Antioxidant, antibacterial and in vivo dermal wound healing effects of Chenopodium formosanum-loaded hydrocolloids

Po-Hsien Li, Wen-Chien Lu, Da-Wei Huang

E-mail: pohsien@mail.dyu.edu.tw

ABSTRACT

Chenopodium formosanum, a native cereal plant in Taiwan, are used for various medicinal purposes. The aims of the present investigation were to evaluate biological properties of C. formosanum-loaded hydrocolloids and to investigate its antioxidant and antibacterial activities and its ability to enhance wound healing. The wound healing activity of ethanol extracts of C. formosanum-loaded hydrocolloids were assessed using excision wound model in rats. After thirteen days of treatment by both extracts, a beneficial effect on cutaneous repair was observed as assessed by the acceleration of wound contraction and remodeling phases. Histopathological studies of the granulation tissue indicated that the derma is properly arranged with the C. formosanum extract, compared with the control group. Such investigation was supported by the efficiency of the C. formosanum-loaded hydrocolloids as antimicrobial and antioxidant. Indeed, the C. formosanum-loaded hydrocolloids showed a potential antioxidant activity determined by different test systems, namely DPPH radicals scavenging activity, trolox equivalent antioxidant capacity, reducing power, β-carotene bleaching assay and metal chelating activity and exhibited significant antibacterial activity against almost all tested bacteria.

Keywords: 

REFERENCES