A relationship of human skin surface characteristics and polarized light digital photography

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Using a polarized light source parallel to another polarizer of a camera, skin surface details can be photographed due to the more pronounced reflected lights. Parallel-polarized light (PPL) photography would be a useful tool for assessment of skin surface morphology. However, quantitative and objective investigations of PPL photography for dermatologic purpose were scarce in this regard. The aim of this study was to find a significance of quantitative analysis of PPL photography in various conditions of human skin surface to develop quantitative and objective assessment methods of the skin surface characteristics. For PPL photography, digital camera, light emitting diode (LED) illuminator and polarizing filters was arranged and kept constant. From January 2009 to February 2009, forty four healthy Korean subjects of various ages were photographed in a consistent way. We analyzed the PPL photography images of the glabella, medial aspect of forearm and posterior aspect of lower leg and calculated CIELAB values, i.e. L*, a* and b*. A dermatologist evaluated clinical severity of the actual photographed sites in regard to glossiness and dryness. The sites of glabella were evaluated for glossiness in a likert-like scale and those of forearm and lower leg for dryness in the xerosis severity scale. These clinical severities were compared statistically with CIELAB values.