Abstract

Five local plants grown on the highland in Northern Thailand were selected for evaluating the suppression activity of hypertrophic scar formation. They were *Bidens Pilosa L., Amaranthus viridis* L., *Equisetum debile* Roxb., *Camella sinensis* var. assmica and *Butea monosperma* Lam. Taub., which were collected during November and December, 2014. The appropriate part of each plant was used and extracted using ethyl alcohol. They were subsequently semi-purification by liquid-liquid extraction. The crude extract and ethanolic fraction *of Butea monosperma* Lam. Taub. showed the high content of total phenolic and total flavonoid. The crude extract and the ethanolic fraction of all plants at 25-200 μg/mL had negligible toxic effects on fibroblast and keratinocyte (HaCaT) cell line. The inhibition activity of the extracts on TGF-β_1 production stimulated by interferon-γ was determined using keratinocyte cell line (HaCaT). It was shown that the crude extract and the ethanolic fraction of *Camella sinensis* var. *assmica* and *Butea monosperma* Lam. Taub. exhibited the good comparable effect on suppression the stimulated TGF-β_1 production. As the source of *Camella sinensis* var. *assmica* is more available for pilot scale extraction, the topical cream containing 2.0% crude extract of *Camella sinensis* var. *assmica* were developed. For product esthetic point of view, chlorophyll was isolated from the crude extract of *Camella sinensis* var. *assmica*. The gel preparation was therefore prepared consisted of 0.5% of the de-chlorophyll extract. Both products showed acceptable physical appearance with optimal consistency and pH values. The suppression activity of hypertrophic scar formation of the developed cream and gel preparations compared to the commercially available product reference-1 was carried out using the inhibition effect on stimulated TGF-β_1 production. It was found that the developed products showed comparable effect to the commercial one. According to the accelerated stability study, the gel preparation was more stable than the cream. The color change in gel was minimal as well as the amount of total phenolic and total flavonoid content was rather unchanged. From satisfactory test, the subjects were more satisfied the gel preparation than the cream preparation. The satisfaction score at rating of very good and good for gel and cream preparation were 90% and 70% respectively. No sign of irritation was evidenced in normal volunteers after the irritation test.