

## Seventh paper

### **A Comparative Study on the Effect of Two Topical Formulations of Bee Propolis Cream in Ordinary and Nano Form on Wound Healing in Aged Rats (A Histological and Immunohistochemical Study)**

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**Egyptian Journal of Histology (EJH) Accepted for publication 10/12/2022**

#### **Abstract**

**Background:** Aging could result in delayed wound healing. propolis has good effect on healing.

**Objectives:** This investigation was done to assess whether propolis and nanopropolis creams could aid in the healing of wounds in aged rats.

**Materials and methods:** Fifty old-aged albino rats have been separated into four groups: group I (control intact skin) (5 rats); wounded groups: group II (control wounded) (3 subgroups, 5 rats each); subgroup IIa: vehicle cream was topically applied once per day for 7 days; subgroup IIb: once per day for 14 days; and subgroup IIc: once per day for 21 days; group III (propolis group), which has been divided into 3 subgroups with 5 rats each, where propolis cream was topically applied once per day for 7 days (subgroup IIIa); once per day for 14 days (subgroup IIIb); and once per day for 21 days (subgroup IIIc), group IV (nanopropolis group), which has been divided into 3 subgroups with 5 rats each, where nanopropolis cream was topically applied for the same durations as the aforementioned in group III. Hematoxylin and eosin stain, picro sirius red histochemical reaction, and CD 105 immunostain were used in this study.

**Results:** Wound healing was significantly improved in the propolis and nanopropolis groups, with a significant increase in the rate of wound closure and collagen deposition.

**Conclusion:** the current study results confirmed the importance of CD105 in the process of wound healing. Additionally, it demonstrated how effectively propolis and nanopropolis formulas treated aged wounds. This technique might be effective for treating chronic wounds safely and efficiently.

**Keywords:** propolis, nanopropolis, [aged](#), wound healing, CD 105.