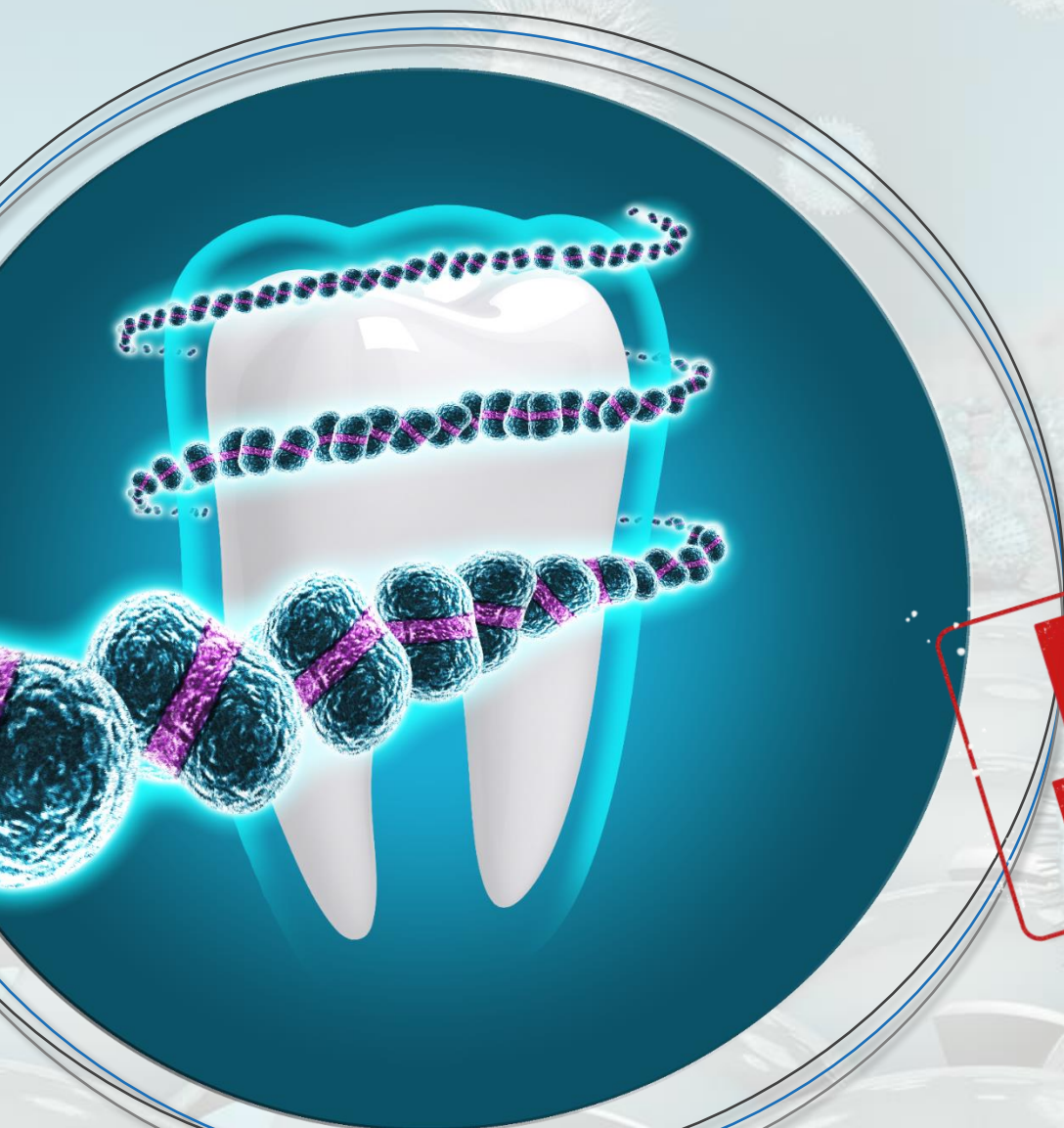


# preBIULIN® ORAL

## Precision oral care



**PATENT  
PENDING**



*Natural & Sustainable*





**Chicory Root**  
Chicory intybus



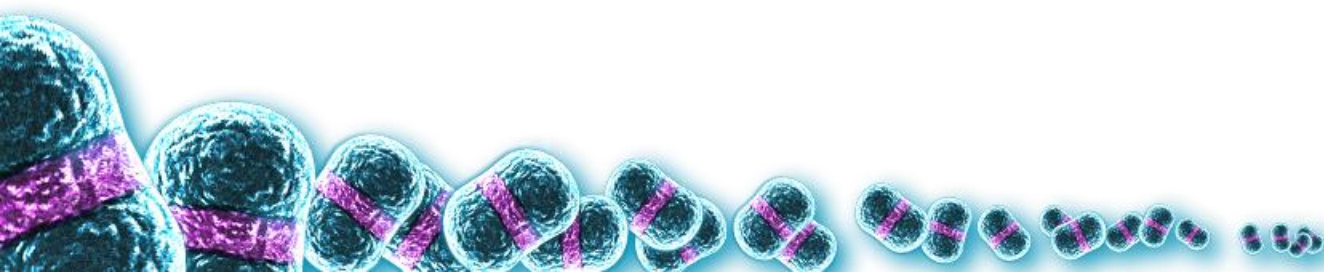
**Sun Root**  
Helianthus tuberosus



**Sugar Cane**  
Saccharum officinarum

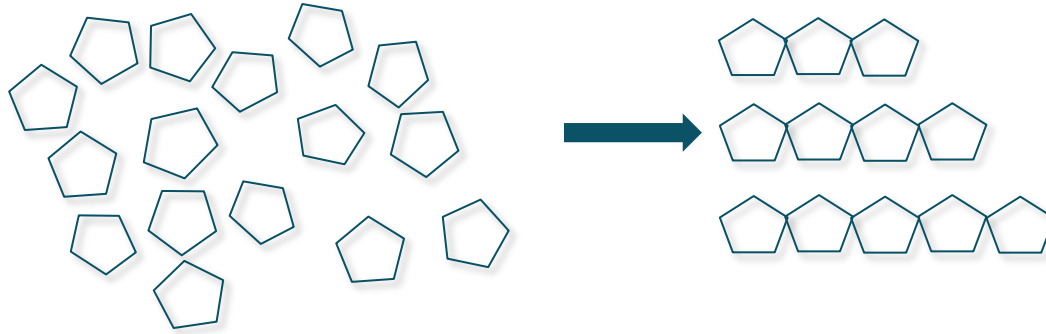


**Sugar Beet**  
Beta vulgaris





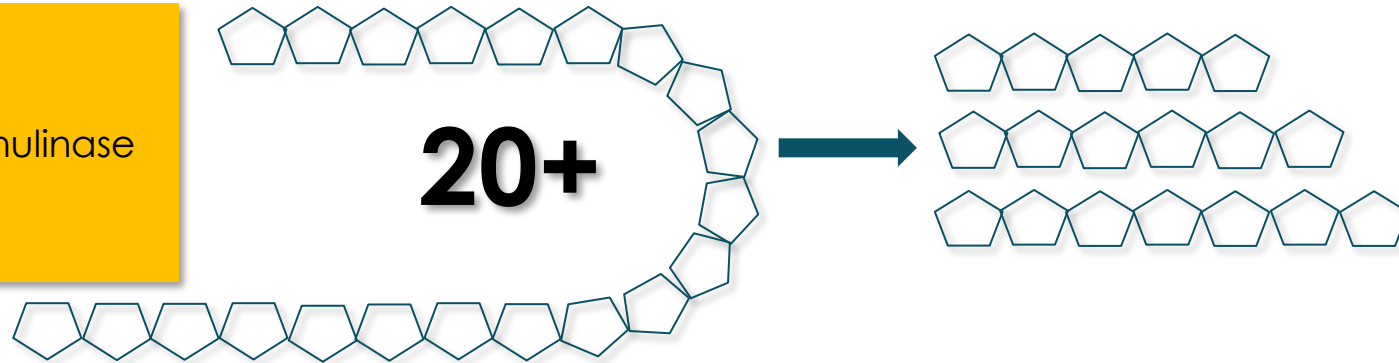
- Enzymatic fructosyltransferase



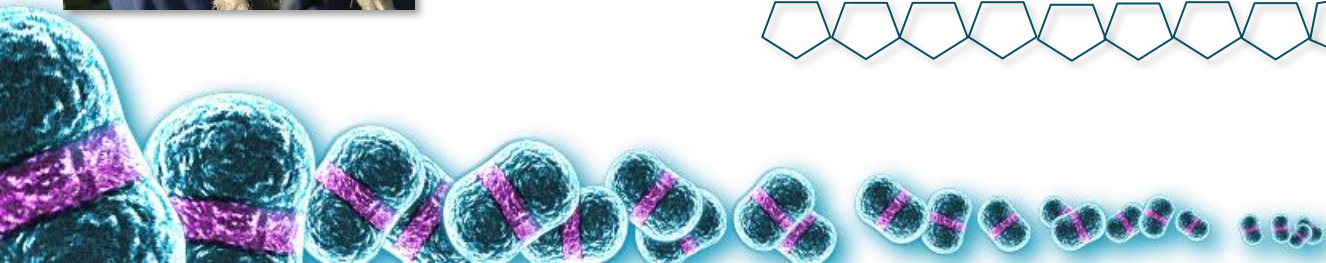
3-5



- Enzymatic inulinase



5-7







• Extraction in hot water

• Mechanical purification  
• Deproteinization  
• Active Carbon

• Enzymatic fructosyltransferase



• Extraction in hot water

• Mechanical purification  
• Deproteinization  
• Active Carbon  
• Ion exchanger

• Enzymatic inulinase

Mixing

preBIULIN<sup>®</sup> ORAL



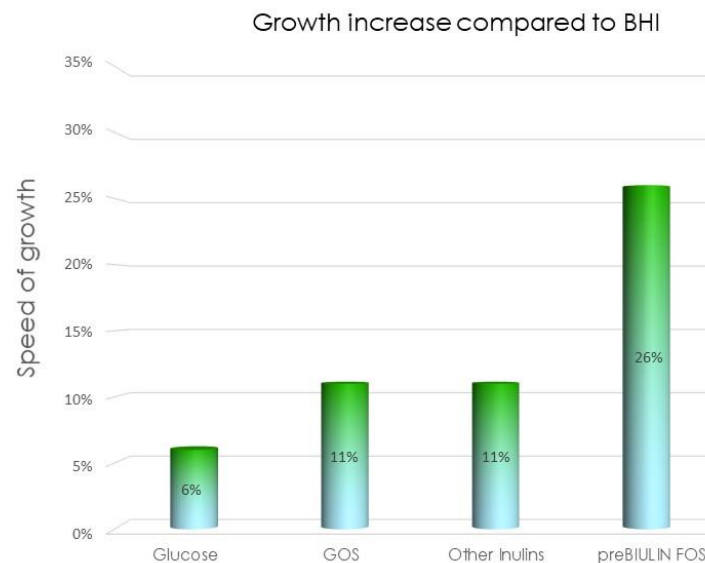


# preBIULIN® ORAL

## Supports growth *S. salivarius* In-vitro

### Procedure:

- » Test-organisms ( $10^5$ CFU/ml) in the growth medium at 35 °C - 37 °C.
- » The growth is followed with a Biorad plate reader at 490 nm during 8 hours.
- » Speed of growth compared to BHI.



- preBIULIN® ORAL supports the *S. salivarius* who controls the oral balance
- preBIULIN® ORAL supports indirectly the oral balance



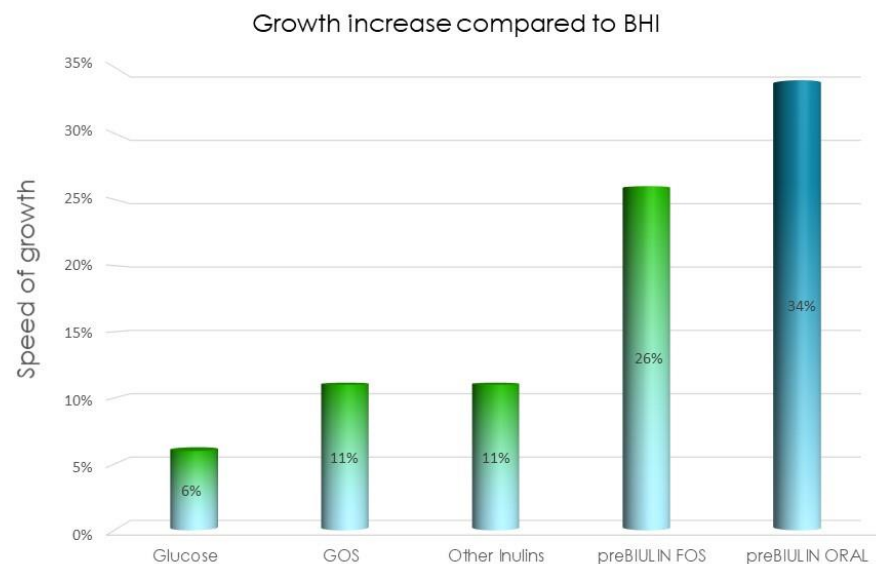


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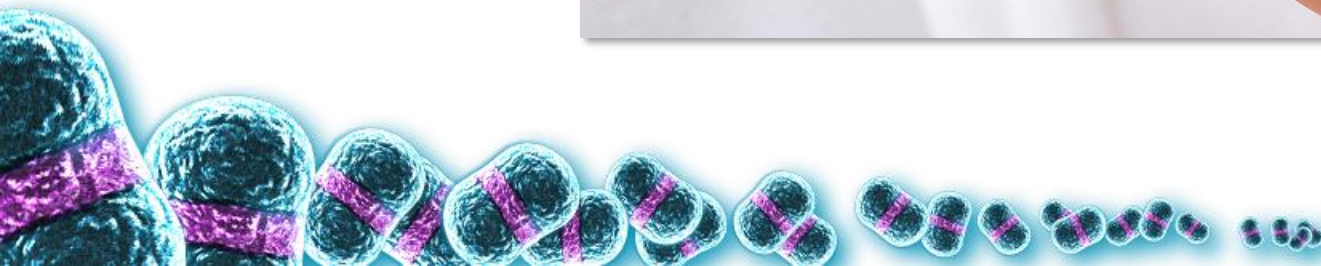


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## Performance in Mouth washes – In-Vivo

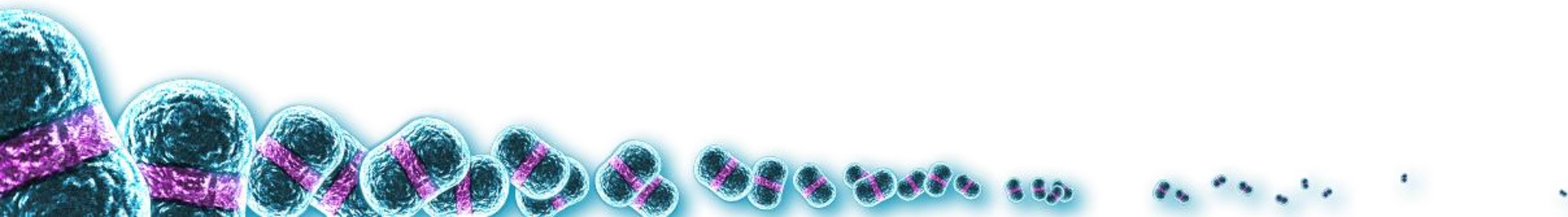




# preBIULIN<sup>®</sup> ORAL

## Protects *S. salivarius* from alcohol

- » Blanco = Rinsing the mouth with 10% ethanol
- » pORAL = Rinsing the mouth 10% ethanol + 3.3% preBIULIN<sup>®</sup> ORAL







