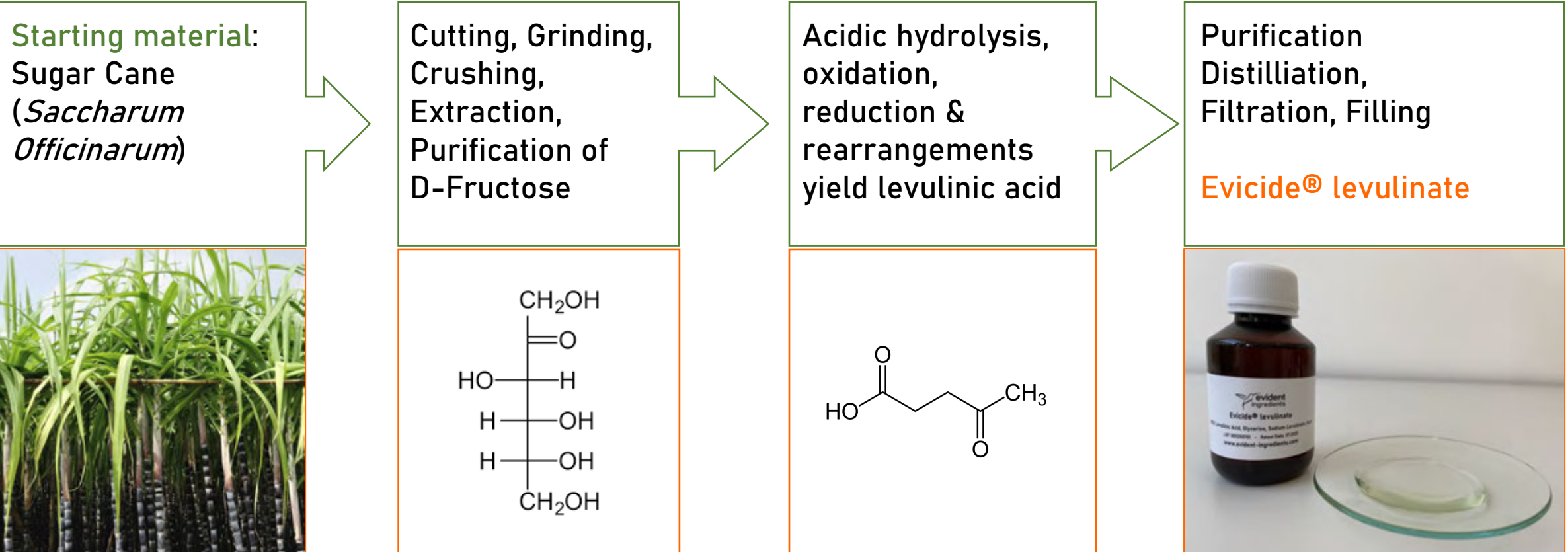
- Evicide® levulinate
- Evicide® anise
- Evicide® anise eco
- Evicide® anisate eco
- Evicide® cassia

Most effective at skin pH

Preservative concept from nature



Evicide® levulinate – Production



Only physical treatment and acidic hydrolysis used throughout the whole manufacturing process.

Evicide® levulinate

INCI: Levulinic Acid, Sodium Levulinate, Aqua, Glycerine

Function: pH-regulating, Skin Conditioning, Antimicrobial

Use: Preservation in Toiletries and Skin Care

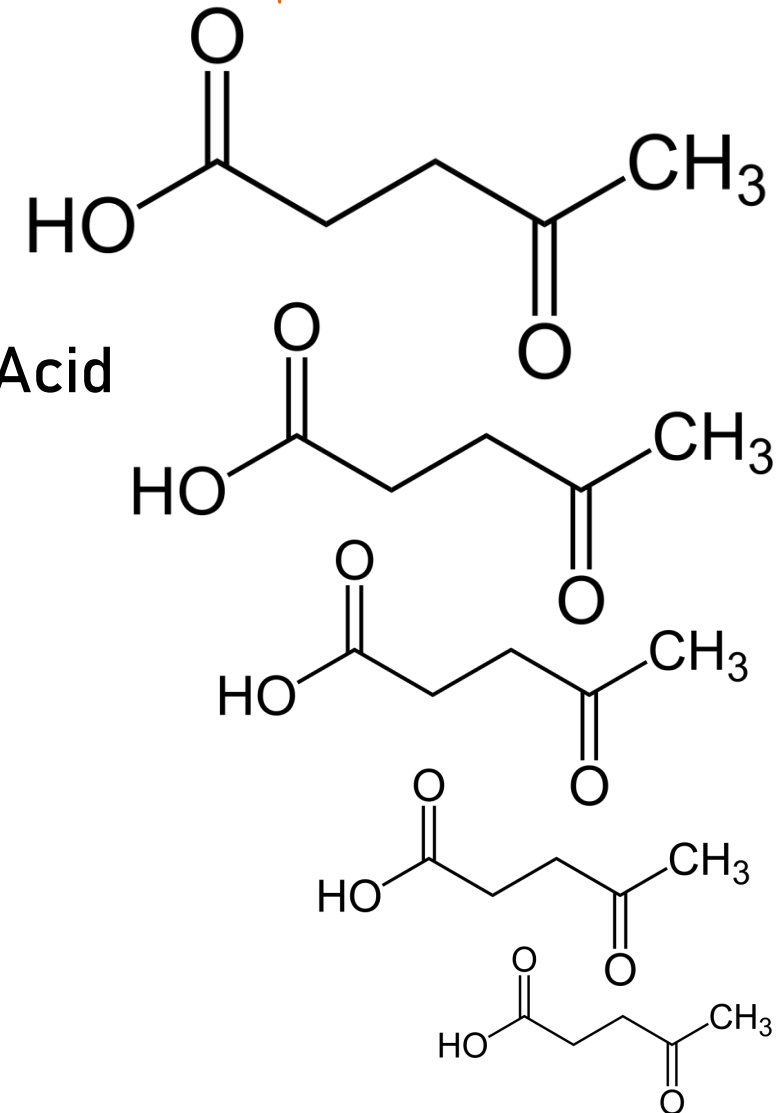
- Works best at skin-neutral pH 4,5 – 6,0
- Very efficient in shower gels and shampoos
- Strong bactericide
- Perfect for emulsions – no destabilisation
- Heat stable and easy to use
- Liquid, easy handling
- Can be introduced at any step of production
- Recommended dosage 0.6 – 1.0 %



