

The influence of the test product on the key organisms of the respective body region was examined.

### Information about the tested product:

#### Manufacturer:

Betiyon AB  
Swedenborgsgatan 10  
11848 Stockholm  
Sweden

#### Name of the product:

Body Oil

<b>Product type:</b>	Final product
<b>Application:</b>	Leave-on
<b>Dilution:</b>	No
<b>Sample received:</b>	16 March 2023
<b>Test Start:</b>	20 March 2023
<b>Test End:</b>	19 June 2023
<b>Test Standard:</b>	<b>MyMicrobiome Standard 18.11 Face / Body</b>
<b>Test result:</b>	<b>1.9</b>
<b>Certification:</b>	granted

## Test description

The MyMicrobiome Standard evaluates cosmetic and personal care products, that encounter the skin or mucous membrane, in terms of their influence on the microbiome located at a specific body site.

An intact skin microbiome has a fundamental influence on skin health. Products which are to be skin-friendly must also be Microbiome-friendly in order not to unbalance the skin of the user.

The MyMicrobiome Standard evaluates the influence of cosmetic and personal care products on the microbial key players of a specific skin or mucous membrane area. The human microbiome is very individual from person to person.

Each area, however, harbors a characteristic composition of bacteria, viruses and fungi. The test examines the products influence on the key organisms typical for each skin area and thus offers a standardized procedure.

## Various aspects are examined:

### The microbial quality of the product.

#### The influence of the product on the natural, healthy skin balance.

The skin-commensal bacterium *Staphylococcus epidermidis* keeps the skin with antimicrobial peptides (so-called bacteriocins) and pH adjustments healthy and keeps skin-harmful germs such as *Staphylococcus aureus* in check. The product should not disturb this balance between skin-friendly and skin-harmful bacteria. This sensitive balance is investigated in conjunction with the product.

#### The influence of the product on the bacterial diversity of the specific body region.

Each body region is colonized by a certain microbial composition. For a healthy skin it is particularly important to maintain this biodiversity. The influence of the product on the respective microbial mixture is examined in the test. The aim is to find as many key organisms as possible after contact with the product.

#### The influence of the product on the growth behavior of the microbes of the specific body region.

In addition to the diversity of the specific microbiome, the growth or number of different key organisms should not be influenced by the product. This is investigated in a skin-product contact model. The key organisms are brought into direct and indirect contact with the product and their growth is observed.

### Results

#### The microbial quality of the product.

The prerequisite for the test for microbial friendliness is the microbiological quality of the product. The following table contains the limit values that must be observed.

Types of organisms	Limit values	
	Products specially designed for children under 3 years, eye area or mucous skins	Other products
<b>Total counts mesophilic, aerobic microorganisms (bacteria, yeasts, molds, (TAMC and TYMC))</b>	$\leq 1 \times 10^2$ cfu/g or ml <sup>a</sup>	$\leq 1 \times 10^3$ cfu/g or ml <sup>b</sup>
<i>Escherichia coli</i>	Not detectable in 1g or 1 ml	Not detectable in 1g or 1 ml
<i>Pseudomonas aeruginosa</i>	Not detectable in 1g or 1 ml	Not detectable in 1g or 1 ml
<i>Staphylococcus aureus</i>	Not detectable in 1g or 1 ml	Not detectable in 1g or 1 ml
<i>Candida albicans</i>	Not detectable in 1g or 1 ml	Not detectable in 1g or 1 ml
<b>a &gt;200 cfu/g or ml, b &gt;2000 cfu/g or ml</b>		

#### Results Microbiological quality

Determination of TAMC, TYMC, absence of *E. coli*, *P. aeruginosa* and *S. aureus*.

**The microbiological quality of the product according to DIN EN ISO 17516 is fulfilled.**

Parameter	Sample no.: 23.611.18.3
TAMC [cfu/0,1 ml]	< 1,0E+01
TYMC (incl. <i>Candida albicans</i> ) [in 0,1 ml]	negative
<i>Escherichia coli</i> [in 0,1 ml]	negative
<i>Pseudomonas aeruginosa</i> [in 0,1 ml]	negative
<i>Staphylococcus aureus</i> [in 0,1 ml]	negative