# preBIULIN<sup>®</sup> ORAL

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### Disturbance *S. salivarius*



- Alcohol has a destructive effect on *S. salivarius*
- preBIULIN<sup>®</sup> ORAL protects *S. salivarius* from the destructive alcohol



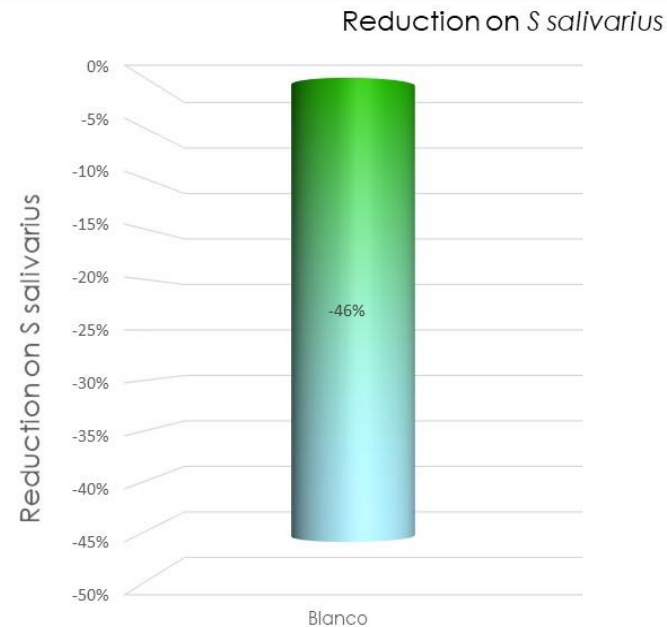


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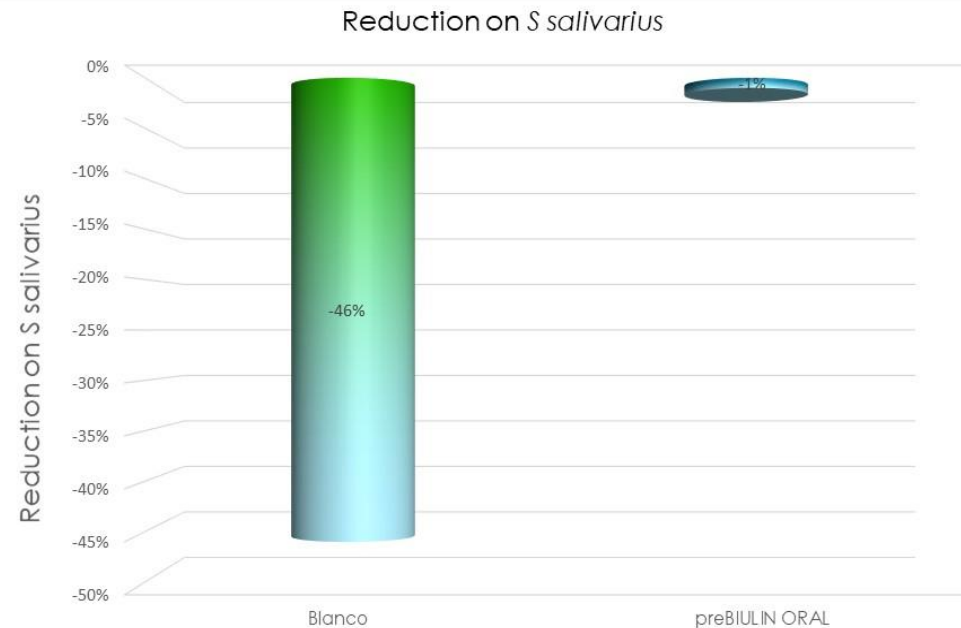


# preBIULIN<sup>®</sup> ORAL

## Protects *S. salivarius* from alcohol

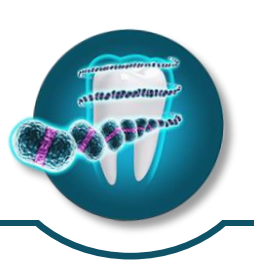
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# preBIULIN® ORAL

## Protects *S. salivarius* from alcohol

- Inhibits *S. Mutans*
- Lantibiotics inhibit *S. sanguinis* <sup>(10)</sup>
- Lantibiotics inhibit *S. pyogens* <sup>(10)</sup>
- Lantibiotics inhibit *S. pneumoniae* <sup>(10)</sup>
- Lantibiotics inhibit *Lactobacillus* <sup>(10)</sup>
- Bacteriocin inhibiting periodontitis
- Bacteriocin inhibiting mal odor bacteria
- Transforms urea to alkaline Ammonia
- Production Levan, prebiotic for gut microbiota

- Protects against tooth decay
- Protects sensitive gums
- Protects tooth loss
- Reduces bad breath
- Supports gut microbiome/digestion
- Maintains blood pressure
- Avoids throat pain
- Avoids respiratory infections
- Maintains our protection against viruses
- ....

.... Still many secrets needs to be unlocked



Natural & Sustainable





# preBIULIN<sup>®</sup> ORAL

## Protects the oral microbiome from alcohol

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## Protects the oral microbiome from alcohol

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**Disturbance on amount of species**

- Alcohol has a destructive effect on the complete oral microbiome
- preBIULIN® ORAL reduces the destructive effect of alcohol



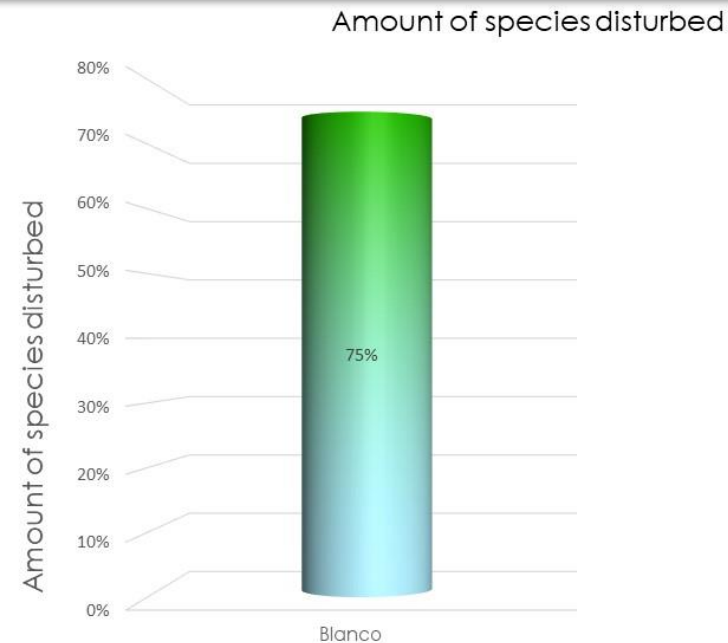


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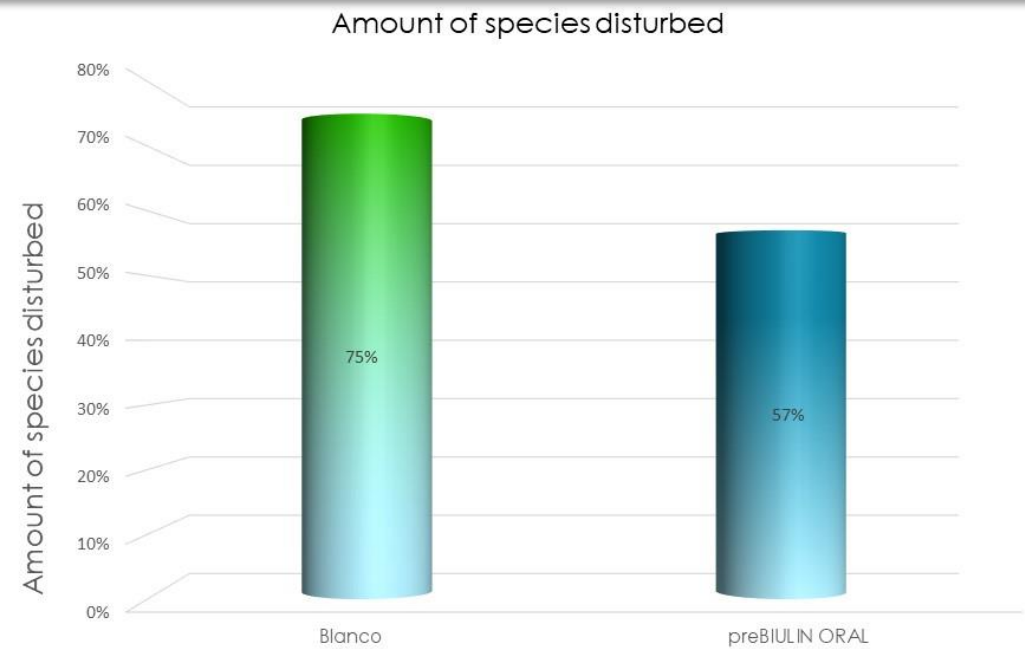


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# preBIULIN® ORAL

## Protects the oral microbiome from alcohol

- **Balanced oral microbiome**

- Protects against tooth decay
- Protects sensitive gums
- Protects tooth loss
- Reduces bad breath
- Supports gut microbiome/digestion
- Maintains blood pressure
- Avoids throat pain
- Avoids respiratory infections
- Maintains our protection against viruses
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- ....

.... Still many secrets needs to be unlocked





# preBIULIN® ORAL

## Protects the oral microbiome from sugar

- » Rinsing the mouth with 50% glucose
- » Afterwards (Blanco = ) rinsing with mouth wash
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### Disturbance Microbiome



- Sugar has a dramatic effect on the total oral microbiome
- preBIULIN® ORAL makes the oral microbiome (twice as) stronger against sugar





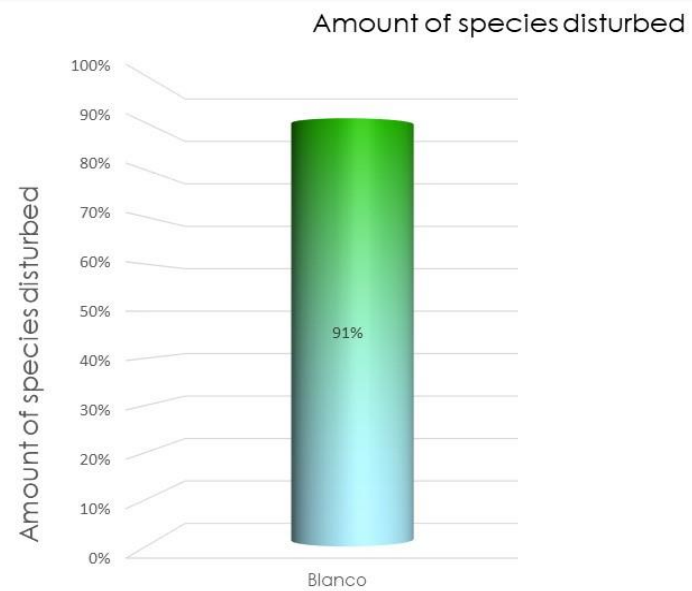
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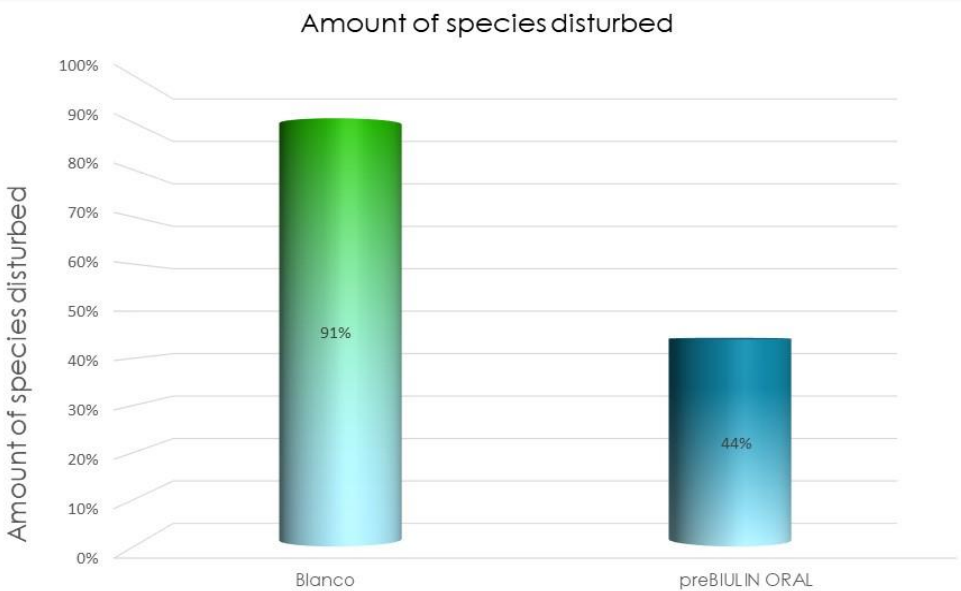
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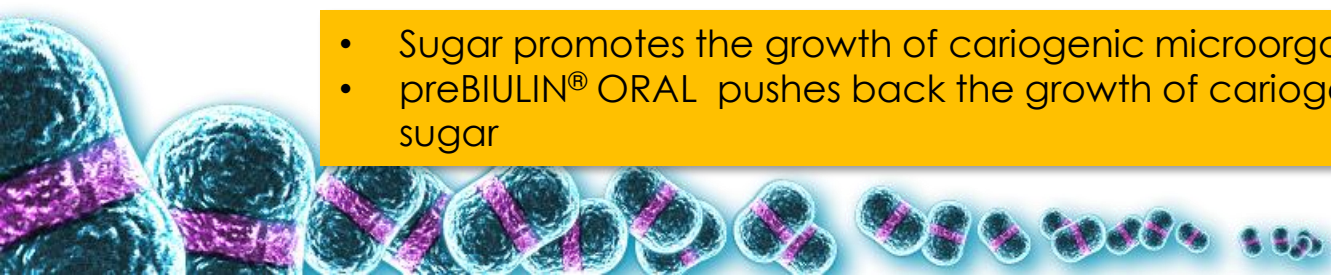
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- Sugar promotes the growth of cariogenic microorganisms
- preBIULIN® ORAL pushes back the growth of cariogenic microbes even in the presence of sugar