COSMOS
APPROVED



Levulinic Acid



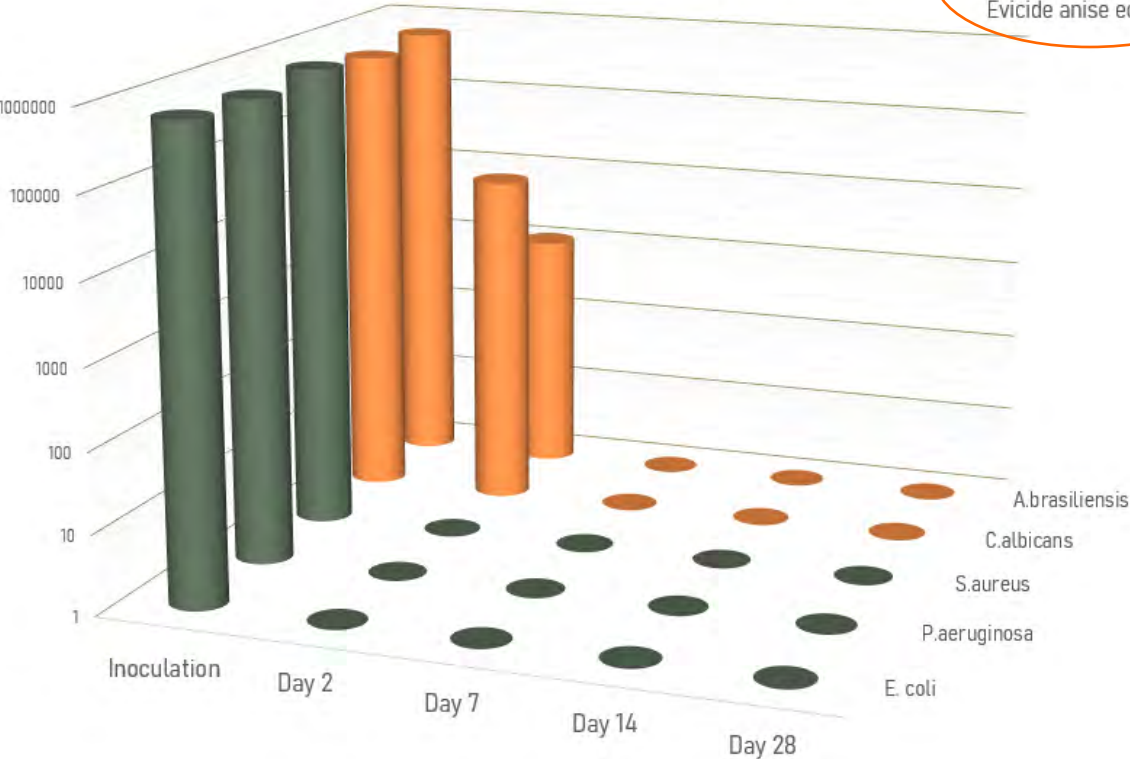
Evicide® levulinate



Results for preservative efficacy test with Evicide® levulinate

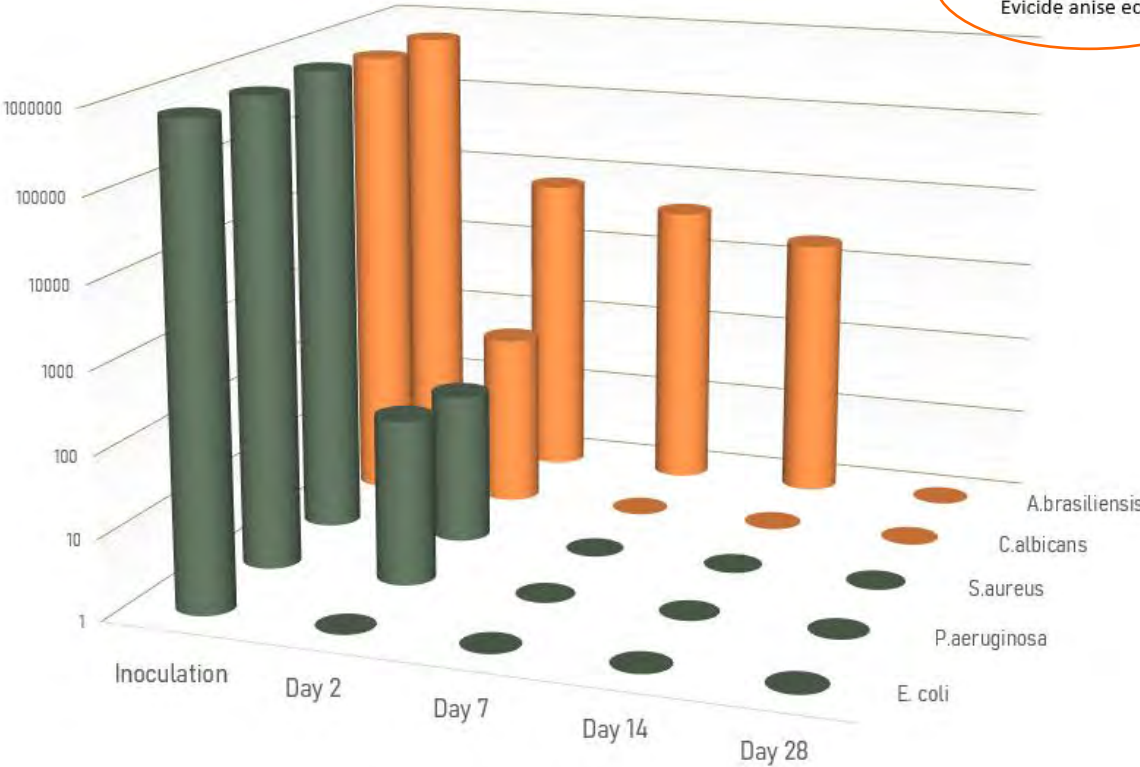
Super Sensitive Wash-Up O/W, pH 5.4

Final Grade: A
 Evicide levulinate 1.0%
 Evicide anise eco 0.2%



Shampoo, pH 5.3

Final Grade: A
 Evicide levulinate 1.0%
 Evicide anise eco 0.2%



Being

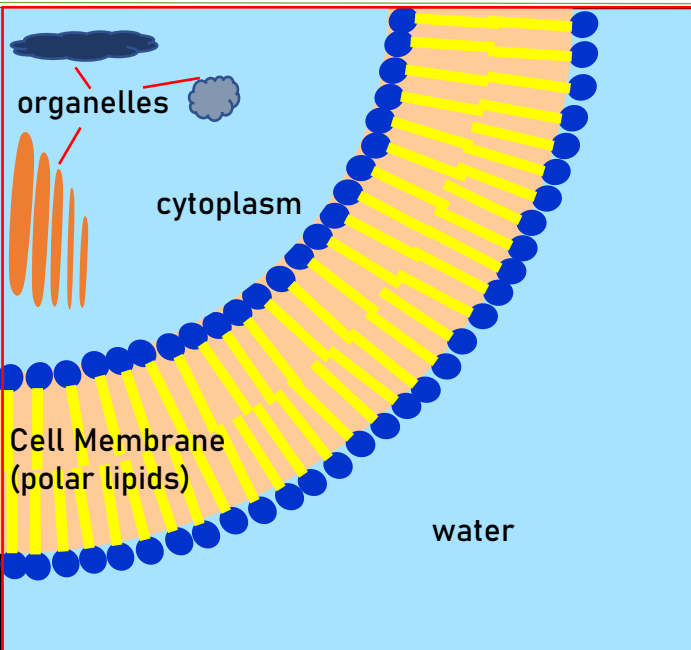
special

is the new

normal.



