

OR-34**Depigmenting Efficacy of Commercially Available Skin-Lightening Creams: Comparative Analysis and *In-Vivo* Evaluation**

Saeed-ur-Rashid Nazir and Muhammad Rehan

Faculty of Pharmacy, University of Sargodha, 40100, Sargodha, Pakistan

In this ever-advancing global world, people are mindful to beauty and well-being. As a result, the market share of beauty products is increasing radically. Therefore, several skin-lightening products are commercially on hand to get lighter skin tone. Clinically, such creams are prescribed to treat hyper pigmentation disorders [1]. Even in the cosmetics market, numerous functional products such as those developed for skin moisturizing, skin whitening, wrinkle care and anti-ageing have been launched. The misleading advertisements and irrational use of such creams often leads to adverse consequences to human skin. For that reason, the aim of this study was to assess the depigmenting efficacy of branded skin-lightening creams *in-vivo* (human). Owing to this, four branded creams were used, coded as P-1, P-2, P-3 and P-4. Prior to *in-vivo* evaluation, physicochemical characterization and *in-vitro* stability studies of all the creams were performed to ensure the quality of the creams. *In-vivo* evaluation of the creams was carried out in 36 healthy human volunteers. The volunteers were screened for any reaction to cream using patch test (Burchard test). The creams were applied on cheeks twice a day for 8 weeks. The skin measurements for melanin, erythema, sebum content and trans epidermal water loss (TEWL) were recorded using mexameter, sebumeter and tewameter respectively. In addition, increase in skin moisture content was measured using corneometer. The measurements were taken at the end of week 1, 2, 3, 4, 5, 6 and 8. Lastly, panel test was conducted to assess the volunteers' sensory evaluation of the creams. The results of physicochemical characterization and stability analyses recommended that the creams were suitable for skin application at room temperature. The pH values of all the creams were found to be at 6 ± 0.5 , which were almost same as the pH of the skin. All volunteers passed the screening test as no hyper-sensitivity to the tested creams was observed. The results of *in-vivo* evaluation of creams are shown in figure 1. As evident from the figure, P-1 and P-4 exhibited maximum reduction in skin melanin contents. Likewise, P-1 also exhibited worth mentioning efficacy in controlling erythema and transepidermal water loss. On the other hand, the skin sebum content was best controlled by P-4 signifying that P-4 could be more suitable for individuals with oily skin. The skin moisture content was increased by 21.0 % by P-1 recommending its use suitable for dry skin. Hence, it can be concluded from the results that P-1 was the most suitable skin-lightening cream, with additional advantages of increasing skin hydration and controlling skin sebum content.

REFERENCES

- [1] Gillbro JM, Olsson MJ. The melanogenesis and mechanisms of skin-lightening agents – existing and new approaches. *Int J Cosmet Sci* 2011; 33: 210-21.
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