

Pharmacological properties of *Centella asiatica* hydrogel in accelerating wound healing in rabbits

ABSTRACT

Background: Various extracts of *Centella asiatica* (Apiaceae) and its active constituent, asiaticoside, have been reported to possess wound healing property when assessed using various in vivo and in vitro models. In an attempt to develop a formulation with accelerated wound healing effect, the present study was performed to examine in vivo efficacy of asiaticoside-rich hydrogel formulation in rabbits. Methods: Asiaticoside-rich fraction was prepared from *C. asiatica* aerial part and then incorporated into polyvinyl alcohol/polyethylene glycol (PVA/PEG) hydrogel. The hydrogel was subjected to wound healing investigation using the in vivo incision model. Results: The results obtained demonstrated that: i) the hydrogel formulation did not cause any signs of irritation on the rabbits' skin and; ii) enhanced wound healing 15% faster than the commercial cream and > 40% faster than the untreated wounds. The skin healing process was seen in all wounds marked by formation of a thick epithelial layer, keratin, and moderate formation of granulation tissues, fibroblasts and collagen with no fibrinoid necrosis detected. Conclusion: The asiaticoside-rich hydrogel developed using the freeze-thaw method was effective in accelerating wound healing in rabbits

Keyword: Asiaticoside; *Centella asiatica*; Apiaceae; Hydrogel film; Wound dressing; Wound healing; PVA/PEG