Evicide® preservation explained



Magnified view of bacteria membrane

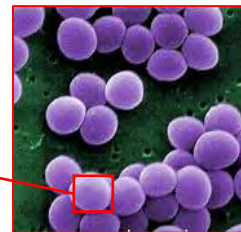


Schematic drawing

Contaminated cosmetic product



Magnified picture



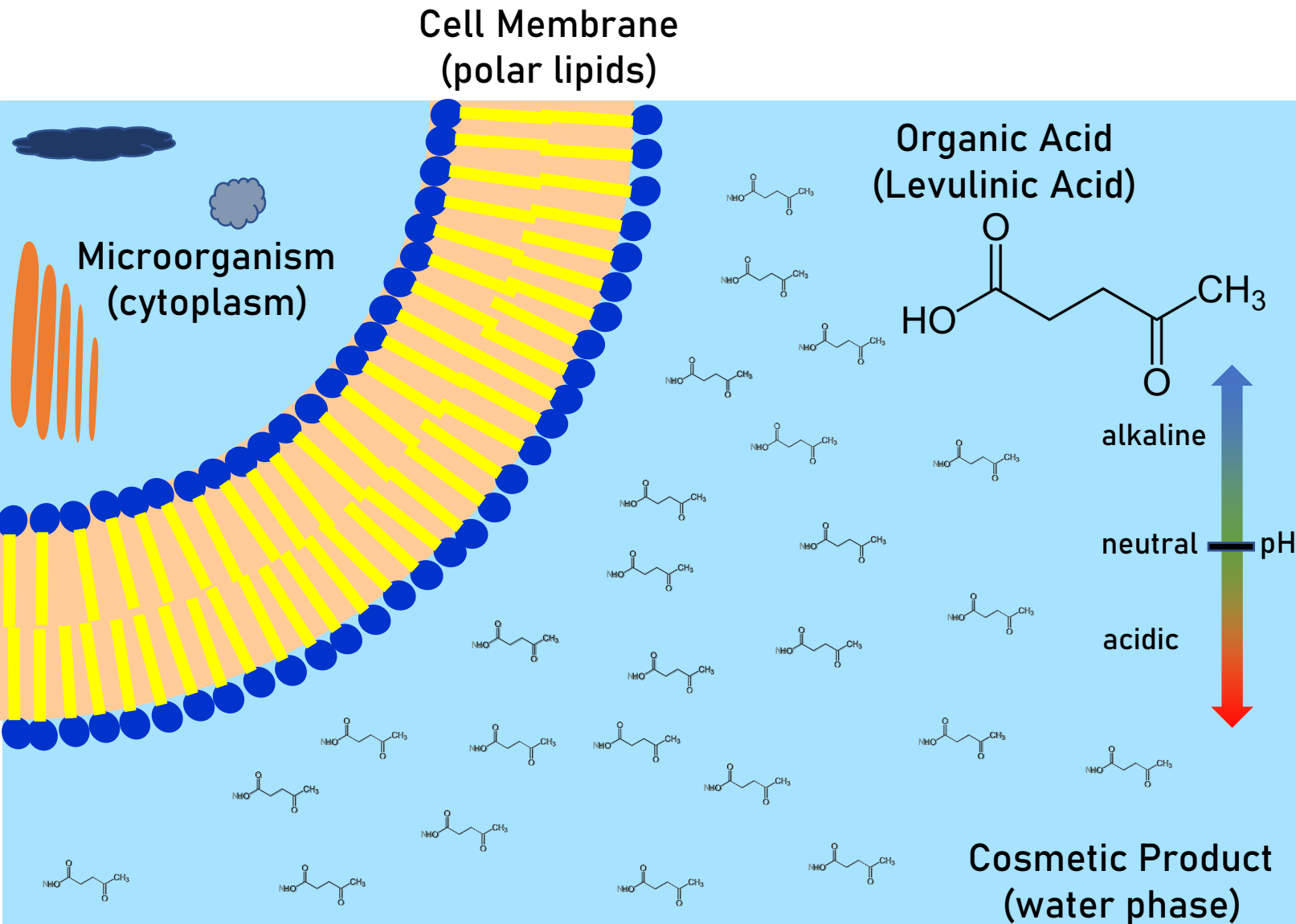
Microscopic image of bacteria

When a cosmetic product is not efficiently protected by a preservation system a contamination by microorganisms can quickly occur.

The spoilage not only destroys the cosmetic, it can also pose a serious threat to human health.

On the following slides the mechanism of action is shown for different antimicrobial concepts.

Evicide® Organic Acids Mode of Action

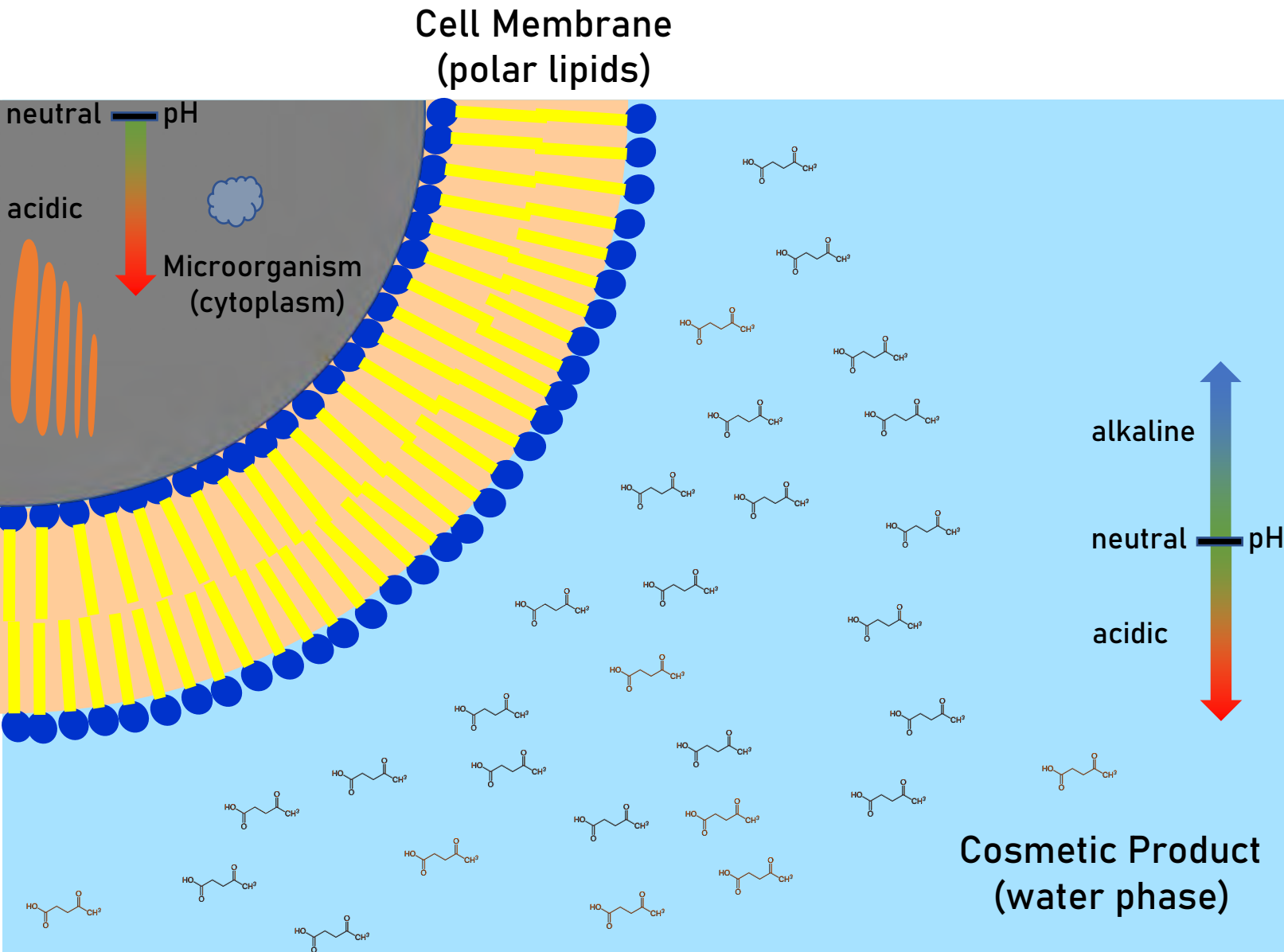


At a neutral or alkaline pH value in the water phase organic acids are present as their anions/salt.

