

Skin and eye irritation assessment of oil palm (*Elaeis guineensis*) leaf extract for topical application

ABSTRACT

Many types of phytochemicals have been found to be present in oil palm leaf and could potentially be used as functional ingredients for skincare product. However, as of today, there is no published report on hazard identification and safety assessment of oil palm (*Elaeis guineensis*) leaf extract (OPLE), particularly on skin and eye irritation. In this study, potential hazard of OPLE on skin and eye irritation was evaluated as an initial step to the safety assessment of OPLE. In vitro cell viability study of OPLE on normal human dermal fibroblasts showed that OPLE was nontoxic to the cells with percentage viability more than 90% after 24 and 48 hours of incubation. Skin irritation potential of OPLE was evaluated using in vitro SkinEthic reconstructed human epidermis (RHE) model (Organization for Economic Cooperation and Development [OECD] Test Guideline 439, 2015), while eye irritation potential was evaluated using in vitro SkinEthic Human corneal epithelium (HCE) model (OECD test guideline 492, 2017). Hazard identification results showed that OPLE at 1%, 5%, and 10% (wt/wt) was classified as nonirritant to the skin and eye where mean tissue viabilities of SkinEthic RHE and SkinEthic HCE were more than 50% and 60%, respectively. Therefore, we recommend a further safety assessment, such as human patch testing, to confirm the nonirritant of OPLE.

Keyword: Cell viability; Hazard identification; In vitro eye irritation; In vitro skin irritation; Oil palm leaf extract