

ABSTRACT

Second-degree burns are skin injuries involving damage to the epidermis and part of the dermis, requiring effective therapeutic management. Conventional treatment such as silver sulfadiazine is widely used but may cause adverse effects with prolonged application. Centella asiatica (L.) Urban leaves are known to contain bioactive compounds that support wound healing. This study aimed to evaluate the effectiveness of ethanol extract of Centella asiatica leaves and its film forming spray formulation in the healing of second-degree burns, and to compare their effectiveness with positive and negative control groups.

The study was initiated by preparing an ethanol extract of Centella asiatica leaves followed by phytochemical screening to identify secondary metabolite compounds. The extract was then formulated into a film forming spray and evaluated for its physical characteristics. The wound healing activity was assessed in vivo using an animal model with second-degree burns. Wound diameter reduction and percentage of wound healing were observed on several observation days. Data were analyzed using non-parametric statistical tests, namely the Kruskal–Wallis test followed by the Mann–Whitney post hoc test.

The results showed that the ethanol extract of Centella asiatica leaves contained flavonoids, saponins, and triterpenoids. The film forming spray formulation exhibited good and stable physical characteristics. Statistically significant differences among treatment groups were observed on day 4 and day 13. The film forming spray containing 25% ethanol extract demonstrated a higher percentage of wound healing compared to the gel formulation with the same extract concentration. In conclusion, the film forming spray delivery system enhances the effectiveness of Centella asiatica ethanol extract in accelerating the healing process of second-degree burns.

Keywords: *second-degree burn, Centella asiatica, film forming spray, wound healing, ethanol extract*