In that case they do not have the ability to cross the membrane and enter the microbes.

They remain inactive in the water phase of the product.

Evicide® Organic Acids Mode of Action



With an acidic pH value in the water phase the organic acids are activated and can enter the microorganism.

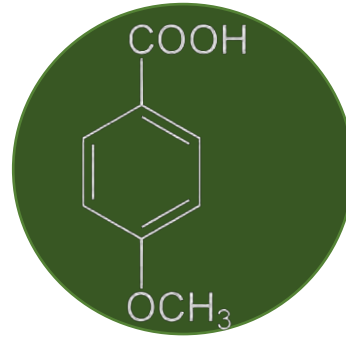
In the cytoplasm the acids lower the pH within the cell and deactivate enzymes and other vital functions.

The microorganism is eliminated.

Evicide® organic acids

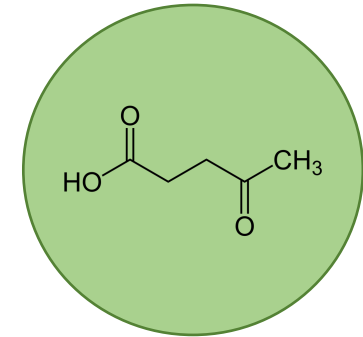


Wow....how natural!



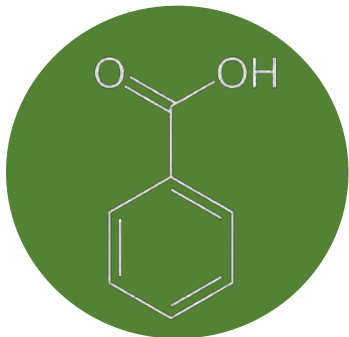
p-Anisic Acid is found in many plants, such as anise or fennel. These plants have a very aromatic smell, while the pure p-anisic acid has not at all.

Levulinic Acid has been found as a lining in bees' nests to protect them against microbes. And it is found in many plants, too: Papaya, Wheat or Rice.



It is hard to find plants that do not contain Benzoic Acid: Apple, Avocado, Tea – and Cassia.

This useful chemical occurs everywhere in nature. We use it as a natural preservative.

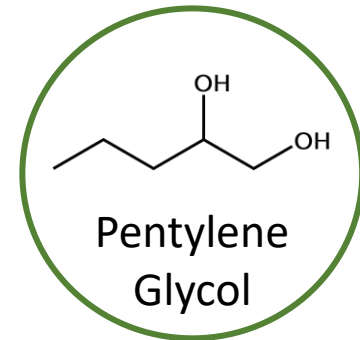
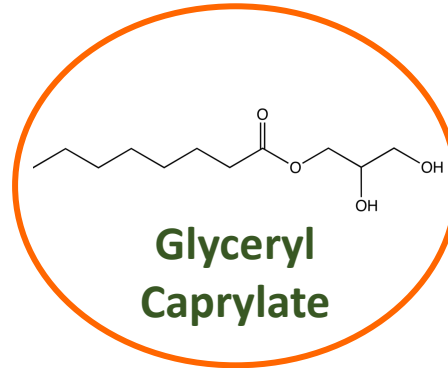
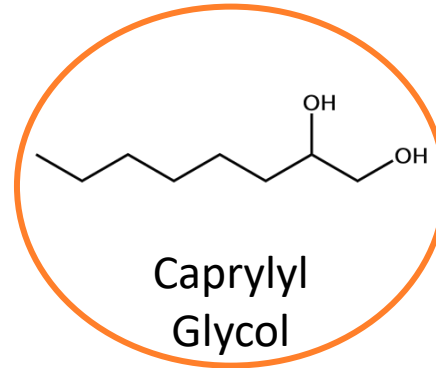
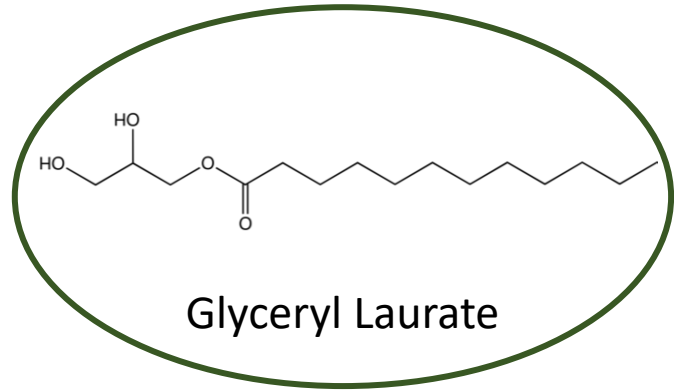




Mild for the user.

Strong against spoilage.

