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Preparation of euyrycoma longifolia Jack (E.L) Tongkat Ali (Ta) root extract hydrogel for wound application

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Abstract

Background: It is undeniable that a lot of patients worldwide suffer from different types of wounds. The complex process of wound healing has a severe effect on the life quality of patients as well as causing an economic load on healthcare institutions. Although the availability of various therapies for managing patients with acute and chronic wounds for the past decade, these therapies are usually expensive and accompanied by undesirable side effects. Hence, the discovery of a new arsenal for wound healing remains a hot topic of research. Recently, plants and their by-products have garnered remarkable attention as a source of therapeutic agents to treat wounds. This is because medicinal plants provide a rich reservoir of phytochemicals that could potentially become affordable and effective therapeutic agents. Eurycoma longifolia Jack or Tongkat Ali (TA), is one of the well-known traditional plants of Malaysia, it has been scientifically proven to have medicinal properties. Hydrogels

are hydrophilic polymer networks that can imbibe a significant number of fluids. In comparison to other systems developed for herbal medicines delivery, a unique power possessed by hydrogels is the high-water absorption ability. This ability has favoured the loading of herbal formulations, which are in general hydrophilic in nature, into hydrogels. Objective: The aim of this study is to prepare Eurycoma longifolia Jack (E.l.J) Tongkat Ali (TA) roots hydrogel for wound application. Methods: Authentication of Eurycoma longifolia Jack roots was done by microscopic examination using methylene blue and Lugol's iodine solution. Root extraction by Soxhlet technique. In vitro cytotoxicity of ethanol extract of the roots was evaluated in human primary gingival fibroblasts cells. The ethanolic extract was loaded into hydrogel as a suitable dosage form for further wound healing studies. Results: The crude herbal drug sample, TA present the same microscopical characters to that of E. longifolia Jack tap root. Ic50 was 118.5 µg/mL. The hydrogel was prepared using 2% xanthan gum and ethanol extract of TA was loaded successfully for its later application as a wound healing agent. © 2021 Phcogj.Com.

Author keywords

Eurycoma longifolia Jack; Hydrogel; Microscopic examination

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