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

Information about the tested product:

Manufacturer:
Indorama Ventures - Indovinya
Alameda Santos, 960, 7th, 8th and 18th floors
01418-002 Jardins, São Paulo - SP
Brazil

Name of the product:
Surfonic® Bio 5000

Product type:	Ingredient
Application:	Rinse-off
Dilution:	3% in water
Sample received:	20 February 2024
Test Start:	20 March 2024
Test End:	26 March 2024
Test Standard:	**MyMicrobiome Standard 19.20 Scalp**
Test result:	**1.5**
Certification:	Granted

Test description

The MyMicrobiome Standard evaluates the influence of cosmetics, personal care products and pharmaceuticals on the microbial key players located at a specific skin or mucous membrane site.

An intact skin microbiome has a fundamental influence on skin health. Skin-friendly products must also be microbiome-friendly and ensure the maintenance of the balance among the skin microorganisms of the user.

Every person's microbiome is unique. Each body area, however, harbors a characteristic composition of bacteria, viruses and fungi. The test examines the product's 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.

To be evaluated according to our standard, the product needs to be free of contaminants. This is verified in the microbial quality test.

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

The skin-commensal bacterium *Staphylococcus epidermidi*s produces antimicrobial peptides (so-called bacteriocins) and regulates skin pH, which keeps harmful microorganisms, such as *Staphylococcus aureus* in check. The product should not disturb the balance between friendly and 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 set of microorganisms. For healthy microbiome, it is particularly important to maintain this biodiversity. The influence of the product on the respective microbial composition 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 microorganisms in a specific body area, the growth of the individual key organisms should not be influenced by the product. The key organisms are brought into direct and indirect contact with the product and their growth is observed.

Results

The microbiological quality of the product.

The prerequisite for the test for microbial friendliness is the microbiological quality of the product based on DIN ISO 17516. The following table contains the limit values for contaminants that must be observed.

Types of organisms	Limit values
Total aerobic microbial count (TAMC) and total combined yeasts/ moulds count (TYMC)	≤ 20 cfu*/g or ml

* colony forming units (cfu)

Results microbiological quality

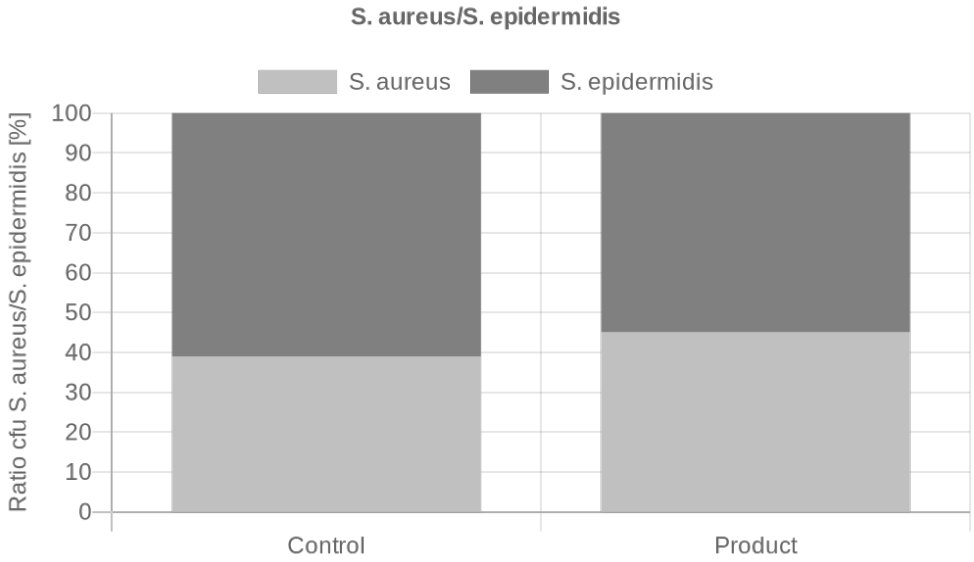
Parameter	Sample no.: 24.846.19.2
TAMC and TYMC [cfu/0,1 ml]	< 20

The microbiological quality of the product is fulfilled.