Evicide® Boosting Agents



Bactericide

Preservative boosting

Moisturizing

pH independent

- Evicide® G 5 eco
- Evicide® G 6
- Evicide® G 8
- Evicide® G 10
- Evicide® GMCY
- Evicide® GML

Evicide® GMCY – Production

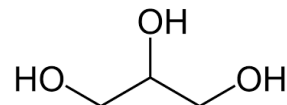
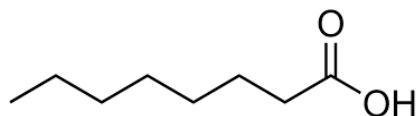


Starting material:
Oil Palm
(*Elaeis guineensis*)



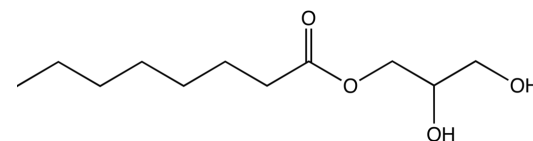
Starting material:
Rape
(*Brassica napus*)

Crushing, Milling,
Hydrolysis,
Purification of
Caprylic Acid



Crushing, Milling,
Hydrolysis,
Purification of
Glycerine

Esterification to
obtain crude
Glyceryl Caprylate



Purification
Distillation,
Filtration, Filling

Evicide® GMCY

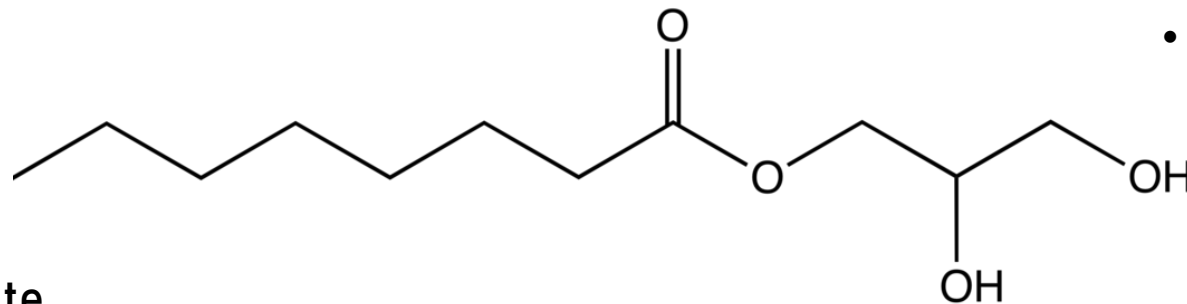


Evicide® GMCY – the green preservative booster



COSMOS
APPROVED

Glyceryl Caprylate



- pH range from 4,0 – 7,5
 - Bactericide & fungicide
 - Anti-Acne effect
 - Heat stable
 - Synergistic with Glycols
- Boosts any kind of preservatives

