Evaluation of Transforming growth factor β and histopathological features in the process of open skin wound healing, after topical application of honey and zeolite biocomplex.

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Background and Objectives: Open skin wounds cause many complications for health and the financial and economic structure of society. In general, the importance and effectiveness of traditional and complementary medicine has increased in recent years. Therefore, the present study was conducted to investigate the synergistic effect of zeolite and honey biomaterials on the repairability of rat open skin wound bed.

Methods: This experimental study was conducted on 75 adult rats of Wistar breed with a weight range of 250-200 g and an age range of 3 to 4 months. Under anesthesia, a

10 by 10 mm wound is formed on them. The distribution of mice in control and experimental groups was random. The surface of the wounds in the experimental groups was covered once a day with the zeolite biomaterial, honey, a combination of both and phenytoin ointment. No treatment was performed on the wounds of the control group.

Results: In general, rats treated with honey or zeolite or a combination of the two had more fibroblasts, macrophages and arteries, and less neutrophils, a higher healing percentage and a smaller wound area than the control group in their wound bed. Also, in the honey and zeolite complex group, compared to the groups for which honey or zeolite was used alone, it was more effective in accelerating wound healing.

Conclusion: The results of this study showed that based on histopathological criteria, wound healing percentage and wound area, topical application of zeolite and honey are effective in repairing open skin wounds of rat skin and accelerate wound healing and also they showed a synergistic effect.

Keywords: Wound healing, Zeolite, Honey, Synergy