Evaluating the Performance of Natural and Commercial Moisturizers for Dry Skin: A Study Using Agar Agar Skin Model

Velmurugan, Vignesh (School: Cherry Creek High School)

The importance of dry skin and moisturization is evident in its impact on skin health and quality of life, particularly in dry and low humid environments like Colorado. Moisturization is essential for maintaining skin elasticity, viscoelasticity, and differentiation, and its deficiency can cause various skin disorders. Oils and lotions are commonly used to prevent water loss and break the dry skin cycle. This project aims to compare the effectiveness of homemade and commercial moisturizers on a human skin model using Agar to determine the best moisturizer for keeping dry skin moist. For this study, we created a home-made lotion with combination of carrier oils (Neem, Castor, Coconut, Gingelly, and a blend of all four oils), humectants, occlusives, and emollients to moisturize the skin. We compared the effectiveness of our home-made moisturizer with various commercial moisturizers, including Lubriderm, Aveeno, Vaseline, and petroleum jelly using Agar skin model in a petri dish. We measured the loss of water over time by weighing all the petri dishes, including the control group without moisturizers, and observed the change in height of the agar in the dish. In this study, we found that the homemade lotion made from a blend of neem, castor, coconut, and gingelly oils was more effective than the other commercial moisturizers tested in maintaining the skin moisture. The results were supported by height and weight measurements of the petri dishes, as well as digital moisture monitoring, which showed that the combination of oils was able to retain skin hydration for a longer duration. Further research is needed to confirm these findings and to determine the best combination of ingredients for different skin types.

Awards Won: