ABSTRACT

Erythema, or skin reddening, is a prominent manifestation of ultraviolet (UV) radiation exposure. Indonesia, rich in medicinal plant biodiversity, has long utilized natural resources for preventive, promotive, rehabilitative, and palliative healthcare. *Physalis angulata* L., commonly known as ground cherry or ciplukan, is traditionally used to treat various skin conditions, including scabies, and is believed to promote skin regeneration due to its antioxidant properties. Among the major antioxidant compounds in plants are phenolics. This study aims to find the correlation between phenolic content and SPF of *Physalis angulata* L. calyx extract.

In this study, phenolic compounds from ground cherry calyces were extracted using ethanol at varying concentrations (96%, 70%, 50%, 20%, and 0%) to account for differences in compound polarity by maceration. Total phenolic content (TPC) was determined colorimetrically using the Folin–Ciocalteu method, while sun protection factor (SPF) values were evaluated using a UV-Vis microplate reader. The TPC and SPF values of each extract were quantified, and their correlation was assessed.

The highest TPC and SPF values were obtained from the 70% ethanol extract, measuring 2.089 ± 0.065 mg GAE/g sample and 1.307 ± 0.021, respectively. A very strong positive correlation was observed between TPC and SPF values (correlation coefficient = 0.935, p = 0.000), indicating that phenolic compounds in *Physalis angulata* L. may contribute significantly to its photoprotective activity. The study demonstrated a strong positive correlation between total phenolic content and SPF value, indicating that phenolic compounds may significantly contribute to the extract's UV-protective activity.

Keywords: Phenolic, Ground cherry, *Physalis angulata* L., SPF