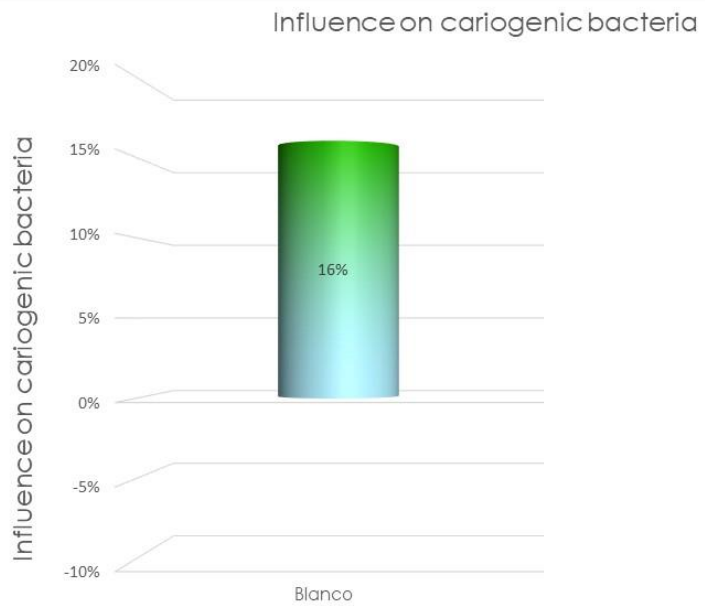


# preBIULIN® ORAL

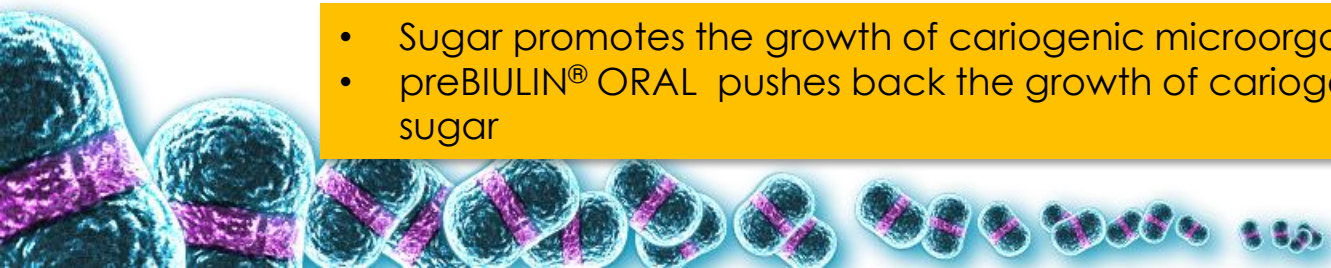
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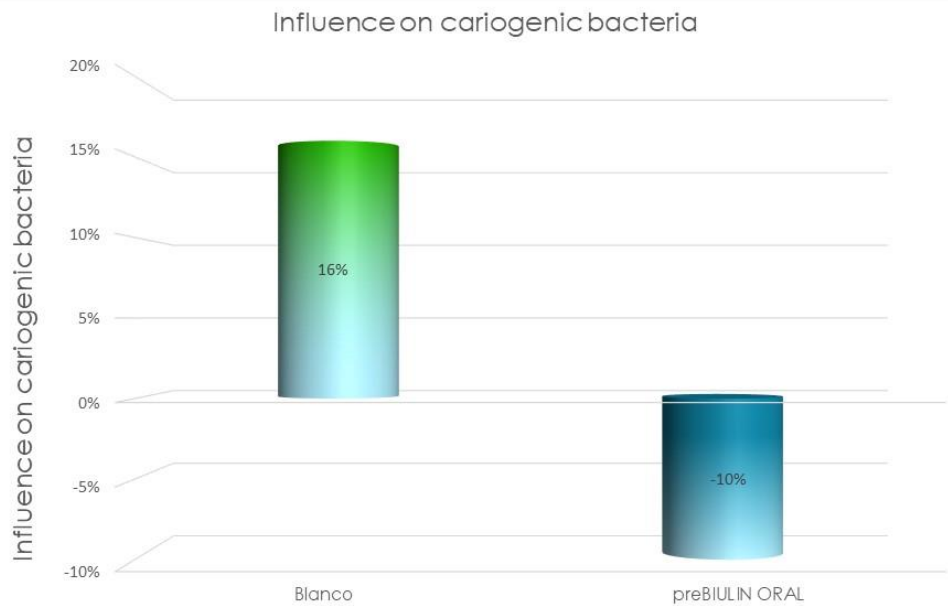


# preBIULIN<sup>®</sup> ORAL

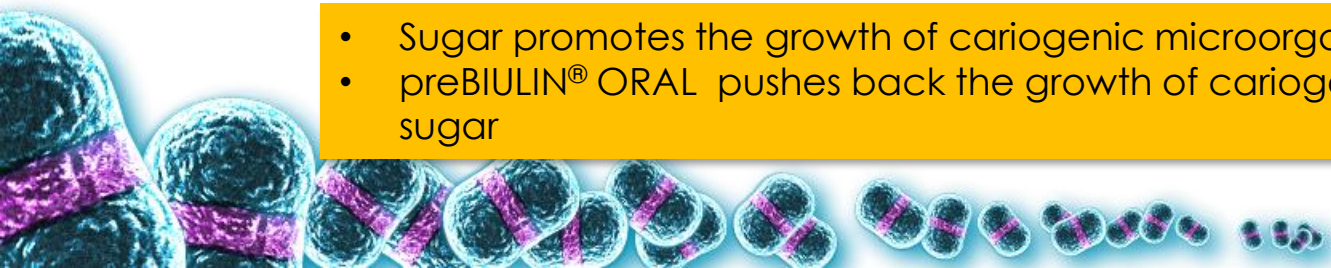
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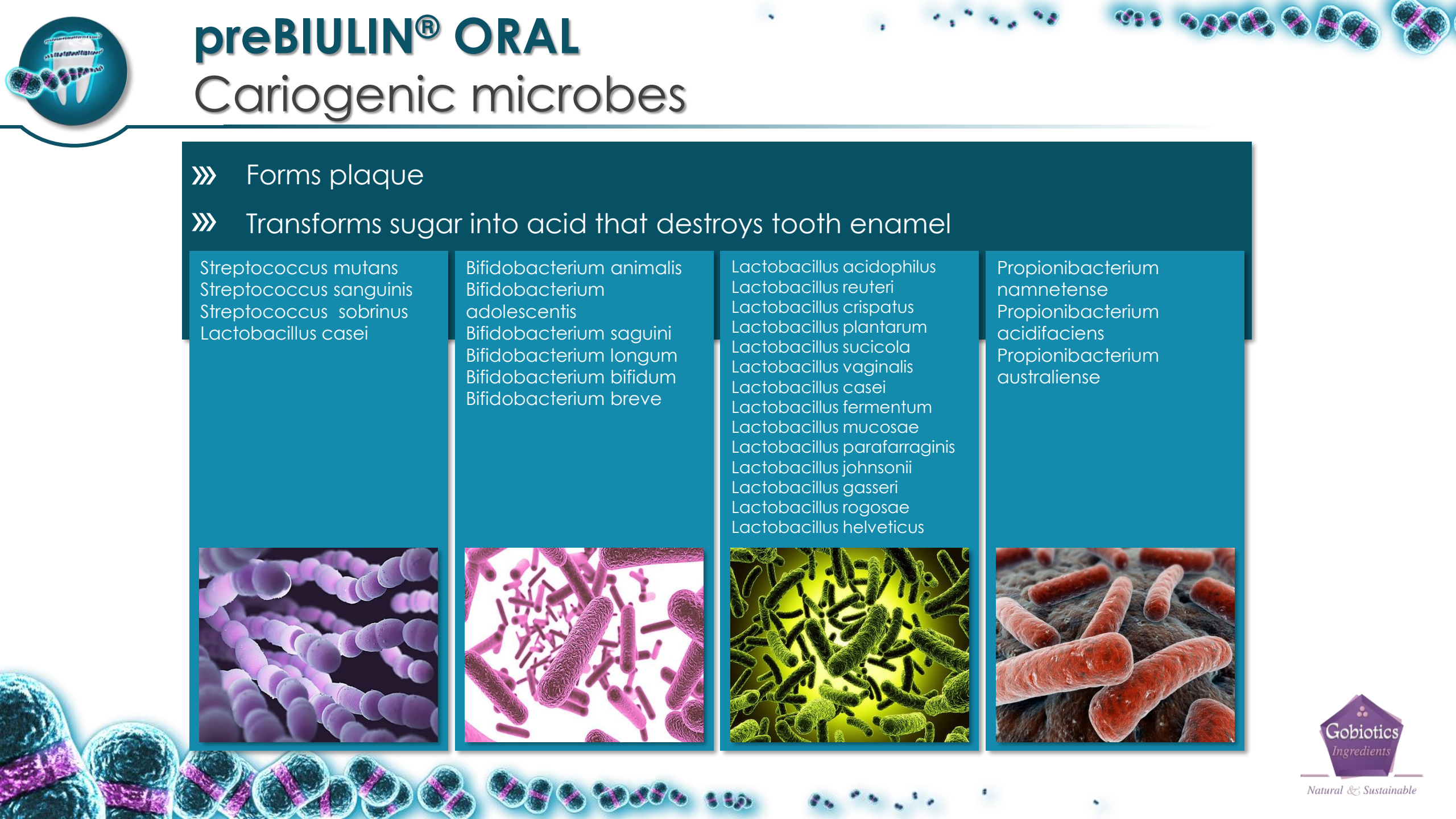
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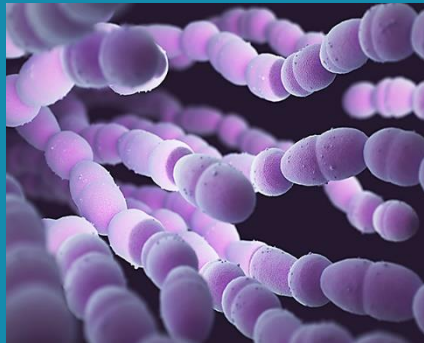


# preBIULIN<sup>®</sup> ORAL

## Cariogenic microbes

- » Forms plaque
- » Transforms sugar into acid that destroys tooth enamel

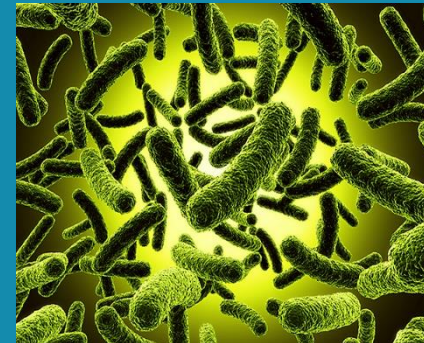
Streptococcus mutans  
Streptococcus sanguinis  
Streptococcus sobrinus  
Lactobacillus casei



Bifidobacterium animalis  
Bifidobacterium adolescentis  
Bifidobacterium saguini  
Bifidobacterium longum  
Bifidobacterium bifidum  
Bifidobacterium breve

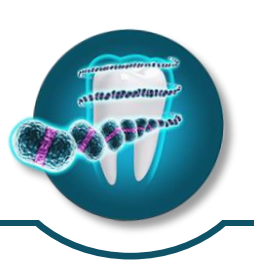


Lactobacillus acidophilus  
Lactobacillus reuteri  
Lactobacillus crispatus  
Lactobacillus plantarum  
Lactobacillus sucicola  
Lactobacillus vaginalis  
Lactobacillus casei  
Lactobacillus fermentum  
Lactobacillus mucosae  
Lactobacillus parafarraginis  
Lactobacillus johnsonii  
Lactobacillus gasseri  
Lactobacillus rogosae  
Lactobacillus helveticus



Propionibacterium  
namnetense  
Propionibacterium  
acidifaciens  
Propionibacterium  
australiense



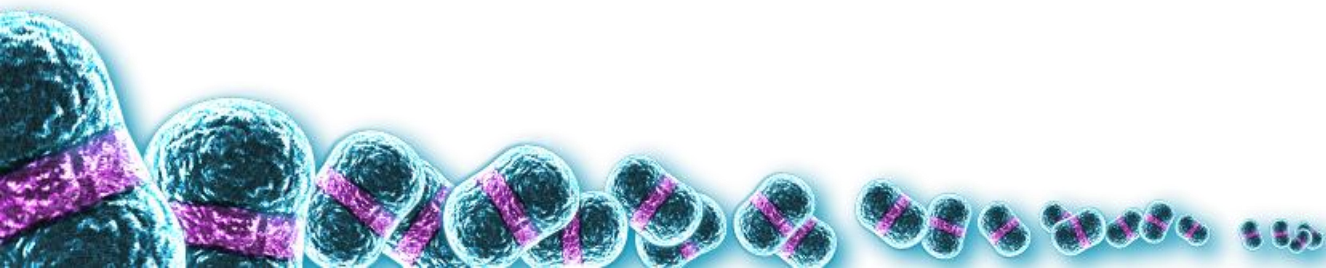


# preBIULIN® ORAL

## Protects the oral microbiome from soda

### Procedure:

- » Disturbance with soft drink - soda (pH 2,7 and 12% sucrose)
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- Soda has a dramatic effect on the total oral microbiome
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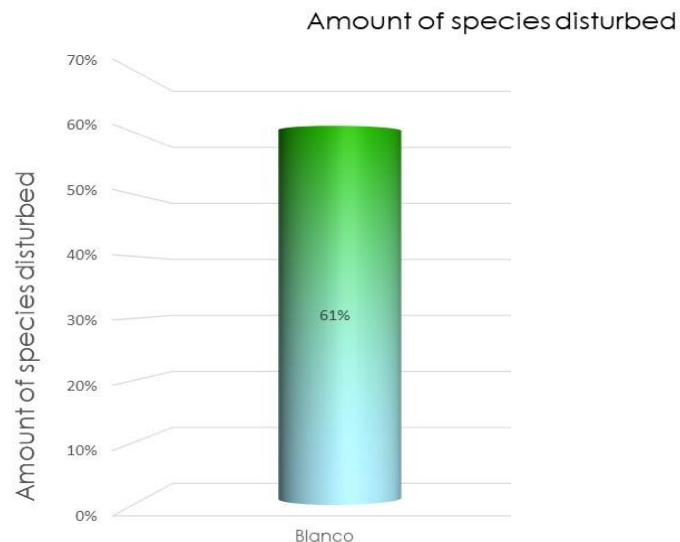
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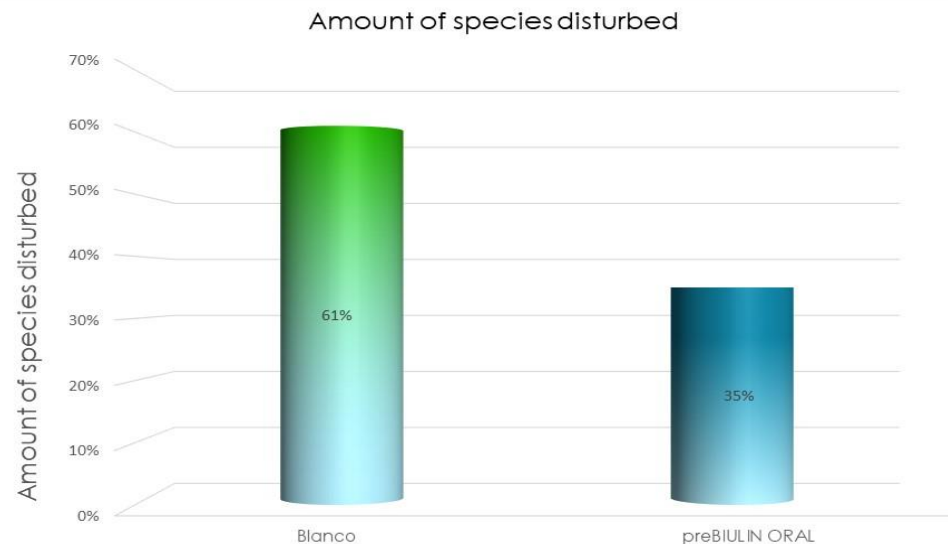
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### Influence on bacteria causing carries