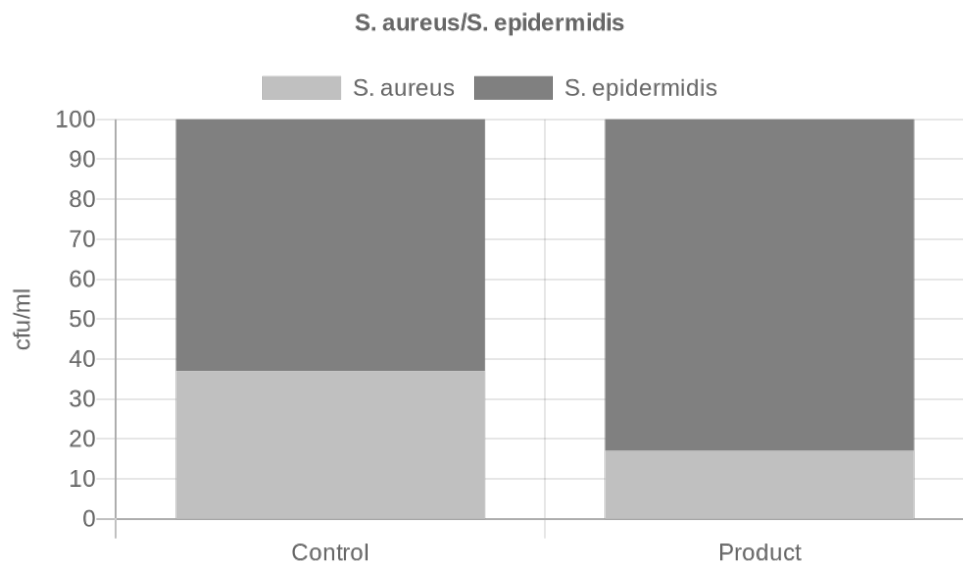
## Results

### The influence of the product on the natural, healthy skin balance.

A co-culture of *S. epidermidis* and *S. aureus* is incubated with the product.

The ratio of the two microbes to each other is determined.

Determination of the bacterial count at time t = 15 min (rinse-off) or 4h (leave-on).

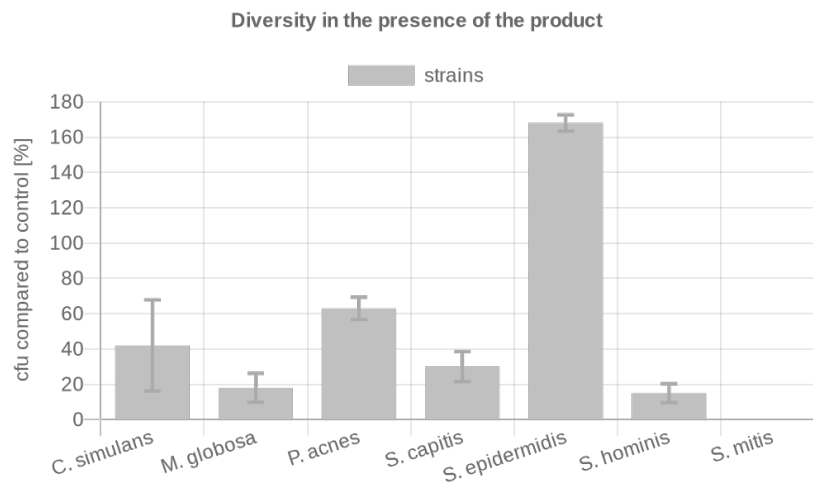


	cfu/ml		Ratio Product/ Control	Grade
	<i>S. aureus</i>	<i>S. epidermidis</i>		
<b>Control</b>	1780	2986.7	2.9	<b>1</b>
<b>Product</b>	5300	26300		

## Results – SEBACEOUS SKIN -

### The influence of the product on the microbial diversity of the specific body region.

A co-culture of key organisms of the specific body region is incubated with the product for t = 15 min (rinse-off) or 4h (leave-on). The ratio of the microbes compared to the control (PBS) is determined.