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 for 15 min (rinse-off) or 4h (leave-on). Bacterial counts are determined, the ratio of the two microbes to each other is assessed and compared to the control sample (PBS).

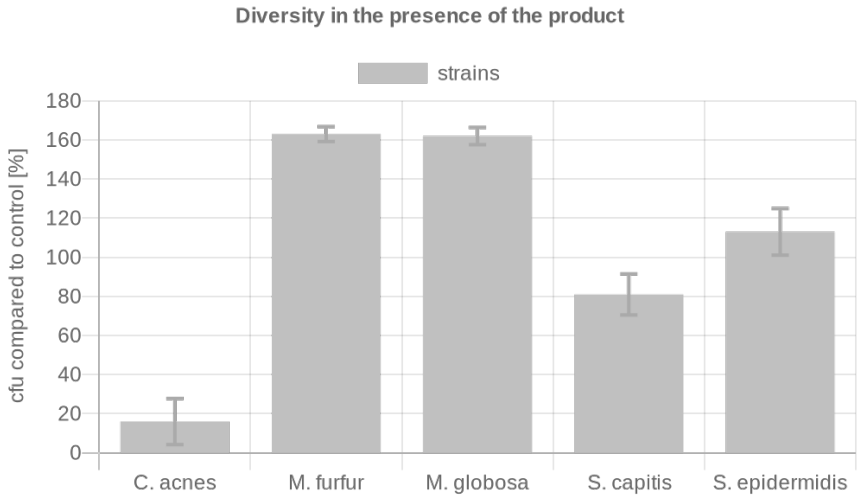


	cfu/ml		Ratio Product/ Control	Grade
	S. aureus	***S. epidermidis***		
Control	2003.3	3186.7	0.8	**2.0**
Product	2230	2766.7		

Results

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 15 min (rinse-off) or 4h (leave-on). Bacterial colonies are counted, and the ratio of the cfu in the presence of the product compared to the control (PBS) is determined.

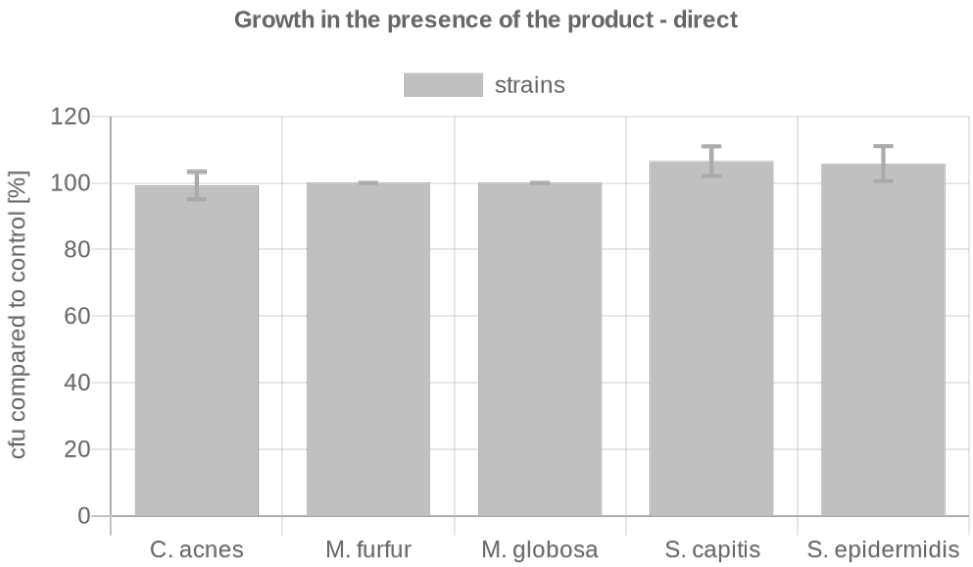


Key-Microbe	t=	15min	Rating
	cfu/ml		
C. acnes	Control	766.7	3
	Product	120	
M. furfur	Control	3200	2
	Product	5200	
M. globosa confluence	Control	25633.3	2
	Product	41466.7	
S. capitis	Control	335	2
	Product	270	
S. epidermidis	Control	375	1
	Product	423.3	
Overall rating:			**2.0**

Results

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

The influence of the product on the growth of each individual key organism of the specific body region is investigated and the ratio of the cfu in the presence of the product is calculated in % relative to the control sample (PBS). Product contact with the microorganisms is direct.