- Soda promotes the growth of cariogenic microorganisms in 2 synergistic ways
- preBIULIN® ORAL pushes back completely the growth of cariogenic microbes in the presence of sugar







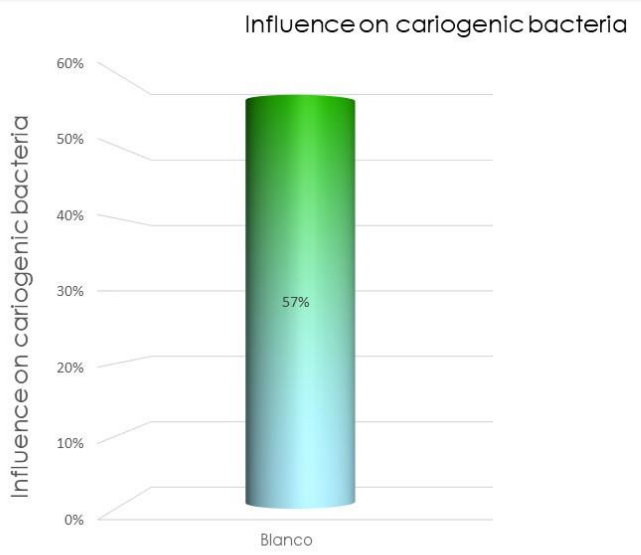
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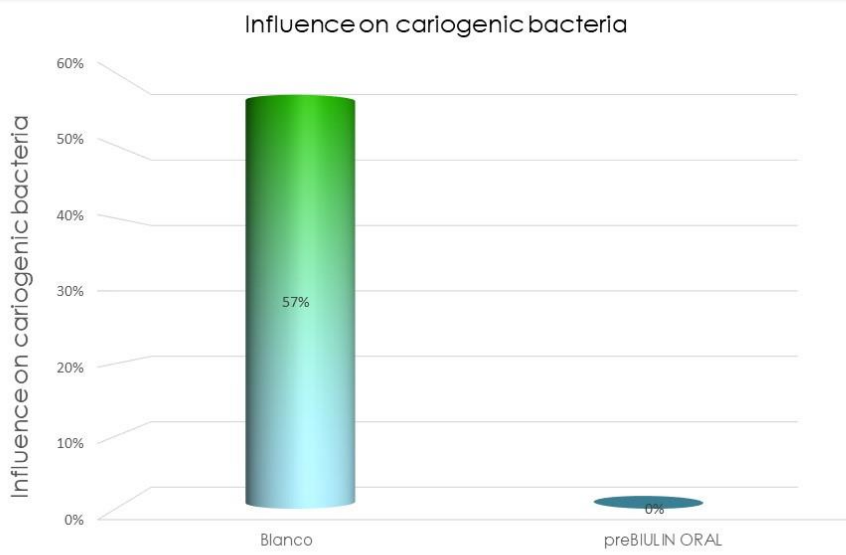
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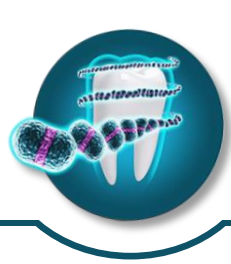
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# Control Malodour compounds

## In-Vivo - Halimeter

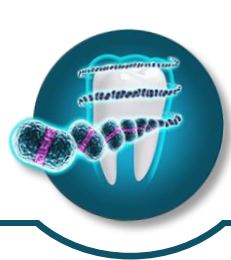
To maintain low malodour by control of tongue flora

- After 21 days use – reduction (Halimeter)



Anna Louise Doran & Joanna Verran (2007) A clinical study on the effect of the prebiotic inulin in the control of oral malodour, *Microbial Ecology in Health and Disease*, 19:3,158-163



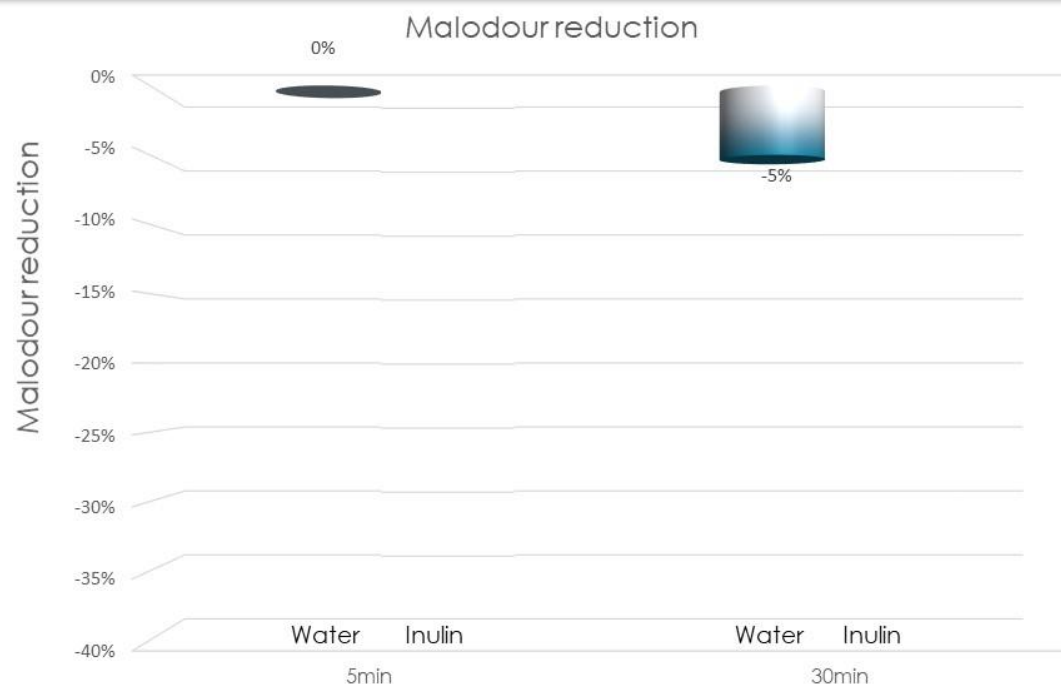


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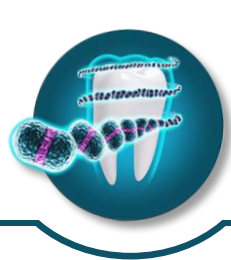
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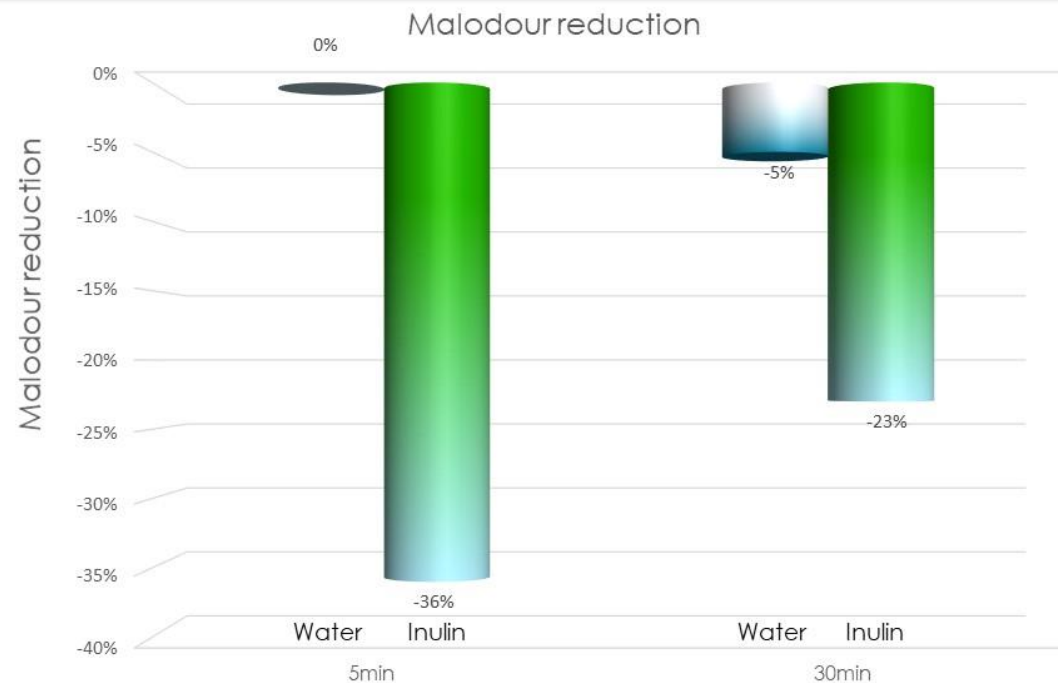


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# Control Malodour microorganisms

## In-Vivo - Culture

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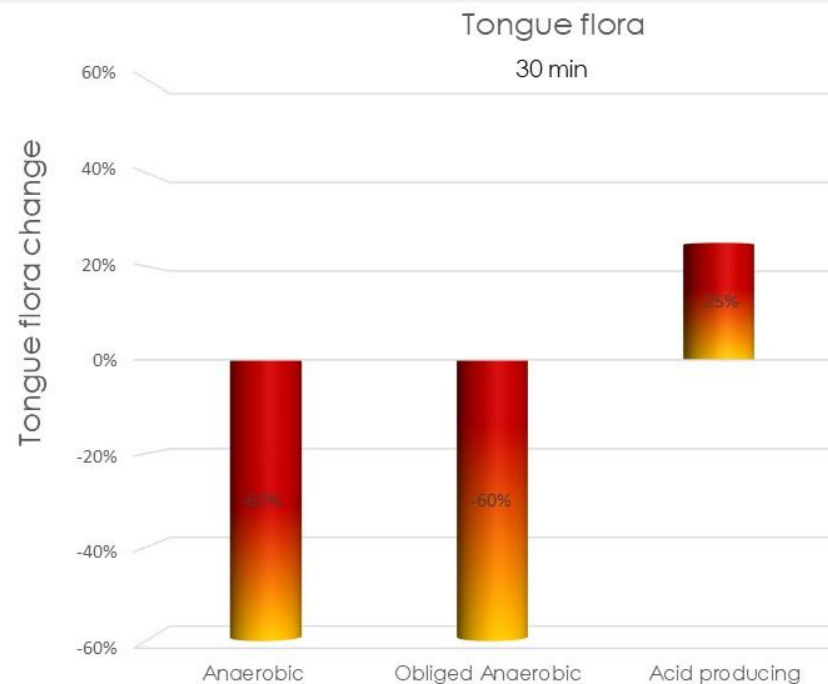


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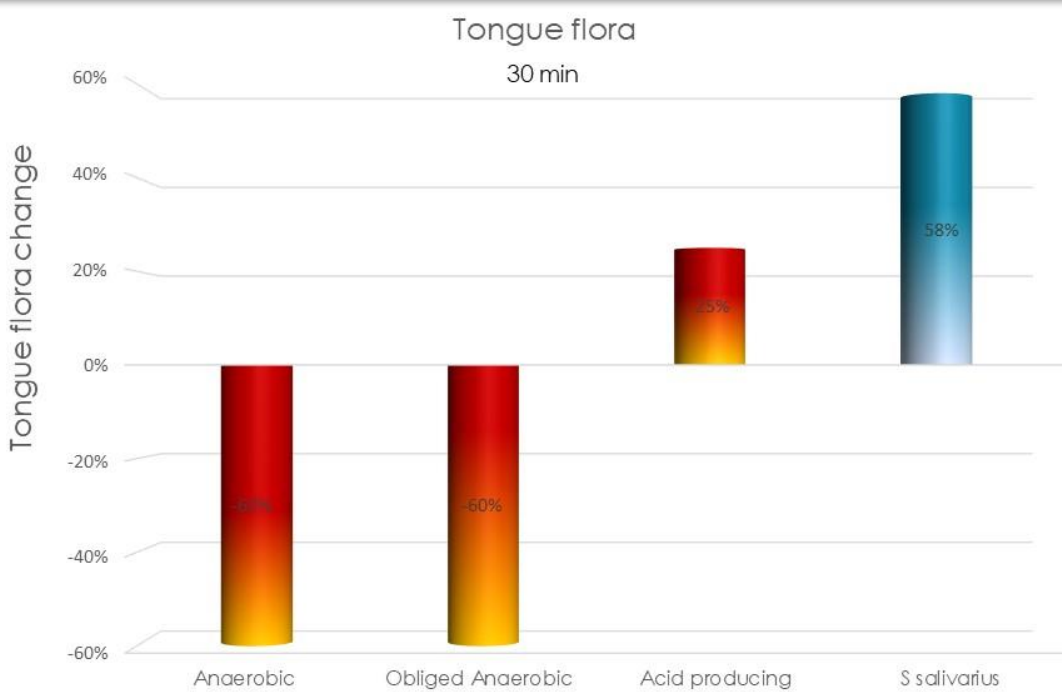


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## Performance in Tooth Paste – In-Vivo





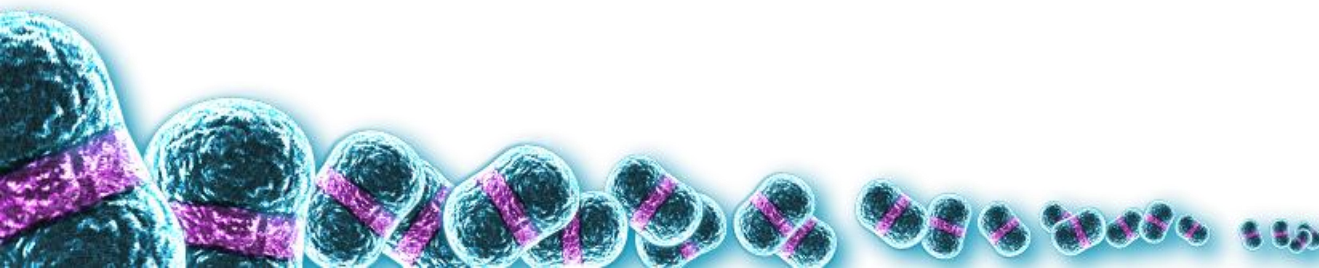


# preBIULIN® ORAL

## Protects the oral microbiome from sugar

### Procedure:

- » Rinsing the mouth with 50% glucose
- » Afterwards (Blanco = ) brushing teeth with toothpaste
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# preBIULIN® ORAL

## Protects the *S salivarius*

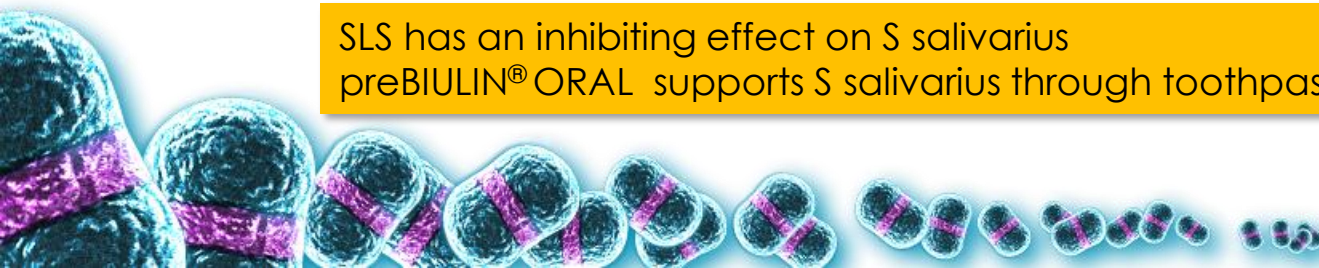
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### Disturbance *S salivarius*



