

Impact of sunscreens on the human skin microbiome

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Poster 384

INTRODUCTION

The skin is the first layer of defense of our body towards the environment. It is essential to protect us from physical and biological impact. At the same time, the skin is a flourishing ecosystem inhabited by different microorganisms that co-evolved with the human host, leading to a beneficial symbiosis between the skin and its microbiome.

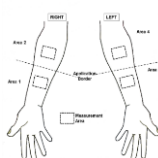
The awareness of the need to apply sun protection is rising as more and more people start considering skin aging and skin cancer. At the same time, consumers concern about the human and environmental safety of UV filters. Accordingly, comprehensive studies on the safety profile of UV filters are needed.

Only a few studies investigated potential effects of light/UV on cutaneous microorganisms being far from any systematic understanding [1-3]. Many consumers already expect that their sun care formula maintains the skin microbiome balance or respects the microbiome.

MATERIALS & METHODS

▶ OBJECTIVE:

Investigate the effect of UV filters on the skin microbiome during a simulated holiday application based on microbiome sequencing (16S rRNA gene analysis)



- ▶ 23 study subjects (female & male participants) with healthy skin on the forearms
- ▶ O/W emulsions with different market relevant UV filter combinations vs. placebo were applied on the forearm
- ▶ All emulsions (beside the placebo) contain the following UV filters: BEMT, EHT, EHS and PBSA. The difference is in the addition of OCR/HMS and / or DPDT.
- ▶ Microbiome swabbing area 4cm x 4cm

Microbiome sampling
Baseline
Day 0

3x daily
product application

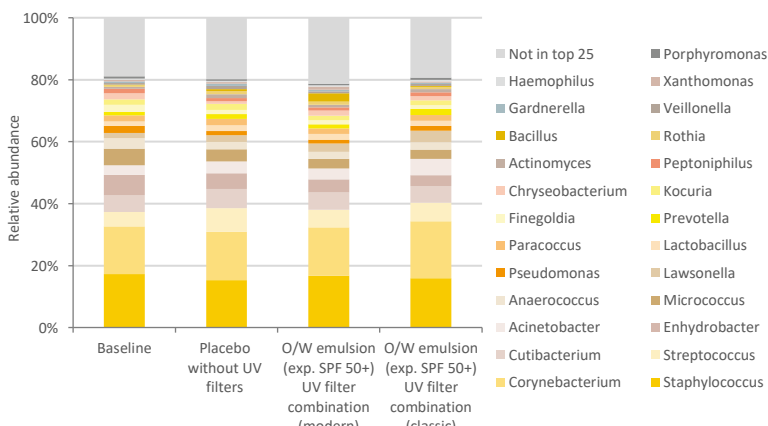
Microbiome sampling after
application
Day 15

RESULTS & DISCUSSION

Microbiome
the ecological community of commensal, symbiotic, and pathogenic microorganisms that literally share our body space and their genes [4].

16s sequencing

Is a method to identify the different bacterial genera in a microbiome sample. The DNA of the whole microbiome is extracted and all present genes encoding the 16S RNA are sequenced. This gene is highly conserved, but specific changes in the sequence are characteristic for certain genera [5].



The skin microbiome of the participants was found to be stable in its composition over the duration of the study. Typical representatives of a healthy skin microbiome were identified (top 25 genera displayed). Their average contribution was not impacted over the course of the study neither by the placebo emulsion nor by any product containing UV filters.

CONCLUSIONS

Formulas containing the tested combination of UV filters have no impact on the healthy skin microbiome

Fulfills the customer expectation regarding safe sun care products

It is possible to develop safe cosmetic ingredients that respect and support the natural ecosystems of the human body with their microbiomes

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