

ABSTRACT

Skin inflammatory disease such as psoriasis and atopic dermatitis still remains a major problem because of their chronic nature. Treatments for atopic dermatitis and psoriasis has been solely focused on symptom management. Recently, it has been reported that phytochemical compounds from *Calophyllum inophyllum* seed possesses anti-inflammatory activities. However, little is known about its anti-inflammatory effect to treat skin inflammatory diseases such as atopic dermatitis and psoriasis. Thus, the objective of this study is to determine the anti-inflammatory activity of *Calophyllum inophyllum* extract in TNF- α Induced Human Keratinocyte (HaCaT). First, *Calophyllum inophyllum* extraction was done using ethanol, methanol and n-Hexane solvent to obtain three different *Calophyllum inophyllum* extract (CIE). Then, MTT assay was performed to determine the cytotoxicity of ethanol, methanol and n-Hexane CIE and cytotoxicity was not observed up to 200 $\mu\text{g}/\text{mL}$ concentrations. CIE ethanol and methanol extract was able to reduce HaCaT proliferative activity caused by TNF- α and protect cells from apoptosis. Meanwhile, CIE hexane extract showed both cell proliferation when treated to HaCaT alone, and showed reduction in HaCaT hyperproliferative activity in TNF- α induced cells. The CIE hexane extract was capable of decreasing mRNA expression of pro-inflammatory cytokines IL-6 and TNF- α in a concentration dependent manner. Therefore, CIE extract could be a potential candidate to treat atopic dermatitis and psoriasis.

Keywords: *Calophyllum inophyllum*, Atopic Dermatitis, Psoriasis, Anti-inflammatory