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Pharmacological properties of Centella asiatica hydrogel in accelerating wound healing in rabbits (Article) [\(Open Access\)](#)

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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. © 2019 The Author(s).

SciVal Topic Prominence

Topic: [Centella](#) | [Acids](#) | [Centella asiatica](#)

Prominence percentile: 90.121



Author keywords

[Apiaceae](#) [Asiaticoside](#) [Centella asiatica](#) [Hydrogel film](#) [PVA/PEG](#) [Wound dressing](#) [Wound healing](#)

Indexed keywords

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Asiaticoside nitric oxide gel accelerates diabetic cutaneous ulcers healing by activating Wnt/ β -catenin signaling pathway

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EMTREE drug terms: asiaticoside collagen keratin macrogol polyvinyl alcohol Centella asiatica extract triterpene

EMTREE medical terms: aerial plant part animal cell animal experiment animal model animal tissue Article biocompatibility Centella asiatica controlled study drug efficacy drug formulation drug safety epithelization fibroblast freeze thawing granulation tissue hydrogel in vivo study male necrosis New Zealand White (rabbit) nonhuman skin epithelium skin irritation wound wound healing administration and dosage animal Centella chemistry drug effect human hydrogel injury Leporidae pathophysiology wound healing

MeSH: Animals Centella Humans Hydrogels Male Rabbits Triterpenes Wound Healing Wounds and Injuries

Chemicals and CAS Registry Numbers:

asiaticoside, 16830-15-2; collagen, 9007-34-5; macrogol, 25322-68-3; polyvinyl alcohol, 37380-95-3, 9002-89-5; Centella asiatica extract; Hydrogels; Triterpenes

Manufacturers:

Drug manufacturer:

Sigma Aldrich, United States

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