INCI: Glyceryl Caprylate

Function: Skin Conditioning, Antimicrobial

Use: Preservation Boosting in Skin Care

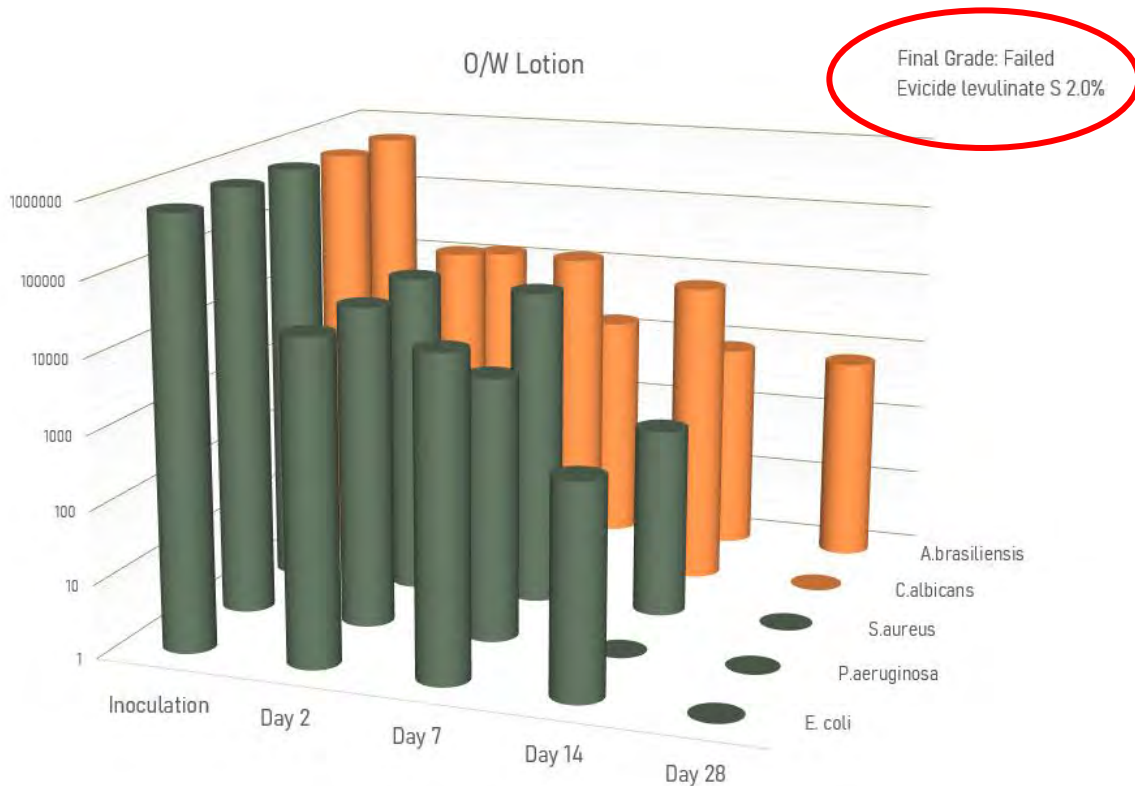
Recommended dosage: 0.3 – 0.5 %

Evicide® GMCY – the green preservative booster

