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LETTER TO THE EDITOR

How green are emollients?

Dear Editor,

We live in an era where the impact of climate change is being increasingly felt, and public opinion is shifting towards consciously living in a more environmentally friendly way. Health and the environment are deeply interconnected, with each significantly influencing the other. This intricate relationship is evident in many ways such as the effects of air pollution on atopic dermatitis, and the harm caused by human activity to environmental health. Healthcare systems have a huge impact on climate change and are responsible for 4% of global emissions.[1] Dermatology is unique as a specialty in that large quantities of topical treatments are used. Some studies have looked at the environmental consequence of topical product packaging,[2,3] but few have looked at their constituents. In the clinical setting, patients are asking more questions about product sustainability.

Emollients are essential components of many skincare regimens. While they offer significant benefits for skin health, the production, distribution and disposal of emollients have notable environmental challenges. Petrolatum and mineral oil based emollients are frequently prescribed for their highly efficacious occlusive and hydration properties, however they are derived from fossil fuels. Their extraction and refinement are energy-intensive processes that contribute to greenhouse gas emissions. A portion of the world's squalene comes from shark liver oil, which over the last decade led to overfishing of sharks for the coveted substance; *squalus* being a genus of shark.[4] Palm oil and its many useful derivatives including glycerine, have also come under heavy scrutiny because of their contribution to tropical deforestation and biodiversity loss.[5] Silicones have exceptional physicochemical and sensory properties; linear dimethicone with its smooth, non-tacky feel, and cyclic cyclomethicones helpfully increase volatility of substances. However silicones have low biodegradability, leading to concern regarding bioaccumulation in aquatic ecosystems. Volatile cyclomethicones octamethylcyclotetrasiloxane (D4) and decamethylcyclopentasiloxane (D5) have been banned from wash-off cosmetic products in the European Union (EU) for the protection of the environment.[6]

Mitigating the environmental impact of emollient ingredients involves several strategies. Green chemistry (principles that reduce production of hazardous materials), upcycling of agri-food waste such as used coffee-grounds, and use of fair-trade materials are empowering the sustainability movement. Non-profit organisations safeguarding natural resources are strengthening, such as the Roundtable on Sustainable Palm Oil and the Roundtable on Responsible Soy. Bioengineering is identifying ways to substitute unsustainable materials. Squalene is present, albeit in smaller quantities, in plants (phytosqualene) such as olives, and recent advancements have also led to its derivation from microbial fermentation.[4] Fossil-fuel derived hydrocarbons are proving more difficult to replicate sustainably but small studies of vegetable oils are showing comparability.[7] While substitutions for unsustainable conventional ingredients are greatly anticipated, factors such as cost and commercial availability are rate-limiting to progress, and we must reconcile environmental responsibility with patient care.

For dermatology patients, it is essential to continue using emollients despite environmental challenges. By maintaining skin hydration and integrity, their benefits to skin health are profoundly significant. Furthermore, turning to smoking, alcohol, or cannabis to ease the discomfort of poorly managed skin can have far more detrimental effects on both personal health and the environment, due to pollution, resource use, and the broader ecological footprint of producing and consuming these substances. Seeking more eco-friendly emollient options is a better approach for both individual well-being and environmental responsibility.

Dermatologists have a role to play in advocating for sustainable practices within the skincare industry and can be powerful leaders in mitigating the environmental impact of topical products. By prioritising and promoting products that are more sustainably produced, dermatologists can influence both consumer choices and industry standards. By leveraging their expertise and authority, dermatologists can inspire a shift towards more eco-conscious practices when it comes to skincare, ensuring a healthier planet alongside healthier skin.

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Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

ETHICS STATEMENT

Not applicable.

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A review of the environmental impact of common emollient ingredients.

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