

Longitudinal study of the scalp microbiome suggests coconut Lauric to enrich healthy scalp commensals

PROTOCOL

Lauric acid consists of saturated fatty acids and is one of the richest sources of medium chain fatty acids. The major fatty acids present are myristic acid, capric acid, lauric acid,[1] and monolaurin. It also contains phenolic acids and antioxidants such as tocopherol

Preventing protein loss – Due to its low molecular

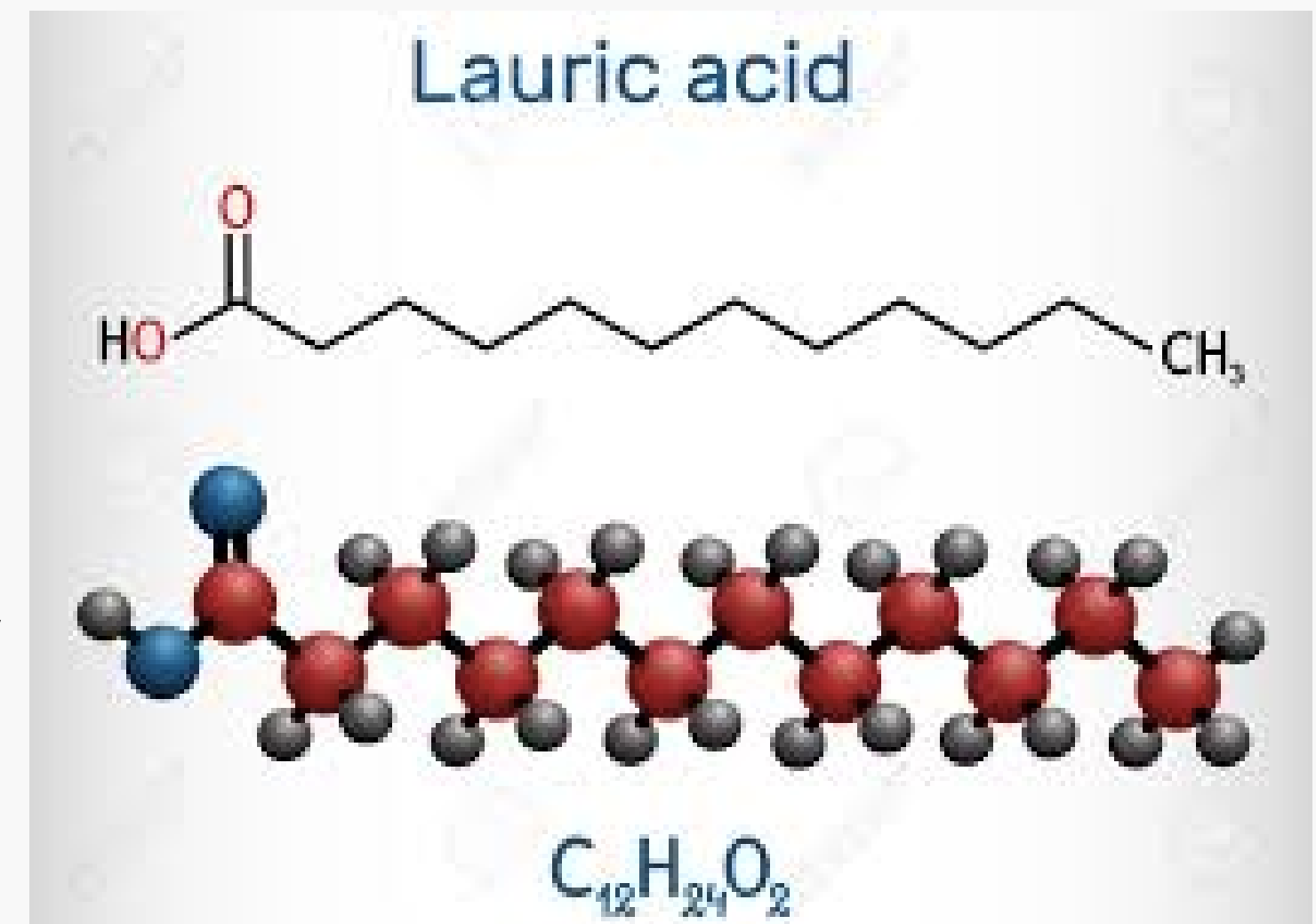
weight and straight linear chain it is able to penetrate inside the hair shaft thereby, preventing loss of protein from the hair. Emollients – Lauric acid forms a coating over the hair shaft, thereby sealing the cuticle and traps the moisture inside

Antibacterial activity – Monolaurin has shown its efficacy as an antibacterial agent. It acts by disintegrating the lipid membrane of different bacteria such as