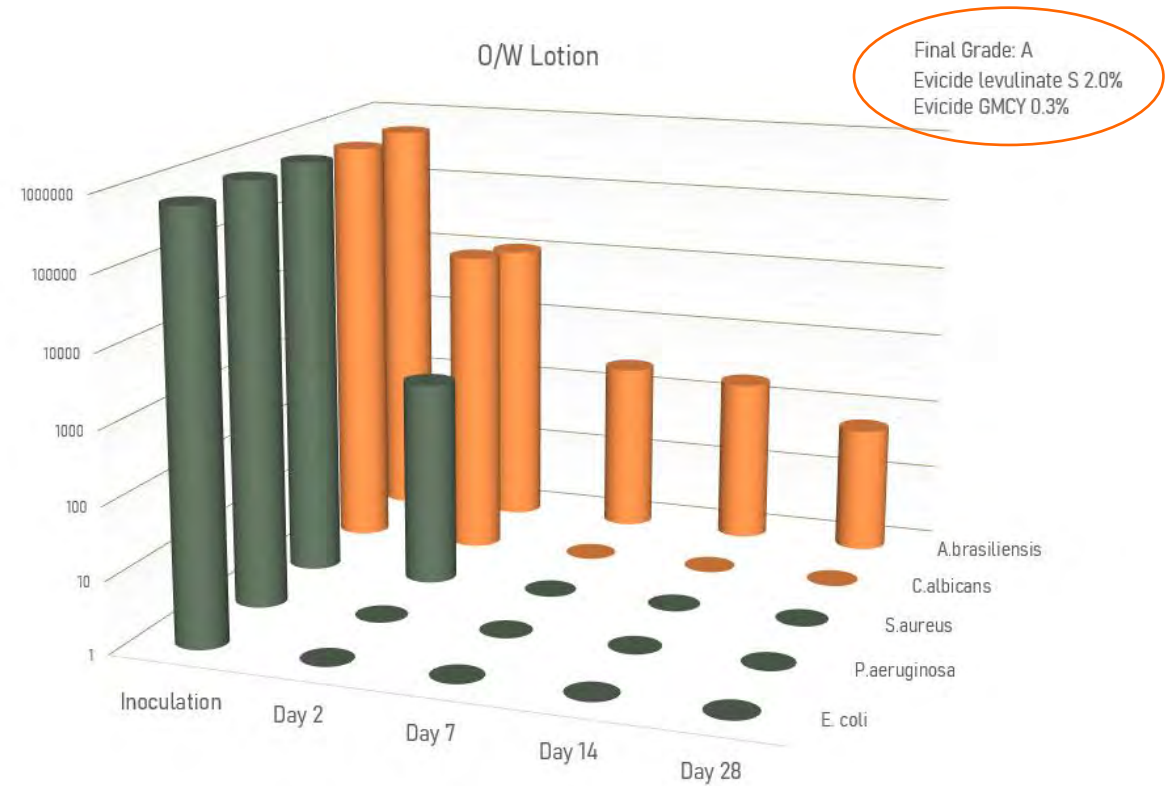


Results for preservative efficacy test with Evicide® GMCY boosting

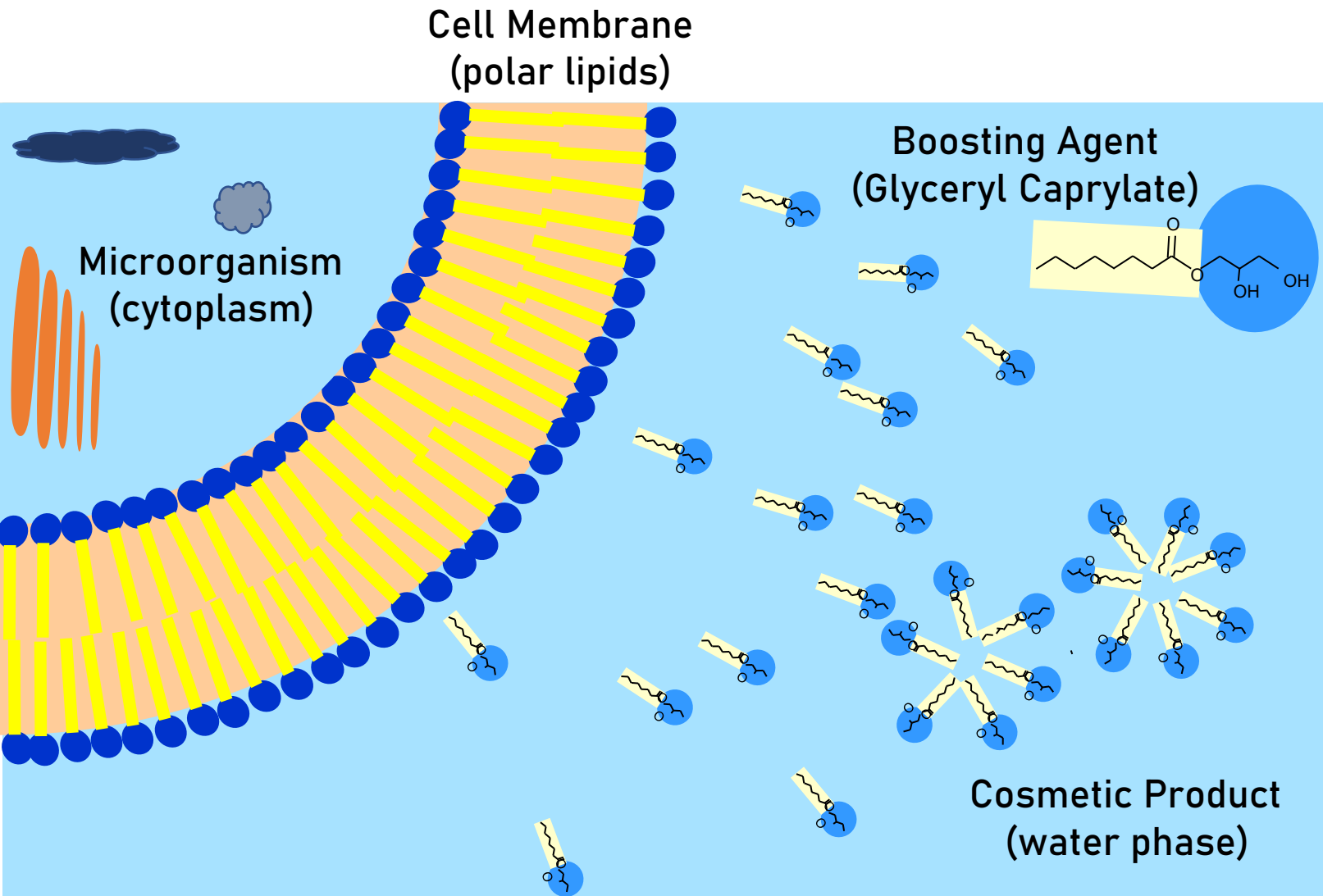
Oil in water emulsion failing challenge test
2.0% Evicide® levulinate S