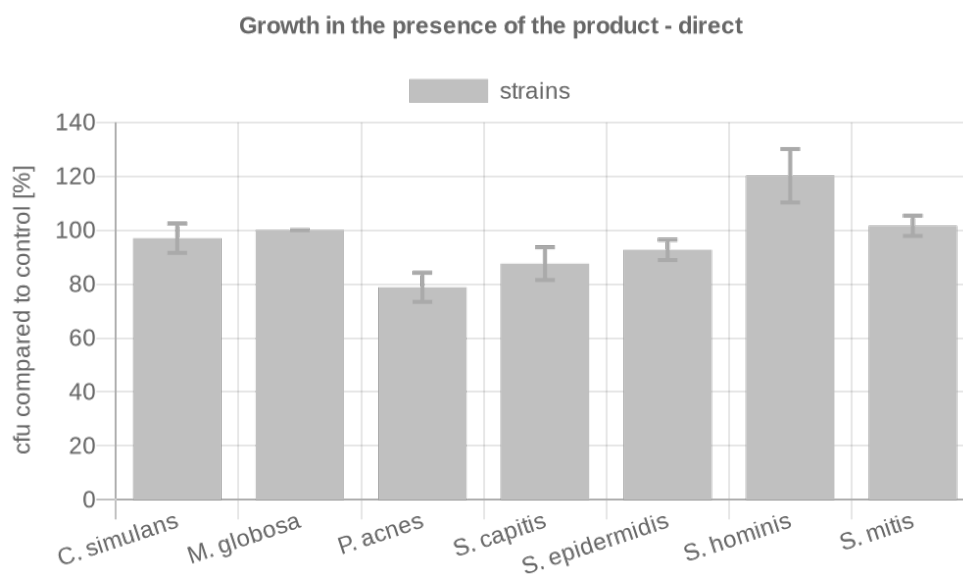


Key-Microbe	t=	4h	Rating
	cfu/ml		
<i>C. simulans</i>	Control	1106.7	3
	Product	465	
<i>M. globosa</i>	Control	61433.3	3
	Product	11333.3	
<i>P. acnes</i>	Control	530	3
	Product	335	
<i>S. capitis</i>	Control	1460	3
	Product	443.3	
<i>S. epidermidis</i>	Control	5470	3
	Product	9200	
<i>S. hominis</i>	Control	2700	3
	Product	395	
<i>S. mitis</i>	Control		
	Product		
<b>Overall rating:</b>			<b>3</b>

### Results – SEBACEOUS SKIN -

#### The influence of the product on the growth behavior of the microbes of the specific body region – directly.

The influence of the product on the growth of each individual microbe of the key organisms of the specific body region is investigated and put in relation to the control (PBS). Product contact with the microorganisms is directly.



Key-Microbe	cfu/ml		Rating
	Control	Product	
<i>C. simulans</i>	Control	277.5	1
	Product	269.3	
<i>M. globosa</i>	Control	1	1
	Product	1	
<i>P. acnes</i>	Control	446	2
	Product	351.3	
<i>S. capitis</i>	Control	706	2
	Product	618.5	
<i>S. epidermidis</i>	Control	804.5	2
	Product	746	
<i>S. hominis</i>	Control	380.3	1
	Product	457	
<i>S. mitis</i>	Control	147.7	1
	Product	150	
<b>Overall rating:</b>			<b>1.4</b>

### Results – SEBACEOUS SKIN -

#### The influence of the product on the growth behavior of the microbes of the specific body region – indirectly.

The influence of the product on the growth of each individual microbe of the key organisms of the specific body region is investigated and put in relation to the control (PBS). The product contact to the microorganisms is indirect.