Propionibacterium acne, *Staphylococcus aureus*,

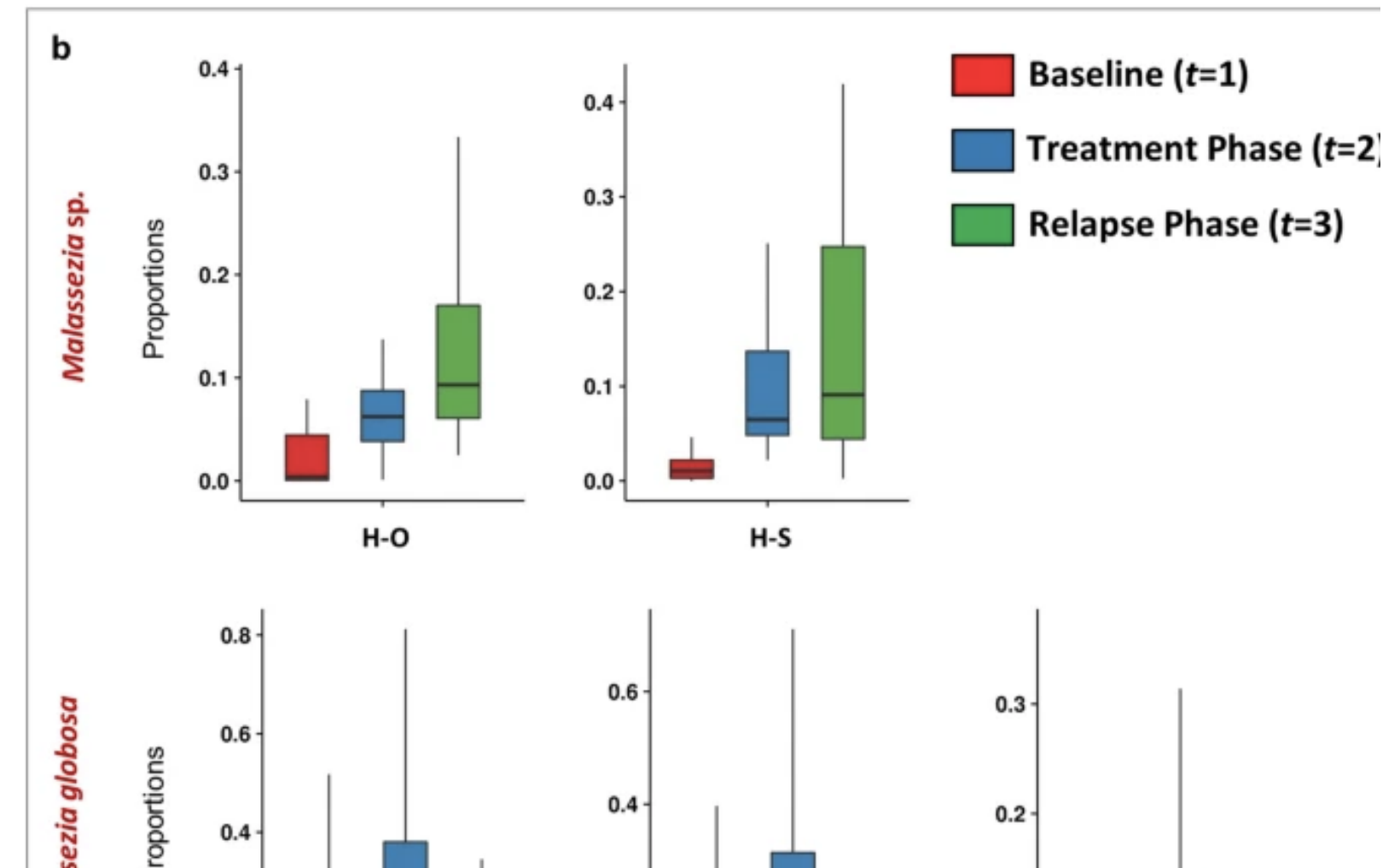
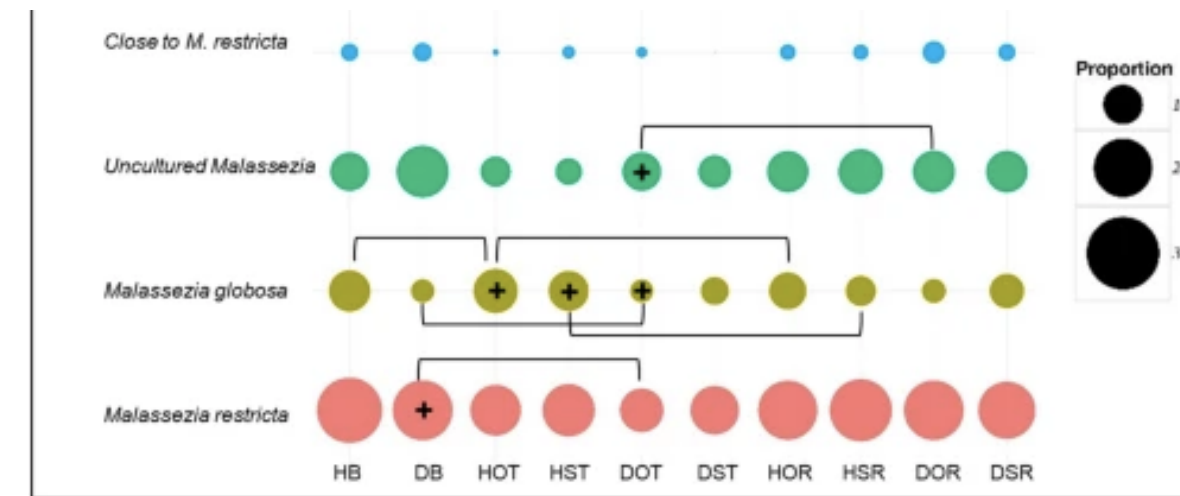
Staphylococcus epidermidis.