SLS has an inhibiting effect on *S salivarius*  
preBIULIN® ORAL supports *S salivarius* through toothpaste





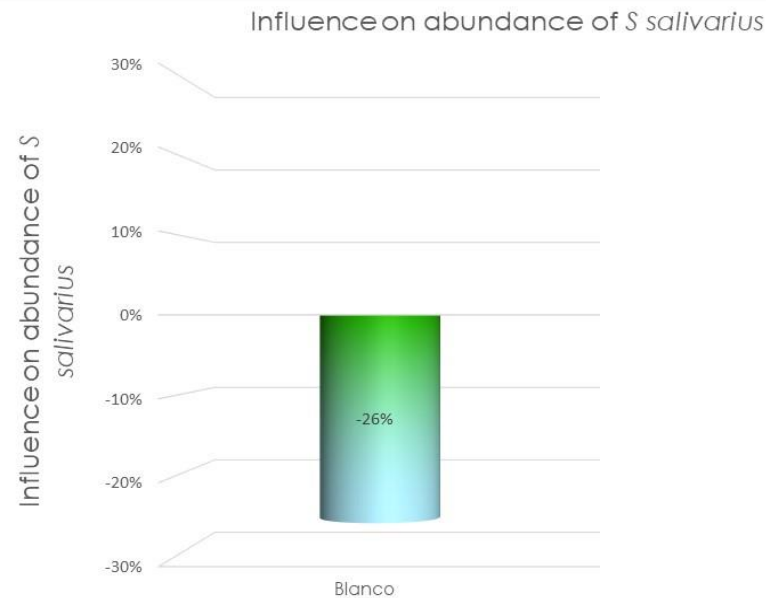
# preBIULIN<sup>®</sup> ORAL

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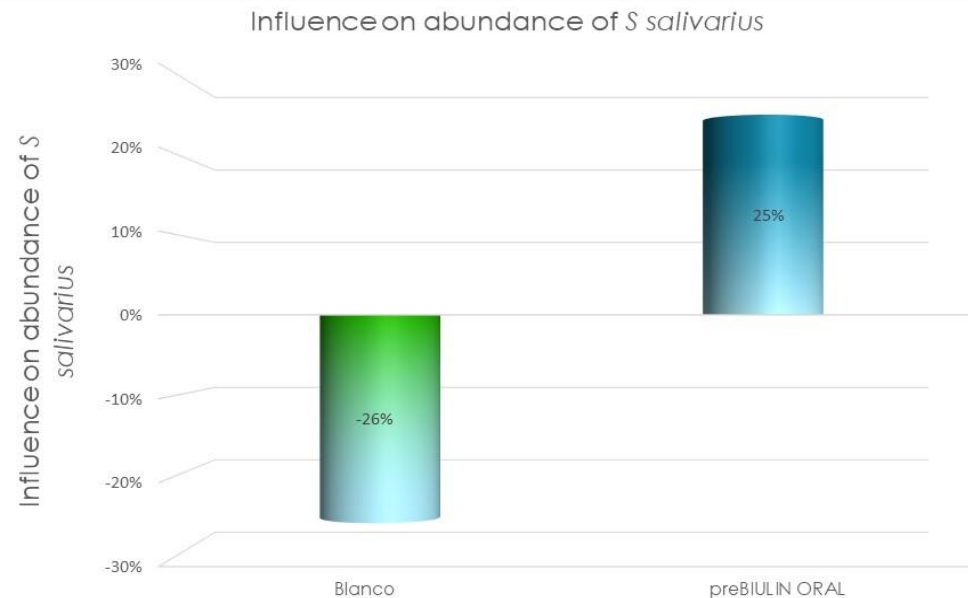
# preBIULIN<sup>®</sup> ORAL

## Protects the *S salivarius*

### Procedure:

- » Rinsing the mouth with 50% glucose
- » Afterwards (Blanco = ) brushing teeth with toothpaste
- » Afterwards (pORAL =) brushing teeth with toothpaste + 3.3% preBIULIN<sup>®</sup> ORAL

### Disturbance *S salivarius*



SLS has an inhibiting effect on *S salivarius*  
preBIULIN<sup>®</sup> ORAL supports *S salivarius* through toothpaste





# preBIULIN<sup>®</sup> ORAL

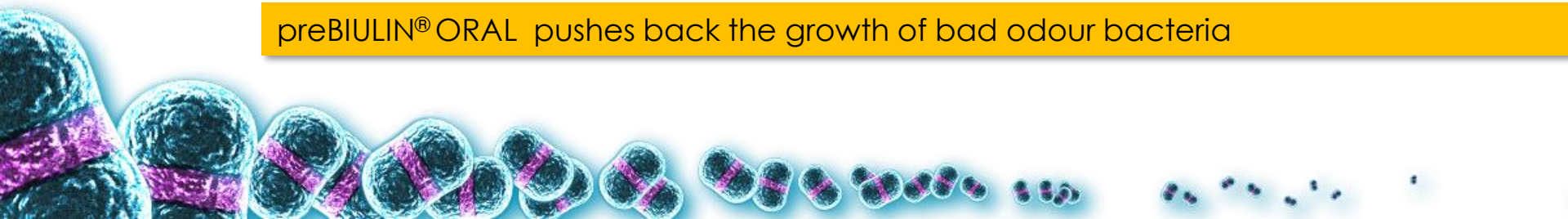
## Pushes back mal odour bacteria

### Procedure:

- » Rinsing the mouth with 50% glucose
- » Afterwards (Blanco = ) brushing teeth with toothpaste
- » Afterwards (pORAL =) brushing teeth with toothpaste + 3.3% preBIULIN<sup>®</sup> ORAL



preBIULIN<sup>®</sup> ORAL pushes back the growth of bad odour bacteria



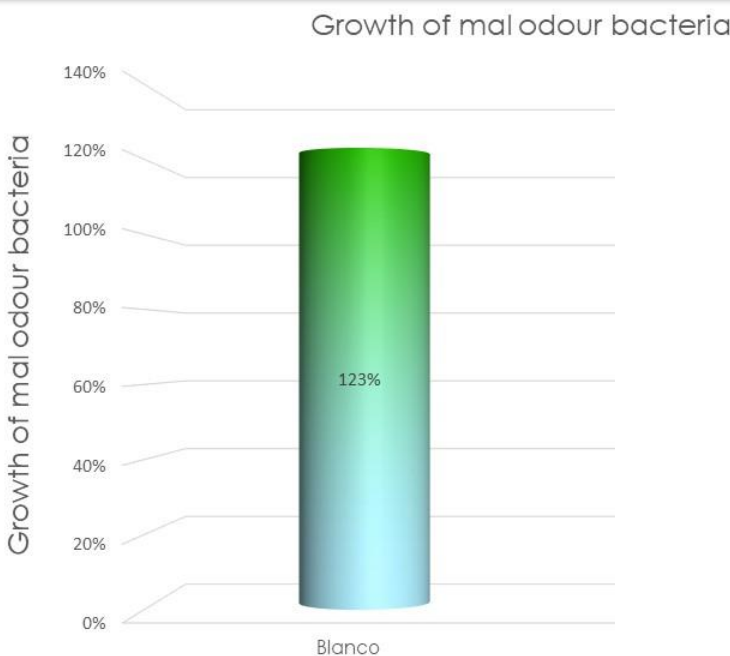


# preBIULIN<sup>®</sup> ORAL

## Pushes back mal odour bacteria

**Procedure:**

- » Rinsing the mouth with 50% glucose
- » Afterwards (Blanco = ) brushing teeth with toothpaste
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preBIULIN<sup>®</sup> ORAL pushes back the growth of bad odour bacteria





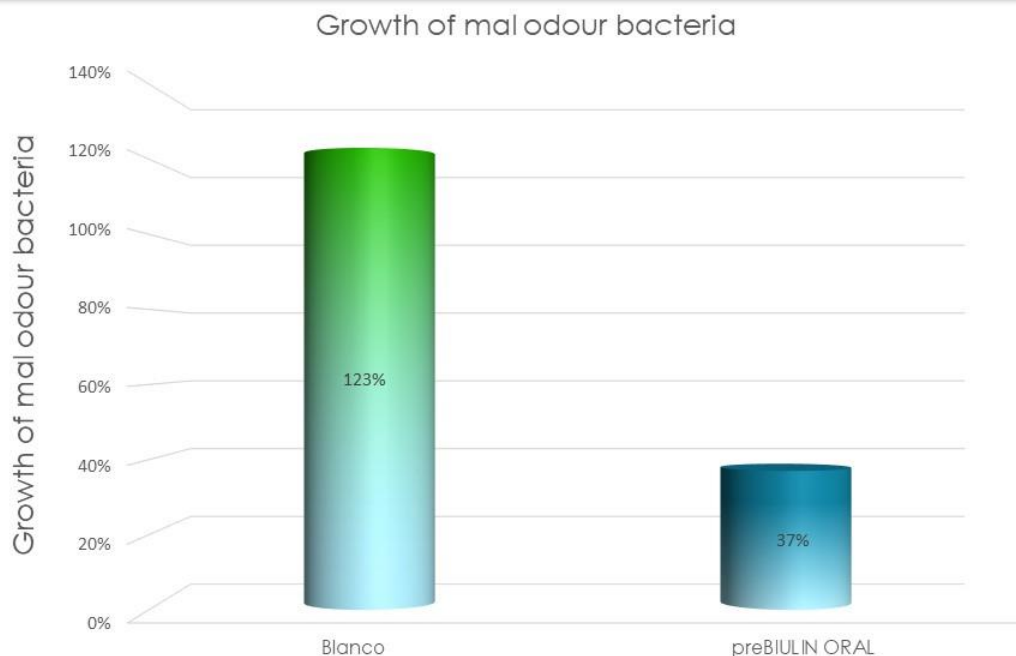


# preBIULIN® ORAL

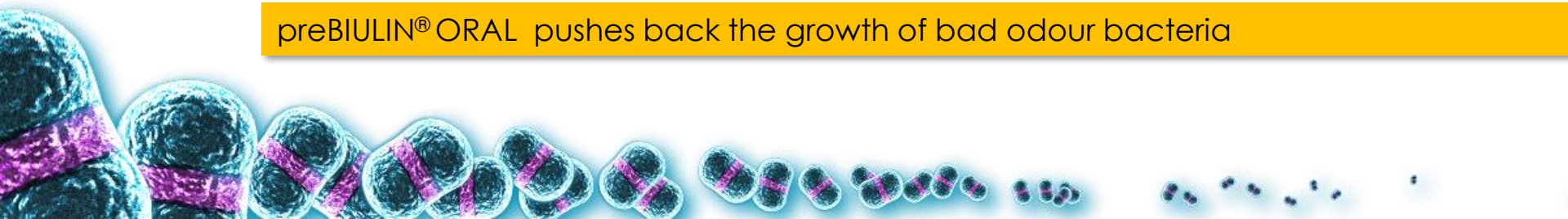
## Pushes back mal odour bacteria

**Procedure:**

- » Rinsing the mouth with 50% glucose
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preBIULIN® ORAL pushes back the growth of bad odour bacteria





# preBIULIN® ORAL

## Mal odour bacteria

### Mal odour bacteria

Fusobacterium periodonticum  
Fusobacterium nucleatum



Centipeda periodontii  
Prevotella intermedia  
Porphyromonas endodontalis  
Tannerella forsythia  
Treponema denticola





# preBIULIN® ORAL

## Suppresses cariogenic Bacteria

### Procedure:

- » Rinsing the mouth with 50% glucose
- » Afterwards (Blanco = ) brushing teeth with toothpaste
- » Afterwards (pORAL =) brushing teeth with toothpaste + 3.3% preBIULIN® ORAL

preBIULIN® ORAL pushes back completely the growth of cariogenic bacteria





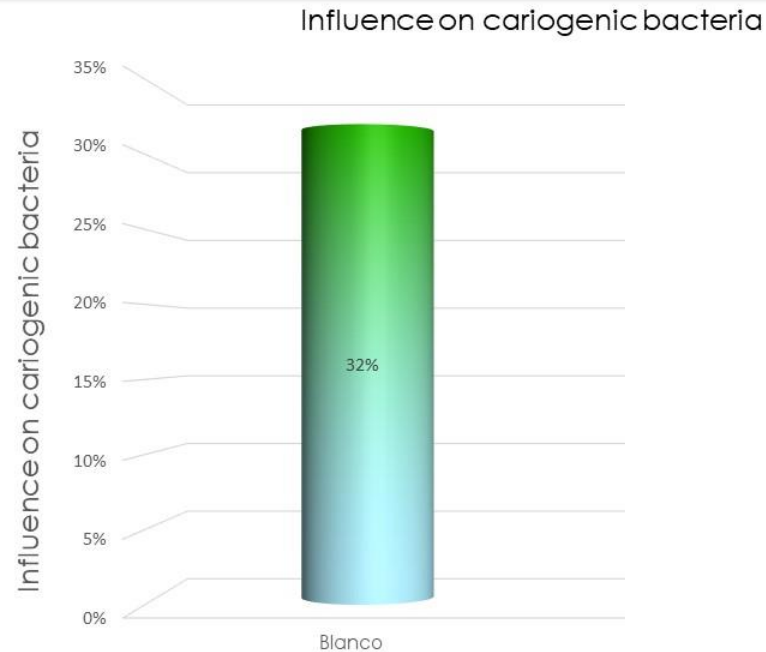


# preBIULIN<sup>®</sup> ORAL

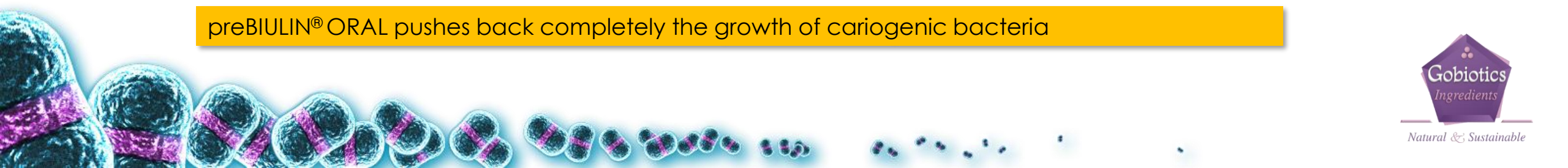
## Suppresses cariogenic Bacteria

### Procedure:

- » Rinsing the mouth with 50% glucose
- » Afterwards (Blanco = ) brushing teeth with toothpaste
- » Afterwards (pORAL =) brushing teeth with toothpaste + 3.3% preBIULIN<sup>®</sup> ORAL



preBIULIN<sup>®</sup> ORAL pushes back completely the growth of cariogenic bacteria