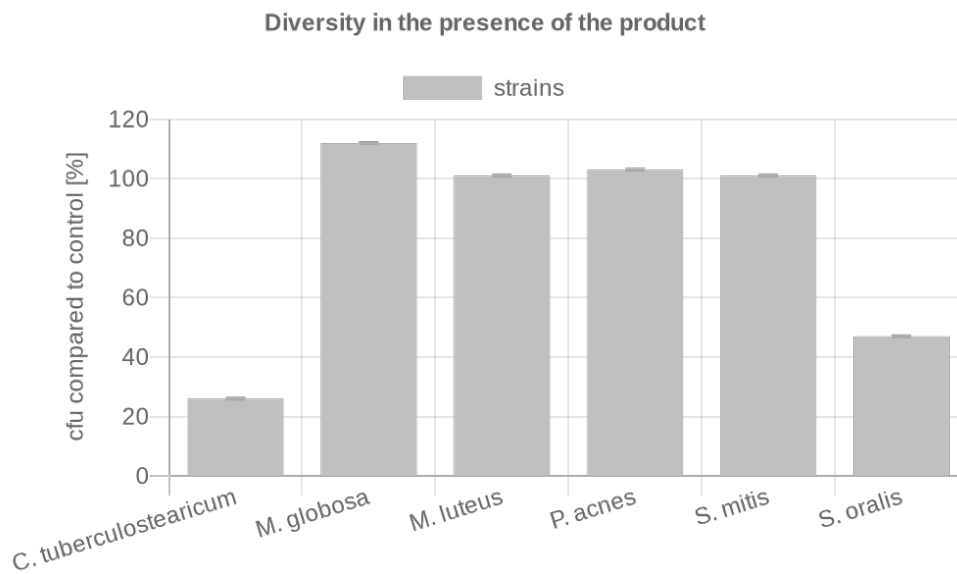


Key-Microbe	cfu/ml		Rating
<i>C. simulans</i>	Control	282.3	1
	Product	330.7	
<i>M. globosa</i>	Control	1	1
	Product	1	
<i>P. acnes</i>	Control	403.3	2
	Product	327.3	
<i>S. capitis</i>	Control	766.7	2
	Product	541.7	
<i>S. epidermidis</i>	Control	852.7	2
	Product	716	
<i>S. hominis</i>	Control	364.3	1
	Product	413.7	
<i>S. mitis</i>	Control	155.3	3
	Product	91.5	
<b>Overall rating:</b>			<b>1.7</b>

## Results – DRY SKIN -

### The influence of the product on the microbial diversity of the specific body region.

A co-culture of key organisms of the specific body region is incubated with the product for t = 15 min (rinse-off) or 4h (leave-on). The ratio of the microbes compared to the control (PBS) is determined.



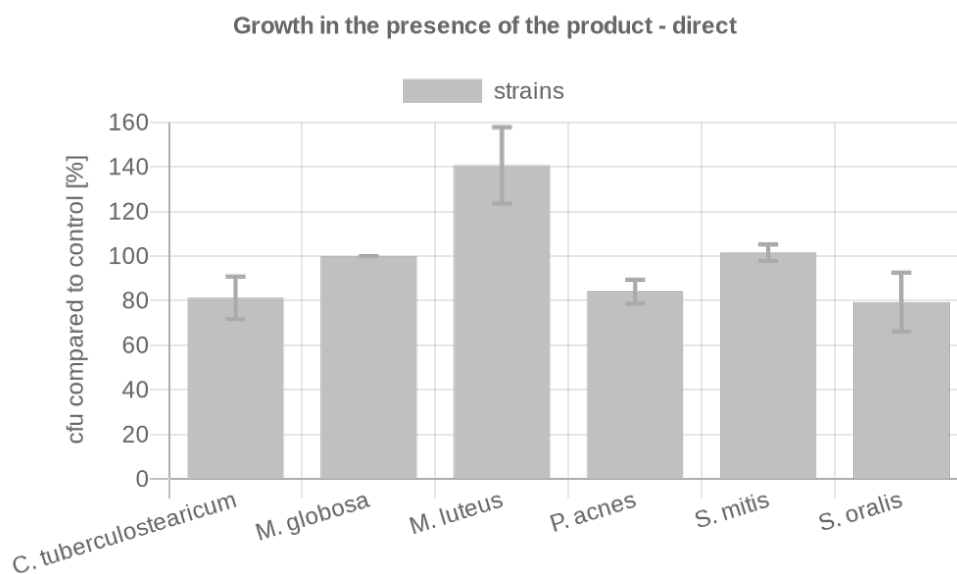
Key-Microbe	t=	4h	Rating
	cfu/ml		
<b>C. tuberculoostearicum</b>	Control	530	3
	Product	136,7	
<b>M. globosa</b>	Control	57000	1
	Product	64066,7	
<b>M. luteus</b>	Control	1703,3	1
	Product	1713,3	
<b>P. acnes</b>	Control	340	1
	Product	350	
<b>S. mitis</b>	Control	586,7	1
	Product	590	
<b>S. oralis</b>	Control	9000	3
	Product	4250	
<b>Overall rating:</b>			<b>1.7</b>



## Results – DRY SKIN -

### The influence of the product on the growth behavior of the microbes of the specific body region – directly.

The influence of the product on the growth of each individual microbe of the key organisms of the specific body region is investigated and put in relation to the control (PBS). Product contact with the microorganisms is directly.



