The Silent Sabotage: Cosmetics vs. the Skin Microbiome

Hsu, Jessica (School: The Meadows School)

Previous studies have provided insights using quantitative measurements and controlled animal models, primarily focusing on persistent chemicals such as PFAS rather than the broader spectrum of ingredients present in everyday cosmetics. This leaves a gap in understanding how chemicals in personal care products may directly alter the microbial bacteria balance and community on the skin. Here, the study examined how methylparaben and phenoxyethanol, two common preservatives used to extend shelf life, affect the growth and diversity of Staphylococcus epidermidis and Micrococcus luteus, bacteria found on the skin. Different concentrations of the preservatives were incorporated into nutrient agar plates and bacterial growth was measured both qualitatively, using observations of the colony, and quantitatively, using a colony counter. What was observed was that higher concentrations of the preservatives affect the growth and development of bacterial colonies. Observable changes in colony size and density suggested that preservative exposure may alter bacterial development and potentially disrupt microbial balance. The results suggest that high-concentration exposure to commonly used preservatives may affect beneficial skin bacteria. Findings from this study could potentially help with the reformulation of products to have ingredients that are more compatible with the skin microbiome or have concentrations that are safe for the skin microbiome. On a broader scale, the study could raise consumer awareness of the importance of skincare choices and encourage product reformulations or regulatory guidelines that prioritize skin microbiome health, ultimately leading to safer practices among skincare companies.

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