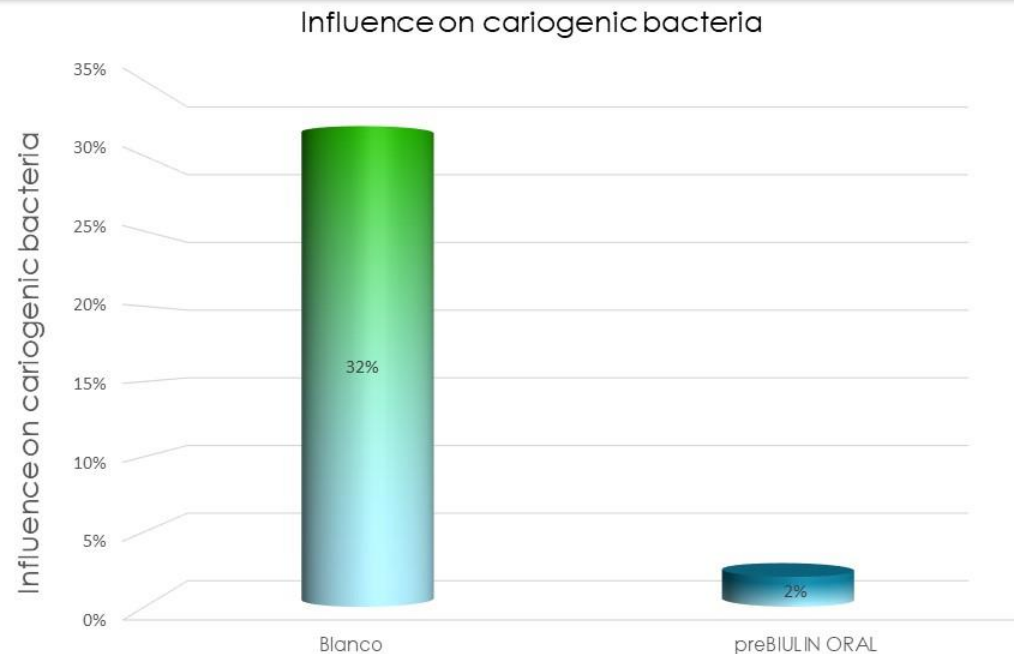


# preBIULIN<sup>®</sup> ORAL

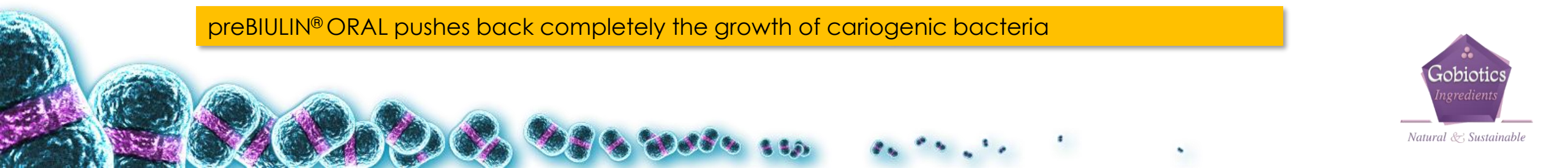
## Suppresses cariogenic Bacteria

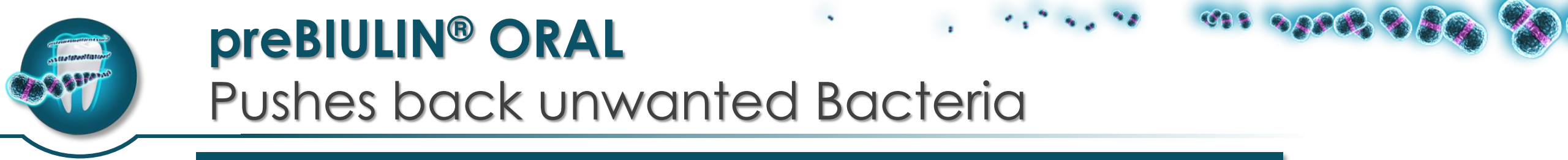
### Procedure:

- » Rinsing the mouth with 50% glucose
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preBIULIN<sup>®</sup> ORAL pushes back completely the growth of cariogenic bacteria





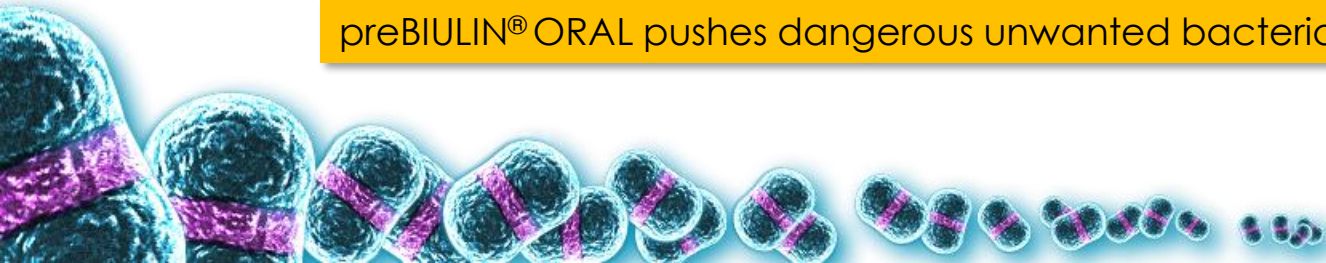
# preBIULIN® ORAL

## Pushes back unwanted Bacteria

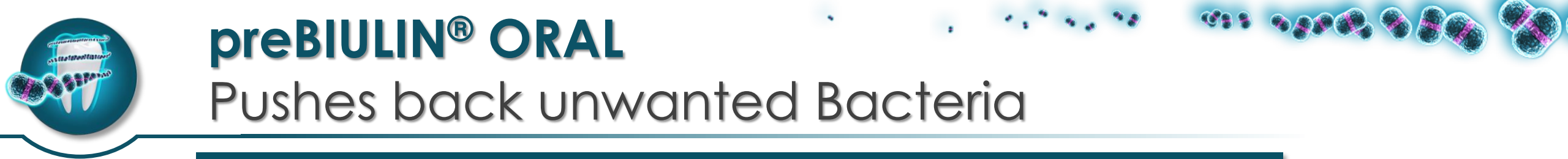
### Procedure:

- » Rinsing the mouth with 50% glucose
- » Afterwards (Blanco = ) brushing teeth with toothpaste
- » Afterwards (pORAL =) brushing teeth with toothpaste + 3.3% preBIULIN® ORAL

preBIULIN® ORAL pushes dangerous unwanted bacteria





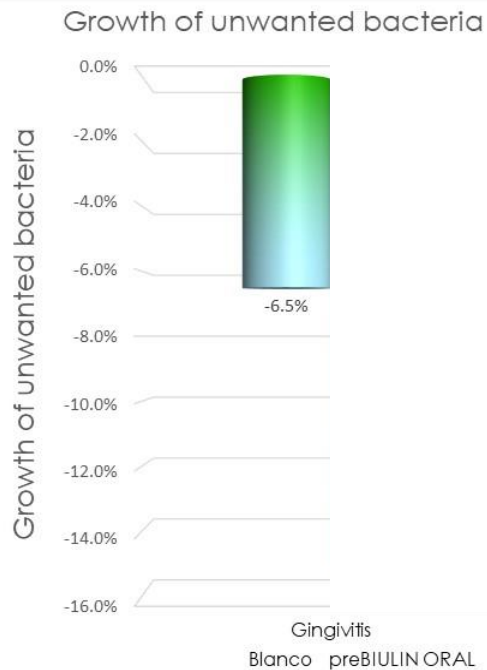


# preBIULIN® ORAL

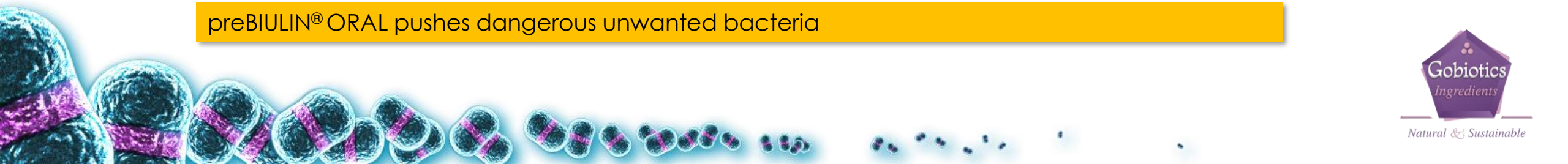
## Pushes back unwanted Bacteria

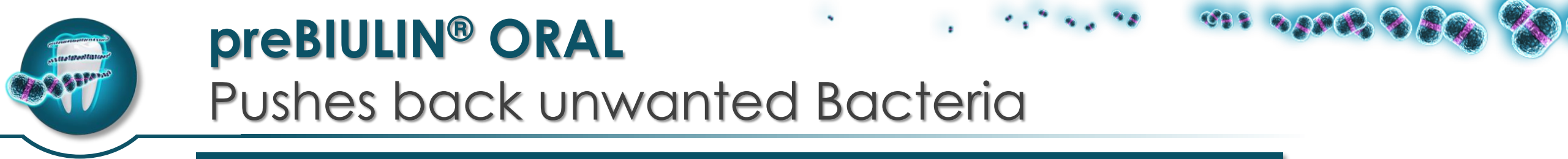
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preBIULIN® ORAL pushes dangerous unwanted bacteria



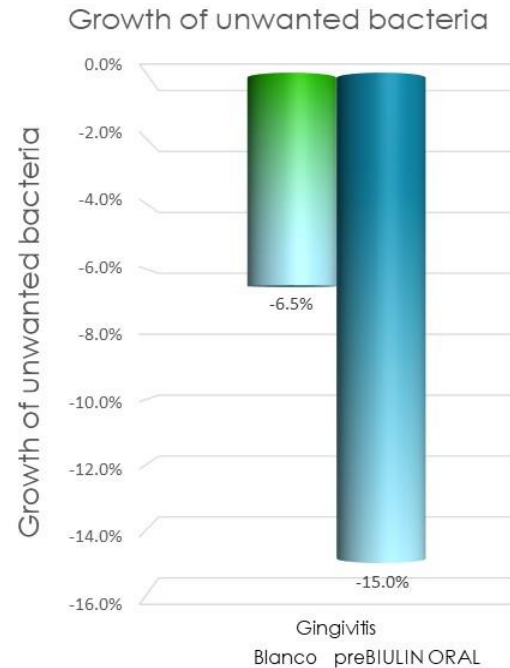


# preBIULIN® ORAL

## Pushes back unwanted Bacteria

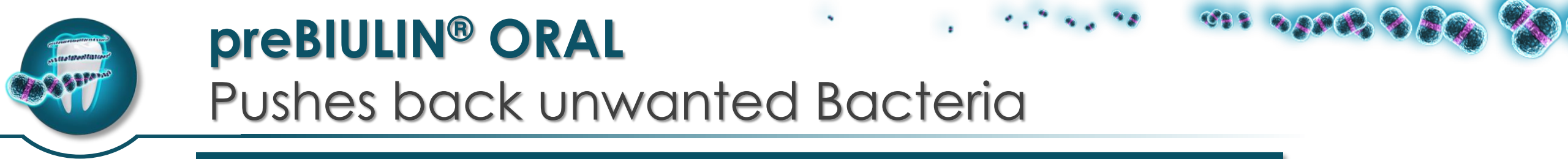
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preBIULIN® ORAL pushes dangerous unwanted bacteria



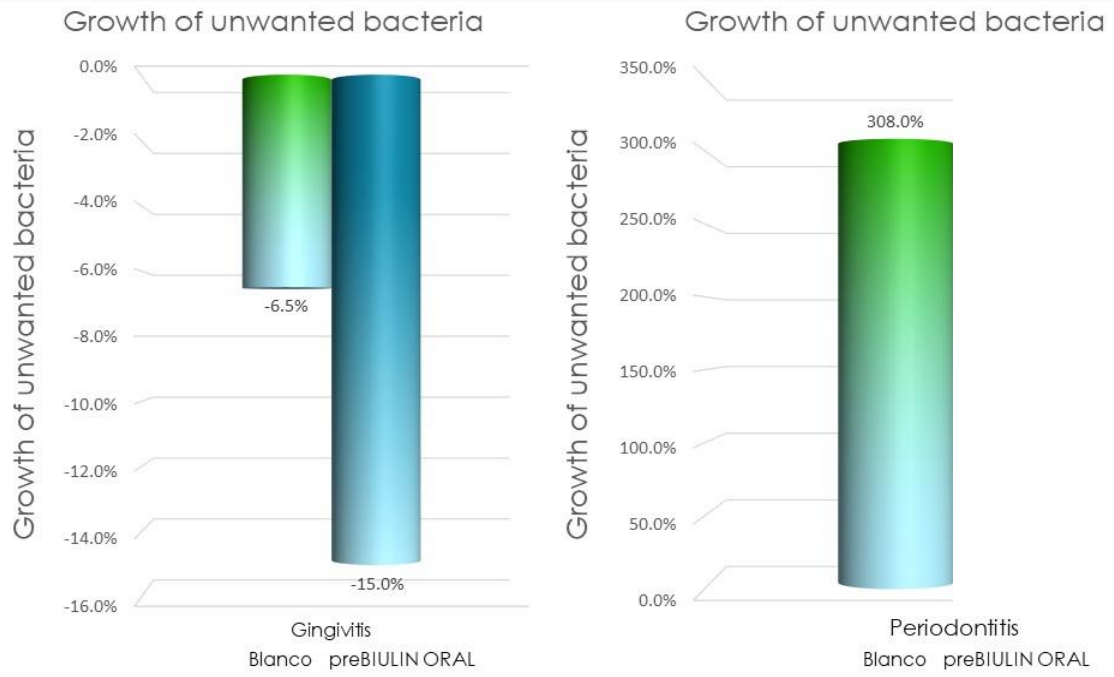


# preBIULIN® ORAL

## Pushes back unwanted Bacteria

**Procedure:**

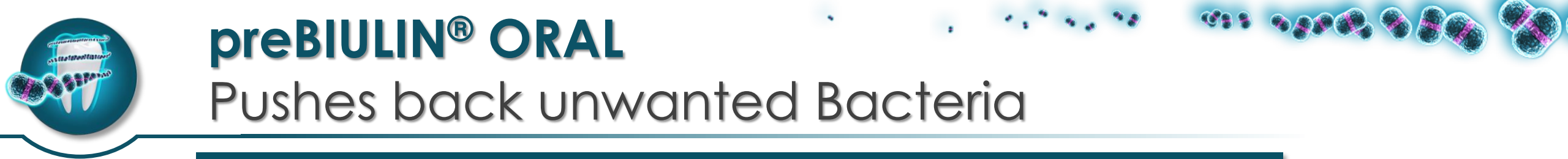
- » Rinsing the mouth with 50% glucose
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preBIULIN® ORAL pushes dangerous unwanted bacteria