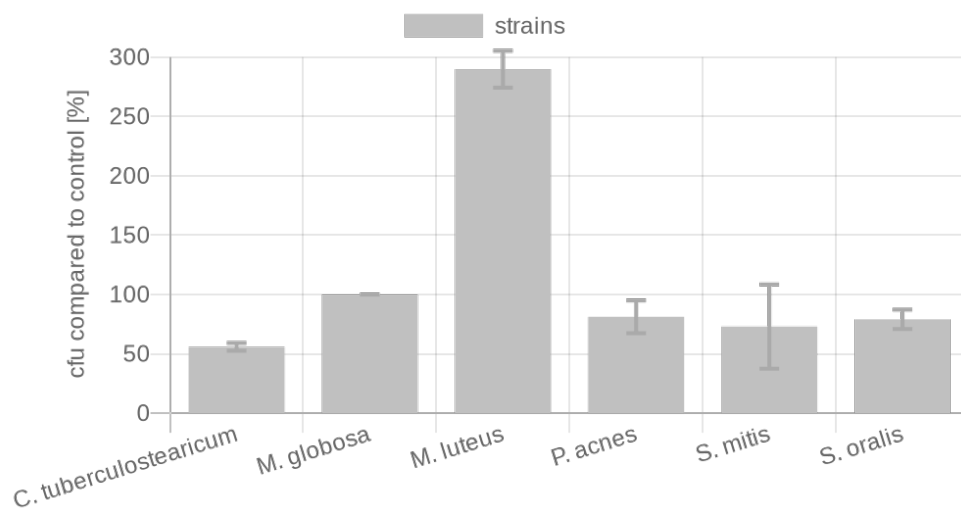
Key-Microbe	cfu/ml		Rating
	Control	Product	
<b><i>C. tuberculostearicum</i></b>	Control	2653.3	2
	Product	2156	
<b><i>M. globosa</i></b>	Control	1	1
	Product	1	
<b><i>M. luteus</i></b>	Control	282.3	2
	Product	397.3	
<b><i>P. acnes</i></b>	Control	417.7	2
	Product	351.3	
<b><i>S. mitis</i></b>	Control	147.7	1
	Product	150	
<b><i>S. oralis</i></b>	Control	100.7	2
	Product	80	
<b>Overall rating:</b>			<b>1.7</b>

## Results – DRY SKIN -

### The influence of the product on the growth behavior of the microbes of the specific body region – indirectly.

The influence of the product on the growth of each individual microbe of the key organisms of the specific body region is investigated and put in relation to the control (PBS). The product contact to the microorganisms is indirect.

Growth in the presence of the product - indirect



Key-Microbe	cfu/ml		Rating
<i>C. tuberculostearicum</i>	Control	4510.7	3
	Product	2519.3	
<i>M. globosa</i>	Control	1	1
	Product	1	
<i>M. luteus</i>	Control	273.7	3
	Product	793.3	
<i>P. acnes</i>	Control	403.3	2
	Product	327.3	
<i>S. mitis</i>	Control	155.3	2
	Product	113.3	
<i>S. oralis</i>	Control	99	2
	Product	78.3	
<b>Overall rating:</b>			<b>2.2</b>

## Results

The results are evaluated with grades from 1 (one) to 3 (three). If the product shows no or positive influence to the above-mentioned aspects, a grade of 1 is awarded respectively.

If only a very weak negative influence can be detected in the tests, the grade 2 is awarded and in case of a clearly negative influence, the product receives the grade 3.

The product has passed up to grade 2.0.

Here the grade means

1.0 – 2.0 = Microbiome-friendly; 2.1 – 3.0 = Microbiome-damaging.

Test	Grade
Balance of the skin microbiome	1
Diversity of the corresponding skin microbiome (sebaceous, x2)	3
Diversity of the corresponding skin microbiome (dry, x2)	1.7
Skin-product contact direct (sebaceous, x2)	1.4
Skin-product contact direct (dry, x2)	1.7
Skin-product contact indirect (sebaceous)	1.7
Skin-product contact indirect (dry)	2.2
<b>Overall grade</b>	<b>1.9</b>

**With an overall grade of 1.9 the seal „Microbiome-friendly“ is awarded according to MyMicrobiome Standard 18.11 Face / Body.**

Place, Date: Balzers, 19 June 2023

Responsible person: Dr. Kristin Neumann

Signature:

