Potential Activity of Aqueous Extract of Culinary-Medicinal Lion’s Mane Mushroom, *Hericium erinaceus* (Bull.: Fr.) Pers. (Aphylloporophoromycetideae) in Accelerating Wound Healing in Rats

Mahmood Ameen Abdullah,1 Atieh Abdollahi Fard,2 Vikineswary Sabarathnam, Sakunthala Devi,2 Umah Rani Kuppusamy,1 Noorilah Abdulloh,3 & Salmah Ismail1

1Department of Molecular Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur; 2Institute of Biological Sciences, Faculty of Science, University of Malaya, Kuala Lumpur

ABSTRACT: This study was conducted to evaluate the effects of topical application of aqueous extract of *Hericium erinaceus* fruiting bodies (HEFB) on the rate of wound healing closure and histology of the healed wound. Five groups of male Sprague-Dawley rats were experimentally wounded in the posterior neck area. A uniform wound area of 2.00 cm in diameter, using a circular stamp, was excised from the nape of the dorsal neck of all rats with the aid of a wound seal. The animal groups were topically treated, respectively, with 0.2 ml each of sterilized distilled water (sDH, O), Intralise gel; and 20, 30, and 40 mg/ml HEBF. Macroscopically, those rats whose wounds were dressed with HEBF and those in the Intralise gel-treated group healed earlier than those treated with sDH, O. Histological analysis of healed wounds treated with HEBF showed less scar width at wound enclosure and the healed wound contained fewer macrophages and more collagen with angiogenesis, compared to wounds treated with sDH, O. In conclusion, wounds dressed with HEBF significantly enhanced the acceleration of wound healing closure in rats.

KEY WORDS: medicinal mushrooms, *Hericium erinaceus*, wound healing activity, Intralise gel, histology, macrophages, collagen

ABBREVIATIONS: HEBF: *Hericium erinaceus* fruiting bodies; IL: interleukin; iNOS: inducible NO synthase; NF-kB: nuclear factor kappa B; NK: natural killer; NO: nitric oxide; sDH, O: sterilized distilled water; TGF: transforming growth factor

I. INTRODUCTION

Wound healing is the process of repair that follows injury to the skin and other soft tissues. The wound healing process can be classified as inflammation, fibroplasia, neovascularization, collagen deposition, epithelialization, and wound contraction. It is acknowledged that wound repair is an immune-mediated physiologic mechanism. Wound healing, or wound repair, is an intricate process in which the skin repairs itself after injury. The Lion’s Mane culinary-medicinal mushroom, *Hericium erinaceus* (Bull: Fr.) Pers. (Hericaceae, Aphylloporophoromycetideae) is a well-known edible and medicinal mushroom, and has been shown to have profound health-promoting benefits for humans. Mushrooms have long been valued as traditional foods of high nutritional value compared to favorable with that of meat, eggs, and milk, their therapeutic efficacy and identified many of the bioactive molecules. Several species of edible mushrooms have been shown to possess wound healing activity. *H. erinaceus* contains many biologically active compounds, such as promotion of the synthesis of nerve growth factor, curing gastric ulcer and chronic gastritis, cytotoxic effects, hypo- lipidemic effects, and antineoplastic activity; antiaging effects; antimicrobial effects; and antioxidant properties; and immunoregulatory function. In Malaysia, HEBF was used traditionally in rural ar-