

## ABSTRACT

The corneocytes hold a role in skin moisturizing due to Natural Moisturizing Factor (NMF) possession. This hygroscopic component, mainly composed of free amino acids, is the result of filaggrin protein degradation and is proportionally produced as the skin gets moisturized. Moisturizer is thought to improve skin moisture through its ingredients. Previous research experimented with skin gene expression towards moisturizer application, but no end-product measurement was done. Hence, the evaluation of the moisturizer was done through the amino acids of NMF. In a controlled study on seven participants, the study was conducted for one month of moisturizer treatment on the right forearm, whereas the left forearm remained untreated. Stratum corneum (SC) layer, collected by D-squame® adhesive tape, was used for amino acid evaluation and RT-qPCR. Ninhydrin reagent was used to detect the free amino acids. The FLG and LOR were the genes of interest for the study. The amino acids were increasing in both groups, but improvement in skin structure was seen after moisturizer application. Unfortunately, the genes were not expressed significantly. Low water activity inside corneocytes of dry skin influences excessive filaggrin degradation into NMF but might halt CE formation. Adequate NMF production in moisturized skin and osmotic pressure were assumed to cause amino acid loss. The insignificant gene expression presumably happened due to skin cells' life cycle and different types of cells in the epidermis. A prolonged treatment period and immunofluorescence standardization should be conducted for a significant result. A standardized pressure during sample collection should also be considered.

**Keywords:** Natural moisturizing factor, filaggrin, moisturizer, skin moisturization, tape stripping