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DETAILS - BEFORE/AFTER

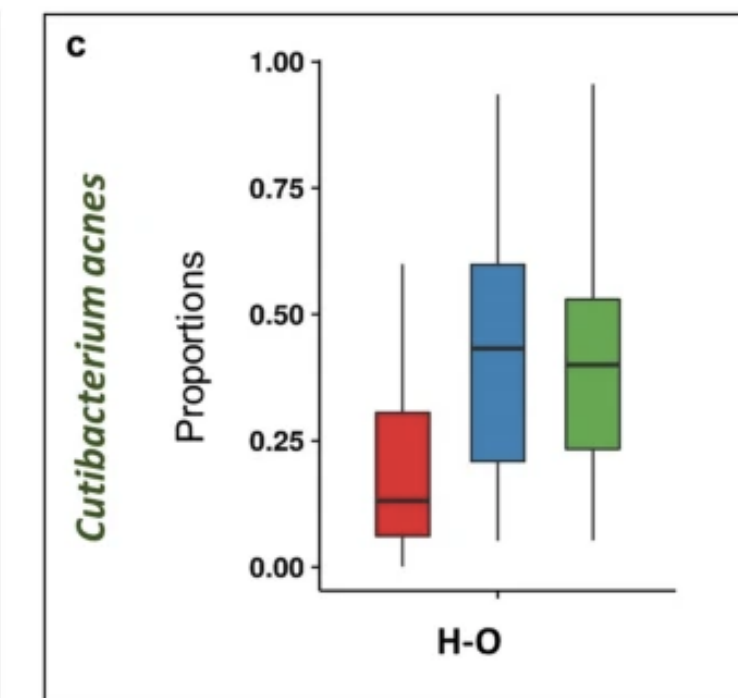
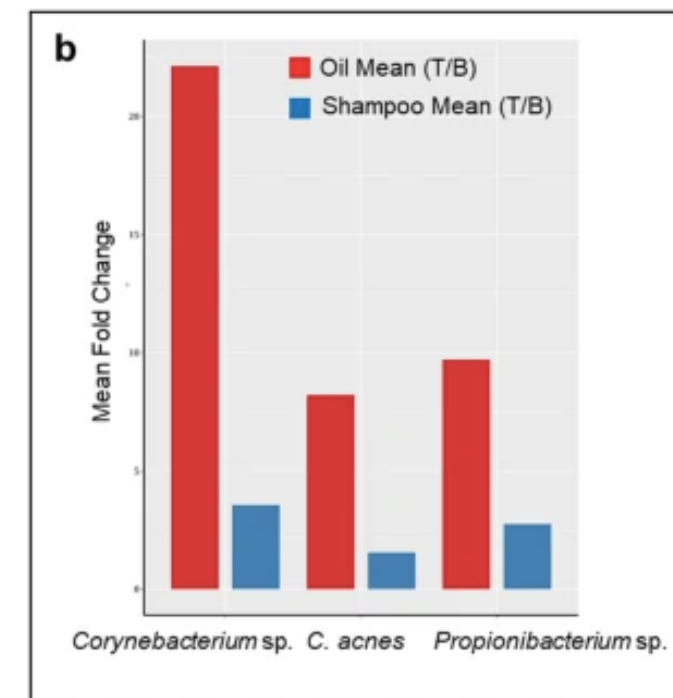
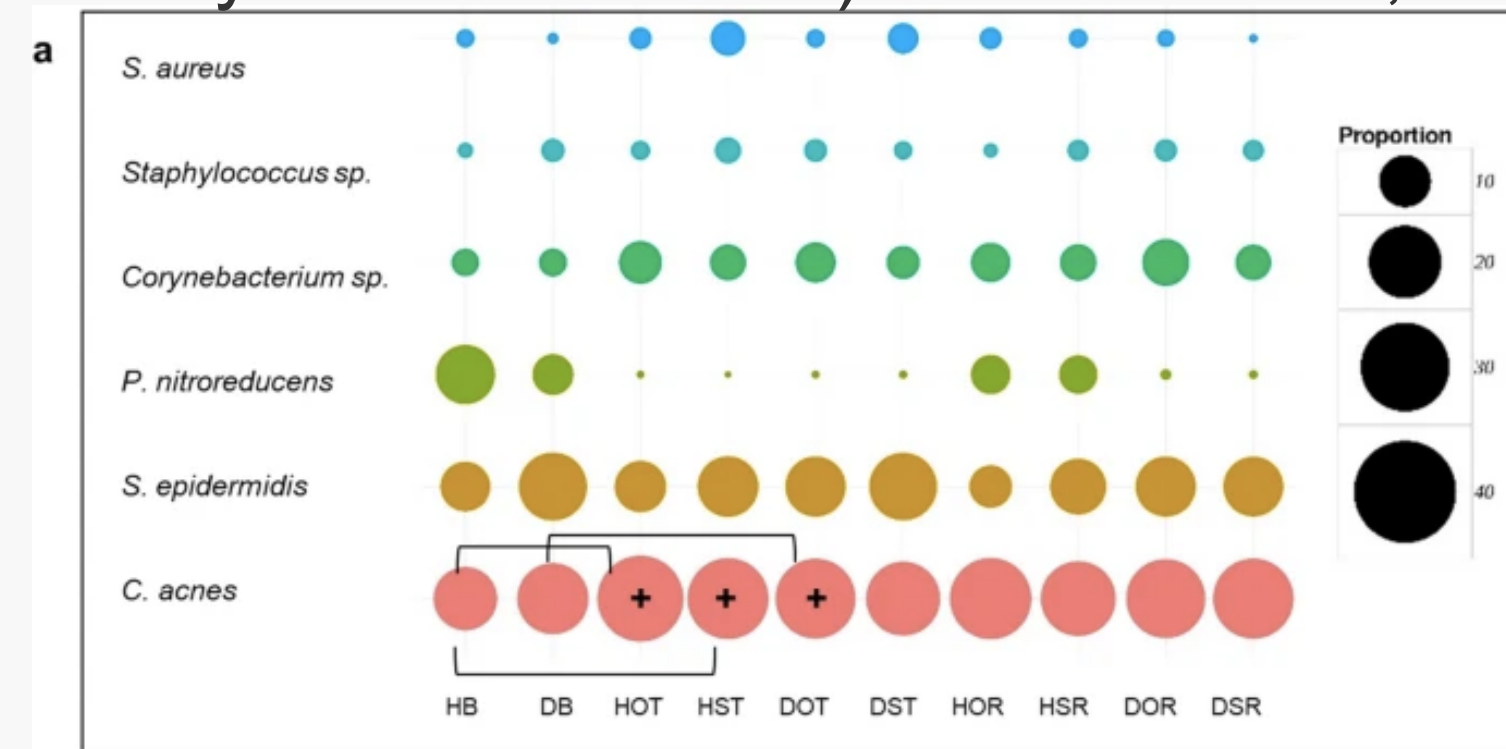
At the functional level, an enrichment of healthy scalp-related bacterial pathways, such as biotin metabolism and decrease in the fungal pathogenesis pathways was observed. The study provides novel insights on the effect of coconut Lauric in maintaining a healthy scalp and in modulating the scalp microbiome.



PROTOCOL

A 16-weeks-long time-course study was performed including 12-weeks of treatment and 4-weeks of relapse phase on a cohort of 140 (70 healthy and 70 dandruff) Indian women, resulting in ~ 900 metagenomic samples

Comparison of bacterial population at the three phases. (a) Bubble plots representing the top five bacterial species across all the groups. The bubble size indicates mean relative abundance of species within each group. Square brackets indicate the groups between which a significant difference in the species abundance was observed ($p \leq 0.05$, Wilcoxon test, + indicates the group with the higher abundance among the two).



SUMMARY

This study demonstrates a positive effect of coconut lauric acid on the scalp microbial communities and their functional potential. We could speculate that microbiome changes are the first step towards the restoration of a healthy scalp that will lead to perceptible benefits to host much later than the time-lines included in this study, and thus provide a long-term benefit