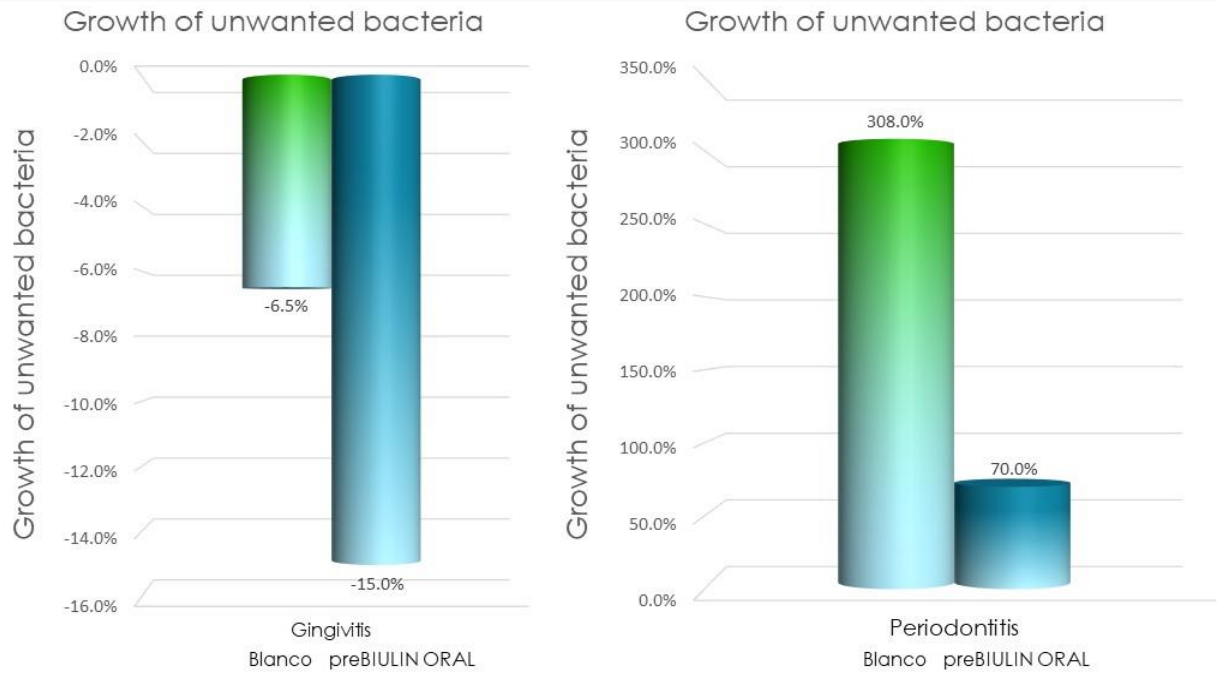


# preBIULIN® ORAL

## Pushes back unwanted Bacteria

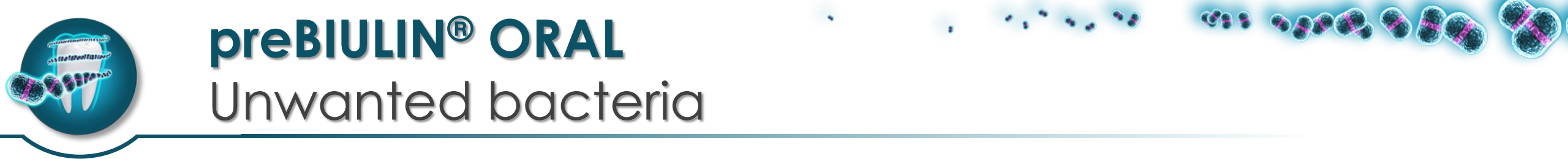
**Procedure:**

- » Rinsing the mouth with 50% glucose
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preBIULIN® ORAL pushes dangerous unwanted bacteria





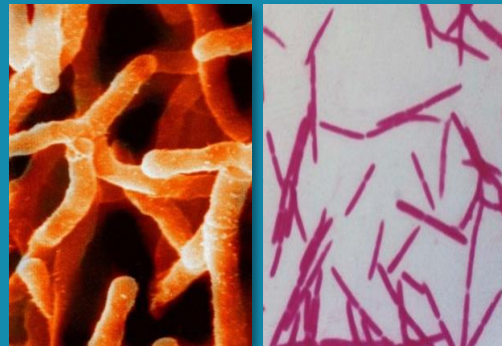
# preBIULIN<sup>®</sup> ORAL

## Unwanted bacteria

### Unwanted bacteria

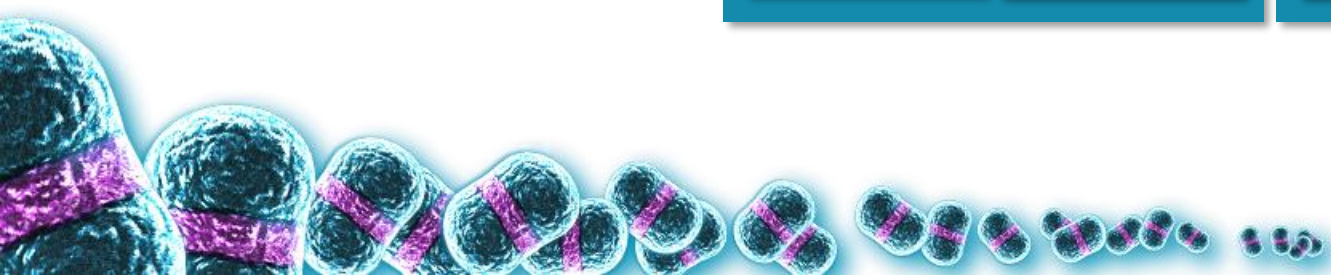
#### Gingivitis

Streptococcus  
Actinomyces  
Fusobacterium  
Synergistes



#### Periodontitis

Prevotella denticola  
Porphyromonas endodontalis  
Tannerella forsythia  
Anaeroglobus geminatus  
Fretibacterium fastidiosum  
Treponema denticola  
Filifactor alocis

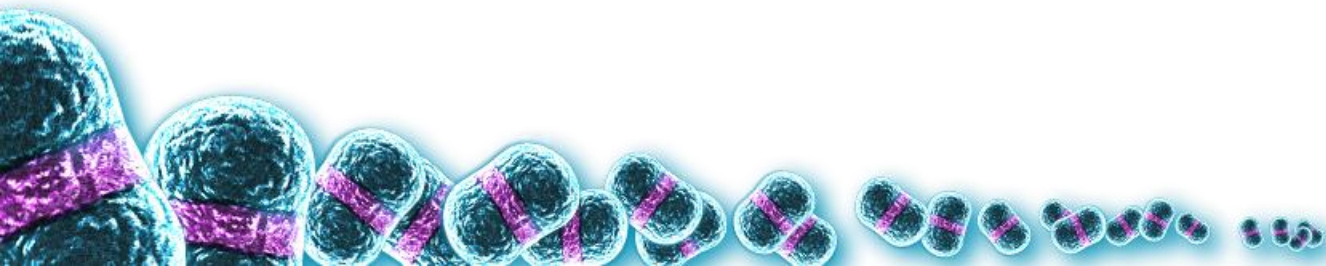
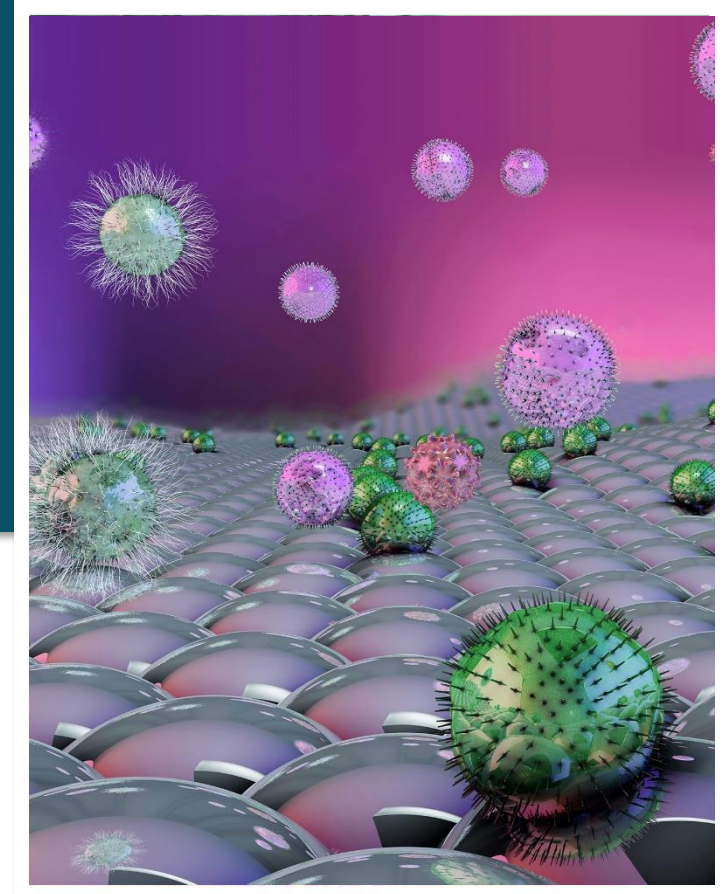




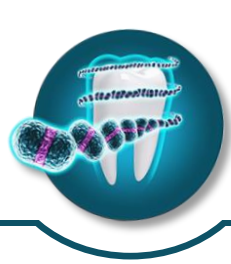
# Conclusion Oral Microbiome

## preBIULIN® ORAL

- » Supports the protective balance
- » Supports the regulating/protecting *S. salivarius*
- » Suppresses outbreak of cariogenic bacteria
- » Suppresses bacteria associated with gingivitis
- » Suppresses bacteria associated with periodontitis
- » Reduces mal odor bacteria



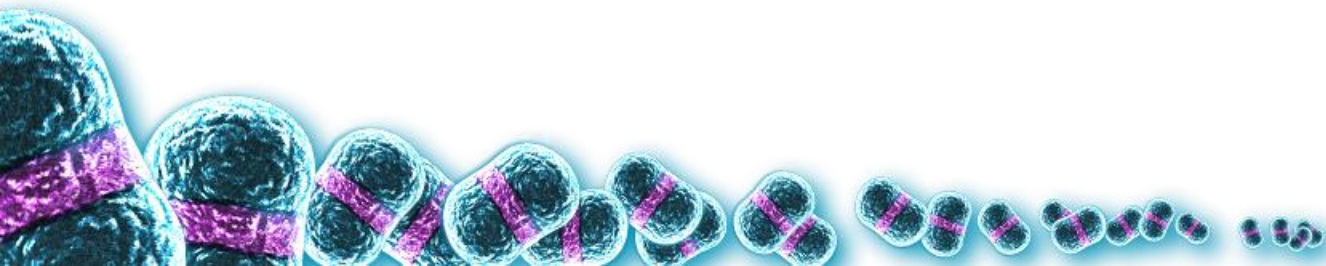
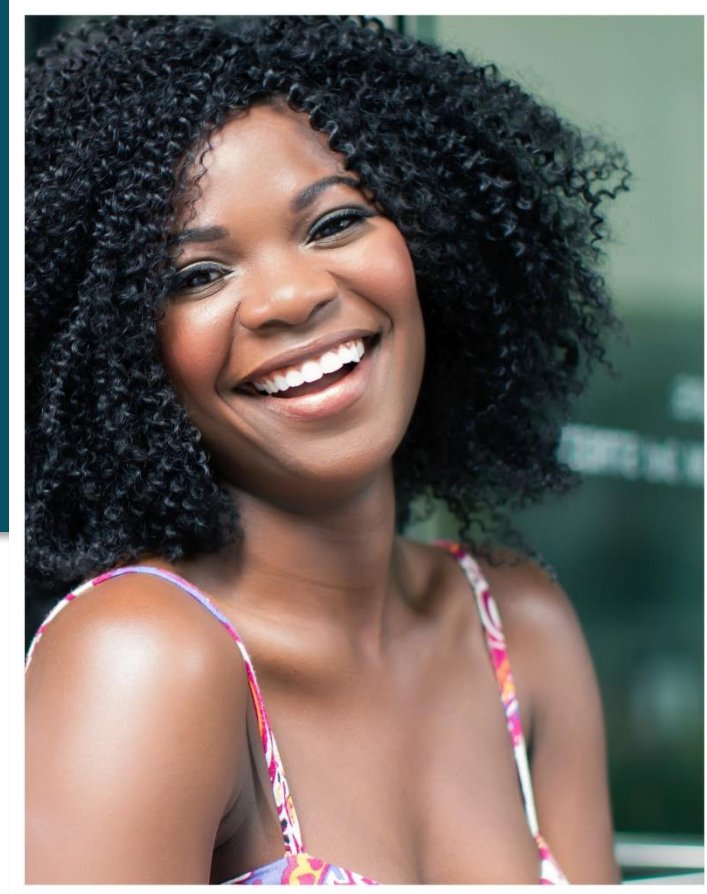


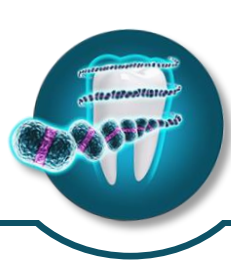


# Conclusion Oral teeth

## preBIULIN® ORAL

- » Supports the protective balance
- » Protects teeth against sugar consumption
- » Protects teeth against alcohol consumption
- » Protects against tooth decay
- » Reduces formation of plaque
- » Supports white teeth

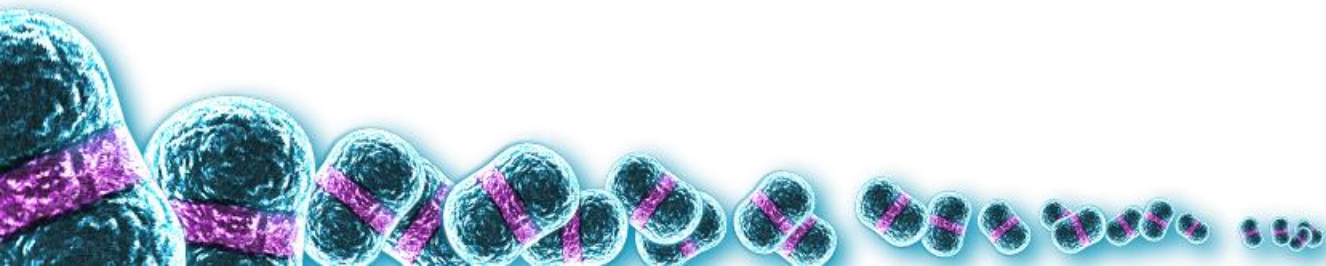
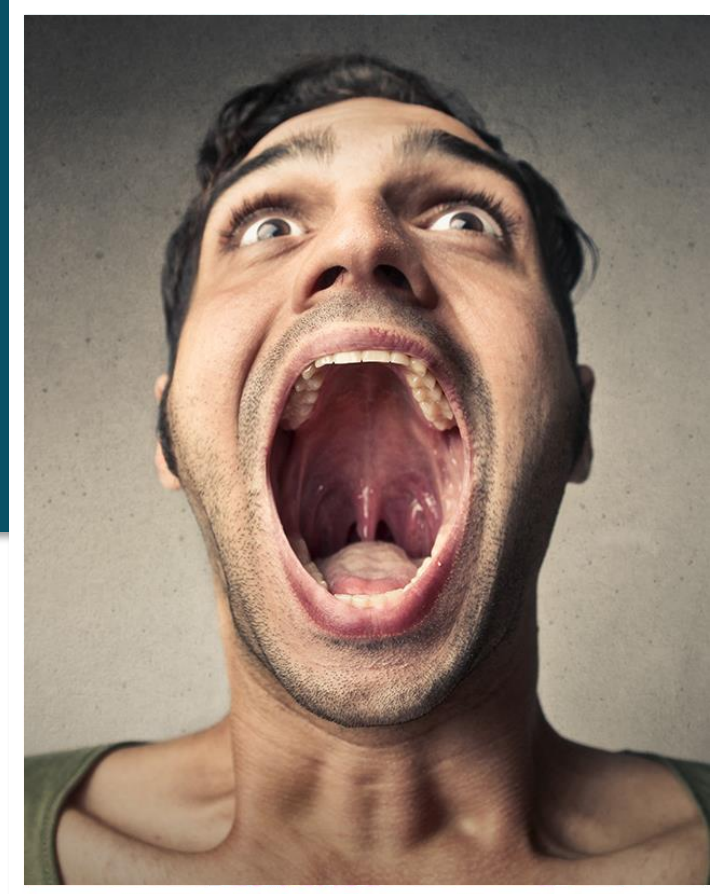




