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Low Dose Stingless Bee Honey Increases Viability of Human Dermal Fibroblasts That Could Potentially Promote Wound Healing.

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Abstract

Wound healing is a series of complex coordinated events involving a number of cellular and molecular components. Dermal fibroblast is one of the key players in wound healing physiology, contributing in key processes within the phases of wound healing. Data on the clinical efficacy of honey in wound healing is well established. Stingless bee is a subspecies of honey-producing bee, abundant in warm humid climate. While majority of the research in wound healing, focus on the honey produced by the sting bee (*Apis mellifera*), little is known of the stingless bee (*Trigona sp.*) honey. This study seeks to evaluate the effect of freeze-dried stingless bee honey on the cell viability and proliferative capacity of dermal fibroblast. Dermal fibroblast viability and proliferation will be evaluated via MTT assay, microscopic evaluation and cell cycle analysis. Short-term exposure of dermal fibroblasts to different honey doses revealed a multimodal pattern of increase in cell viability at the honey dose of 0.024, 200, and 6400 µg/ml. Treatment of the selected honey dose to dermal fibroblast proves to be non-toxic under microscopic evaluation and MTT assay. The selected dose of honey improves proliferation and did not alter normal cell cycle progression in dermal fibroblast. The positive effect that honey has on the cell viability and proliferation of dermal fibroblast suggested the capability of stingless bee honey to improve wound healing.

Keywords: honey; stingless bee; wound healing; dermal fibroblast; viability; proliferation.

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