Abstract

Physalis angulata and *Vitex trifolia* extracts have shown an antioxidant activity that could potentially protect human skin from the exposure of UVB radiation. Although both of the extracts have a protective effect, previous studies have not fully addressed the antioxidant effect of both extract in which it remains as a research gap. To fulfill the research gap, this study compared the photoprotective effects of both extracts on UVB-exposed HaCaT cells by focusing on their antioxidant properties. During the total phenolic content (TPC), *Physalis angulata* extract exhibited higher total phenolic content (TPC) with a value of 377.62 ± 0.01 mg QE/g compared to *Vitex trifolia* extract. However, *Vitex trifolia* extract demonstrated a higher total flavonoid content (TFC) with 1.99 ± 0.02 mg QE/g and a stronger antioxidant profile with an IC_{50} of 92.23 ± 0.1 ppm in the DPPH assay. Hence, *Vitex trifolia* extract also showed a broader protective concentration range (12.5–50 ppm) against UVB-induced oxidative stress compared to *Physalis angulata* extract. By these results, the *Vitex trifolia* extract showed a wider cytoprotective effect in the overall experiment. Moreover, the future study may study the mechanism of the antioxidant properties of both extracts that could possibly affect the photoprotective effect of the extract since it could not be done in this study.

Keywords: *Physalis angulata* extract, *Vitex trifolia* extract, UVB-induced damage, human keratinocytes

(HaCaT cells), photoprotective activity