# Conclusion Oral Care

## preBIULIN® ORAL

- » Supports the protective balance
- » Protects sensitive gums
- » Reduces bad breath
- » Improves oral hygiene
- » Supports our general health
- » Improves mildness and activity of toothpaste





### preBIULIN<sup>®</sup> ORAL

- »» Forms available: - Liquid
- »» INCI Name: - Fructooligosaccharide, Glycerin, Aqua, Inulin
- »» Solubility: - water soluble
- »» Low Fructose content
- »» GF<sub>n</sub>, n<6





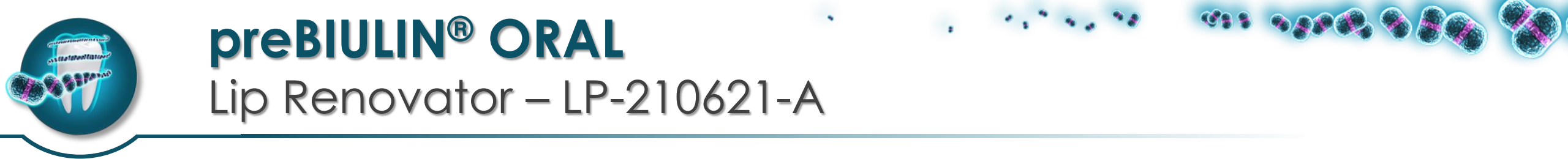


# preBIULIN® ORAL

## Hercules Toothpaste – RTP-170901-C

Phase	Raw material	Ingredients	Function	%
A	Water	Aqua	Solvent	QS
	Edeta BD	Disodium EDTA	Additive	0.1
	preBIULIN C90	Cellulose Gum, Xanthan Gum, Inulin, Cellulose, Glucose, Fructose	Thickener	1.2
	Sorbitol 70%	Sorbitol, Aqua	Humectant	30
	Calcium Carbonate	Calcium Carbonate	Filler	10
	REMYTEC FI	Oryza Sativa Starch	Abrasive particle	25
	preBIULIN ORAL	Fructooligosaccharide, Glycerin, Aqua, Inulin	Prebiotic active	5
	Stevia	Stevia Rebaudiana Leaf/Stem Extract	Sweetener	0.03
	Sodium Saccharin	Sodium Saccharin	Sweetener	0.01
	Perlastan L30	Aqua, Sodium Lauroyl Sarcosinate	Surfactant	1.5
B	Aroma	Aroma	Aroma	QS





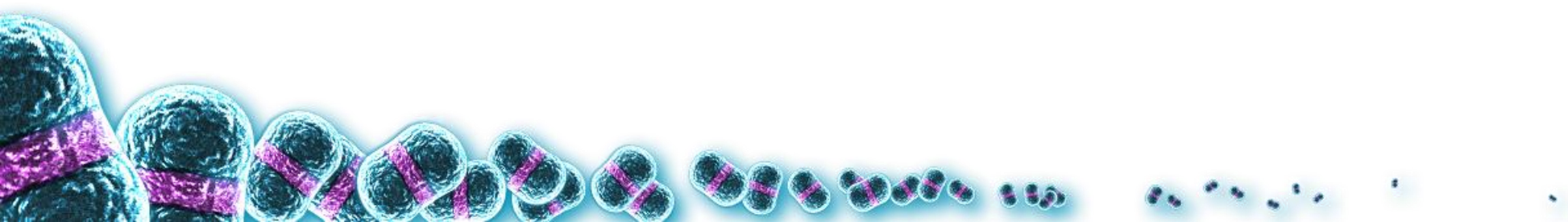
# preBIULIN® ORAL

## Lip Renovator – LP-210621-A

Phase	Raw material	Ingredients	Function	%
A	<b>Jojoba Oil Golden</b>	Simmondsia Chinensis Seed Oil	Vegetable oil	<b>10</b>
	<b>Apricot Kernel Oil Refined</b>	Prunus Armeniaca Kernel Oil	Vegetable oil	<b>10</b>
	<b>Shea Butter</b>	Butyrospermum Parkii Butter	Vegetable butter	<b>15</b>
	<b>Beeswax White</b>	Cera Alba	Wax	<b>10</b>
	<b>Coconut Oil Refined</b>	Cocos Nucifera Oil	Vegetable oil	<b>10</b>
	<b>Castor Oil Pressed</b>	Ricinus Communis Seed Oil	Vegetable oil	<b>3</b>
	<b>Maracuja/Passion Oil</b>	Passiflora Edulis Seed Oil	Vegetable oil	<b>3</b>
	<b>Rice Wax</b>	Oryza Sativa Cera	Wax	<b>12</b>
	<b>BIODINE V</b>	Macadamia Integrifolia Seed Oil, Phospholipids, Glycine Soja Sterols, Stearic Acid, Glycerin, Safflower Oil/Palm Oil Aminopropanediol Esters, Squalane	Active	<b>2</b>
	<b>Macadamia Nut Oil Refined</b>	Macadamia Integrifolia Seed Oil	Vegetable oil	<b>20</b>
B	<b>Cosphaderm T-70 NON GMO ECO</b>	Tocopherol, Helianthus Annuus Seed Oil	Vitamin	<b>0.2</b>
	<b>preBIULIN ORAL</b>	<b>Fructooligosaccharide, Glycerin, Aqua, Inulin</b>	<b>Prebiotic active</b>	<b>3.3</b>
	<b>Mango 7026/3</b>	Parfum	Perfume	<b>QS</b>

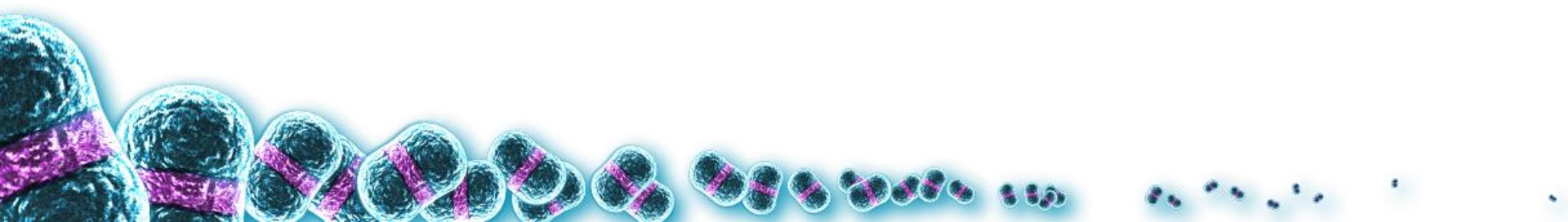


Phase	Raw material	Ingredients	Function	%
A	Glycerin	Glycerin	Mouth feel	56
	Sorbitol 70%	Sorbitol, Aqua	Mouth feel	10
	preBIULIN ORAL	Fructooligosaccharide, Glycerin, Aqua, Inulin	Prebiotic active	33
	Raspberry 7001/5	Aroma	Aroma	QS
	CI 16255 Red 7	CI 16255	Colorant	QS





Phase	Raw material	Ingredients	Function	%
A	Glycerin	Glycerin	Mouth feel	56
	Sorbitol 70%	Sorbitol, Aqua	Mouth feel	10
	preBIULIN ORAL	Fructooligosaccharide, Glycerin, Aqua, Inulin	Prebiotic active	33
	Raspberry 7001/5	Aroma	Aroma	QS
	CI 16255 Red 7	CI 16255	Colorant	QS



Phase	Raw material	Ingredients	Function	%
A	Aqua	Aqua	Solvent	QS
	Aloe Vera Powder	Aloe Barbadensis Leaf Juice	Plant extract	0.01
	Sorbitol 70%	Sorbitol, Aqua	Mouth feel	10
	preBIULIN ORAL	Fructooligosaccharide, Glycerin, Aqua, Inulin	Prebiotic active	3.3
	Sodium Dehydroacetate	Sodium Dehydroacetate	Preservative	QS
B	Alcohol 96%	Alcohol Denat	Solubilizer, Anti-microbial	10
	Eumulgin SML 20	Polysorbate 20	Solubilizer	1
	Strawberry AR 2129	Aroma	Aroma	QS
C	CI 16035 Red No 40	CI 16035	Colorant	QS

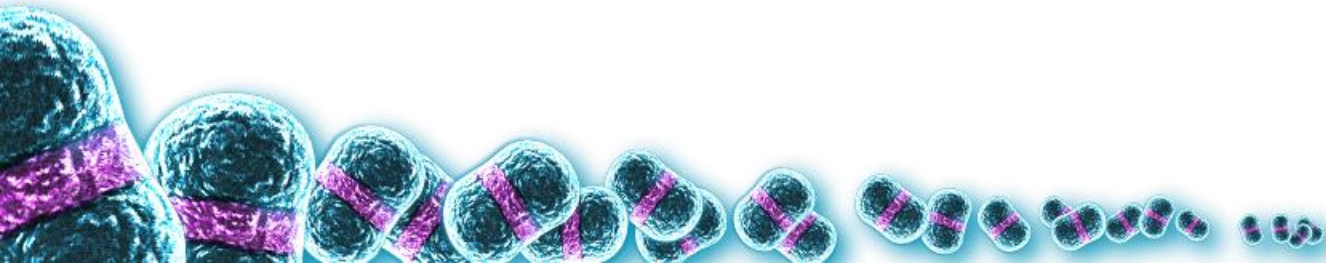




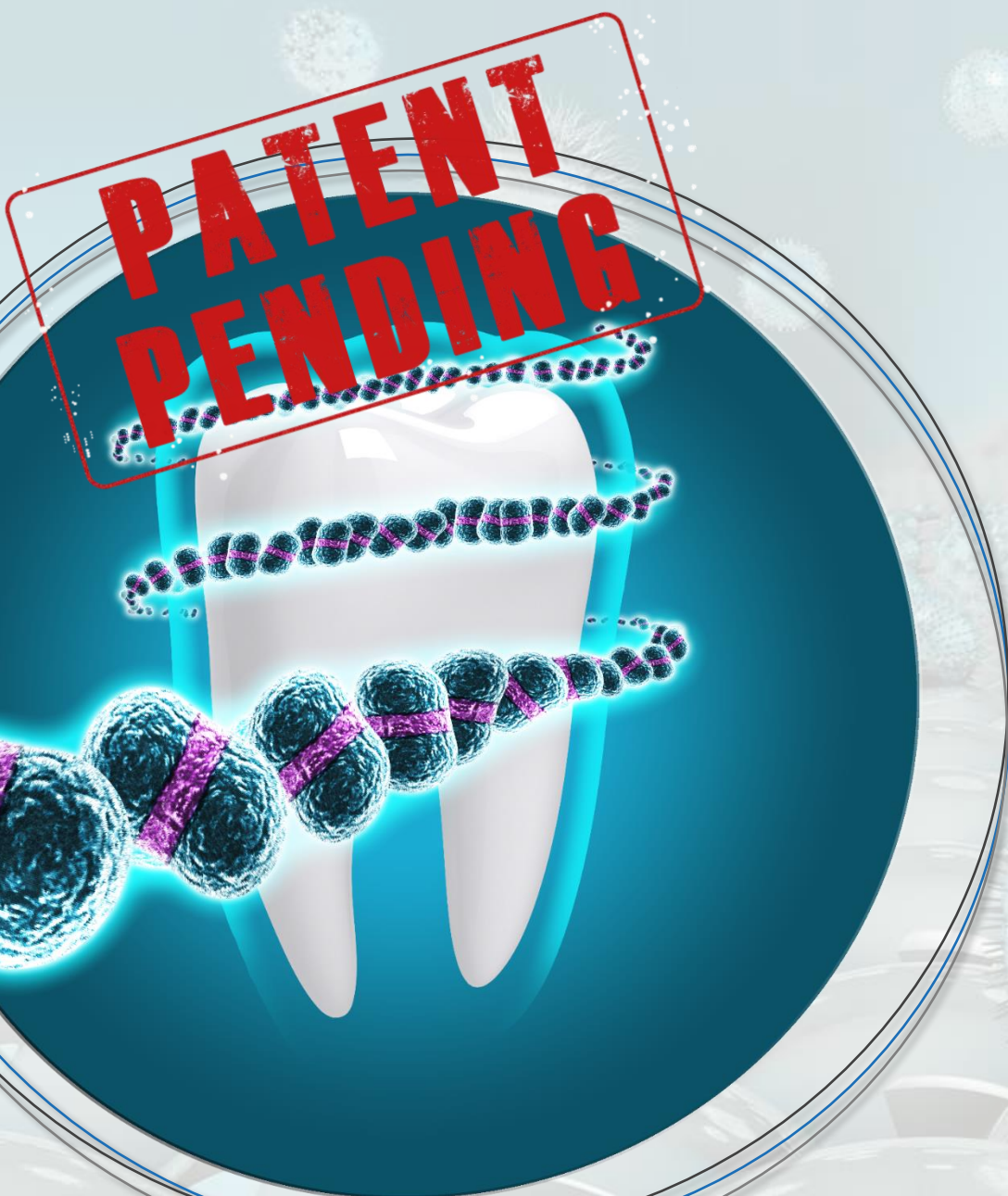
# preBIULIN® ORAL

## Hard Labour Mouth Wash – M-210616-P

Phase	Raw material	Ingredients	Function	%
A	<b>Aqua</b>	Aqua	Solvent	<b>QS</b>
	<b>Aloe Vera Powder</b>	Aloe Barbadensis Leaf Juice	Plant extract	<b>0.01</b>
	<b>Xylitol</b>	Xylitol	Sweetener	<b>1</b>
	<b>Sorbitol 70%</b>	Sorbitol, Aqua	Mouth feel	<b>16</b>
	<b>preBIULIN ORAL</b>	<b>Fructooligosaccharide, Glycerin, Aqua, Inulin</b>	<b>Prebiotic active</b>	<b>3.3</b>
	<b>Sodium Dehydroacetate</b>	Sodium Dehydroacetate	Preservative	<b>QS</b>
	<b>Cosphaderm LA-T</b>	Levulinic Acid, Glycerin, Aqua, Sodium Levulinate	Preservative	<b>QS</b>
B	<b>Eumulgin SML 20</b>	Polysorbate 20	Solubilizer	<b>2</b>
	<b>Peppermint Oil</b>	Mentha Arvensis Leaf Oil	Essential Oil	<b>0.3</b>
C	<b>CI 42090 Brilliant Blue</b>	CI 42090	Colorant	<b>QS</b>
	<b>CI 19140 Yellow No 5</b>	CI 19140	Colorant	<b>QS</b>







preBIULIN ORAL

Thank you for your  
attention



*Natural & Sustainable*