Same formulation passes with A-result due to boosting with
0.3% Evicide® GMCY



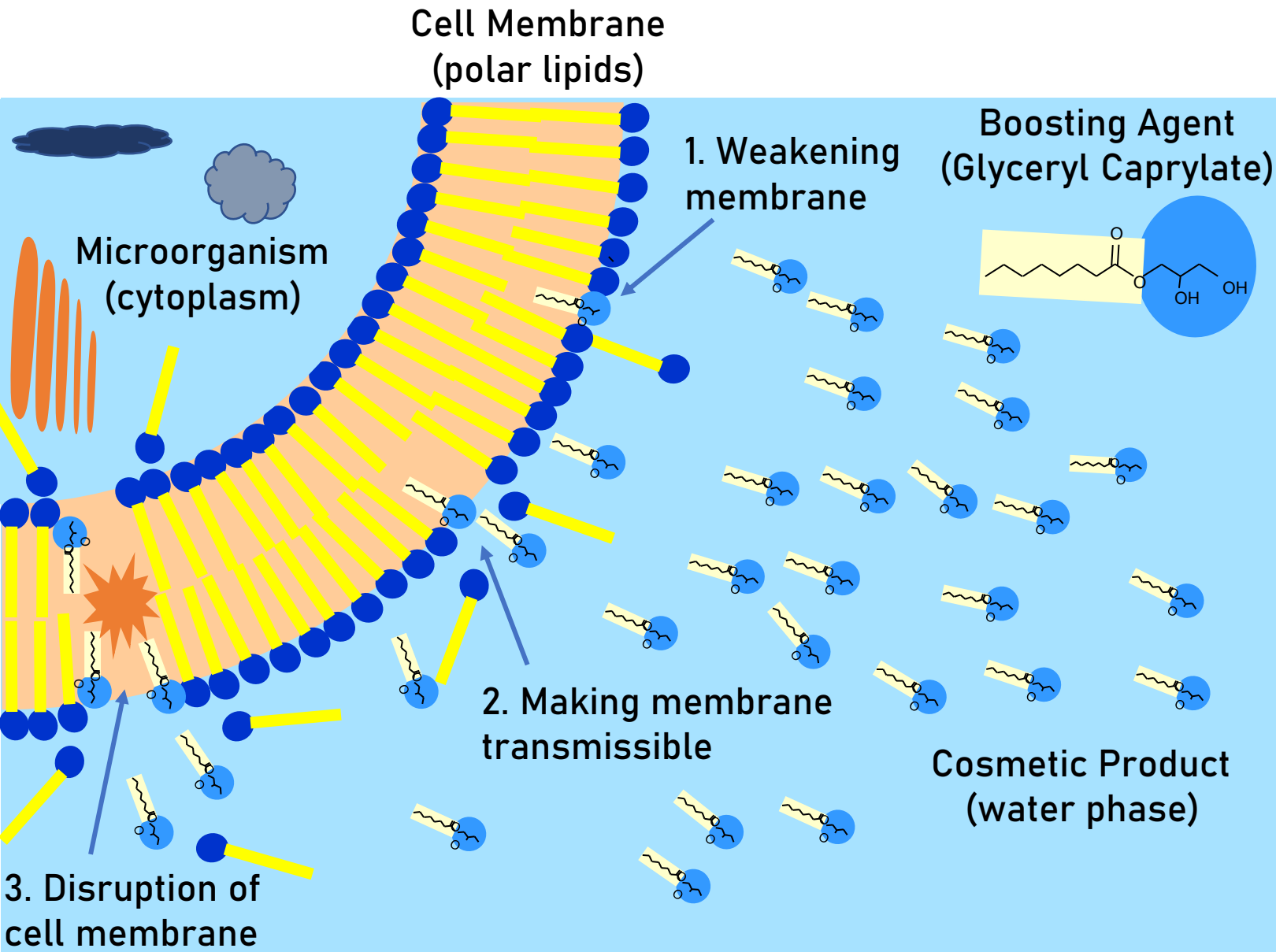
Evicide® Boosting Effect explained



When microorganisms enter the cosmetic products through contamination they will get in contact with preservatives, antimicrobials and boosting agents in the water phase that protect the formulation.

The preservative system should be water soluble enough to move in the water phase and attack the microorganism.

Evicide® Boosting Effect explained



1. The boosting agent attacks the bacterial membrane because of the chemical similarity of the molecules.
2. This weakens the membrane and makes it easier for preservatives to enter and deactivate vital functions.
3. If the concentration is high enough, the boosting agent can kill the microorganism on its own by destroying the membrane.

The right natural protection.



For every cosmetic product. **Evicide®**



**Thank you for
your attention**