Abstract

Atopic dermatitis (AD) is a multifactorial chronic relapsing inflammatory skin disease characterized by flares of pruritic lesions, rashes and lichenification. Skin barrier and immune barrier dysfunction, grouped with genetic predisposition all contribute to the development of AD. Available medications with the purpose of mitigating symptoms and exacerbations provide surface-level therapeutic effects, and can lead to various undesirable side effects such as atrophy, stretch marks, and rosacea. Therefore current studies in this field of research have aimed to create novel drugs using natural products to treat AD that will yield effective results without the unwanted side effects. This study investigates the effects of *C. inophyllum* ethanol-immiscible extract (EIE) on major AD-related inflammatory genes *IL-33*, *IL-25*, *TSLP*, *TARC*, *MDC*, AND *CTACK* and skin barrier genes *FLG* and *IVL* in TNF-α and IFN-γ-induced HaCaT, in which EIE was shown to decrease the expression of *IL-33*, *TLSP*, *MDC*, and increase the expression of *FLG* and *IVL*. Thus, there is potential for tamanu oil as a therapy for AD as it has shown to exert anti-inflammation and skin barrier repair effects. Further studies may be done to confirm the effect of EIE on *IL-25*, *TARC*, and *CTACK*.

Keywords: *Calophyllum inophyllum*, tamanu oil, atopic dermatitis, gene expression, ethanol-immiscible extract, HaCaT