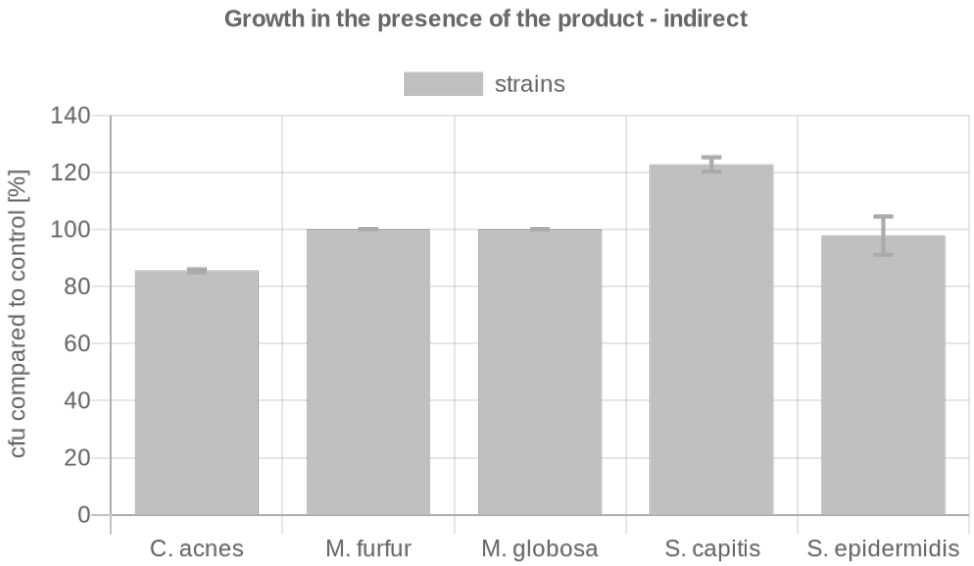


Key-Microbe	cfu/ml		Rating
C. acnes	Control	225.3	1
	Product	223.5	
M. furfur confluence	Control	100	1
	Product	100	
M. globosa	Control	100	1
	Product	100	
S. capitis	Control	240.3	1
	Product	256	
S. epidermidis	Control	411	1
	Product	434.7	
Overall rating:			**1.0**

Results

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 key organism of the specific body region is investigated and the ratio of the cfu in the presence of the product is calculated in % relative to the control sample (PBS). Product contact with the microorganisms is indirect.



Key-Microbe	cfu/ml		Rating
C. acnes	Control	327	2
	Product	279.7	
M. furfur confluence	Control	100	1
	Product	100	
M. globosa confluence	Control	100	1
	Product	100	
S. capitis	Control	226.3	1
	Product	278	
S. epidermidis	Control	461	1
	Product	450.7	
Overall rating:			**1.2**

Results

The results are evaluated with grades from 1 (one) to 3 (three).

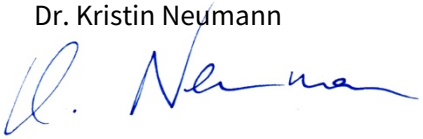
The product has passed if it obtains grades between 1.0 and 2.0.

1.0 – 2.0 = Microbiome-friendly | 2.1 – 3.0 = Microbiome-influencing

Test	Grade
Balance of the skin microbiome	2.0
Diversity of the corresponding skin microbiome (x2)	2.0
Skin-product contact direct (x2)	1.0
Skin-product contact indirect	1.2
Overall grade	**1.5**

With an overall grade of 1.5 the seal „Microbiome-friendly“ is awarded according to MyMicrobiome Standard 19.20 Scalp.

Place, Date: Balzers, 10 January 2025

Responsible person: Dr. Kristin Neumann

Signature: