

عنوان مقاله:

Application of Propolis Ethanol Extract and Propolis Nanoemulsion in Treatment of Cutaneous Infection in Rabbit

محل انتشار:

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خلاصه مقاله:

Pseudomonas aeruginosa is one of the most important opportunistic pathogens in humans and animals. Natural antibacterial compounds like propolis are the best substitute for antibiotics. The aim of this study was to evaluate the antibacterial effect of Ethanolic extract of propolis, propolis nanoemulsion, and their combinations with ciprofloxacin in the treatment of experimental wound infection contaminated with *Pseudomonas aeruginosa* in rabbits. Propolis was obtained from a different region of Western Azerbaijan in the year ۲۰۱۸. Then the ethanol extract of propolis was prepared. And so, nanoemulsion of propolis was prepared. The broth microdilution method was used to determine the MIC of propolis and propolis nanoemulsion on *P. aeruginosa*. ۲۸ rabbits used in ۷ groups: Negative control (CO), Tween ۲۰ (T), extract of propolis (P), nanoemulsion of propolis (NP), ciprofloxacin (C), ciprofloxacin+ extract of propolis (C + P), ciprofloxacin + nanoemulsion of propolis (C + NP). Full-thickness skin wound was created under general anesthesia and bacterial suspension (۱۰^۸ CFU/ml) was inoculated to each wound site. Macroscopic and microscopic characteristics and Superficial bacterial load of wounds were studied on days ۷, ۱۴, and ۲۱. The number of bacteria in treatment groups was significantly lower than in negative control groups ($p < ۰.۰۵$). The macroscopic evaluation of wounds showed that C+P and C+NP enhanced wound closure in comparison with the negative control group and ciprofloxacin ($p < ۰.۰۵$). Histopathology assessment of the wound showed that the combination of C+P, and C+NP had a better and faster healing effect than the other groups, however, its difference was significant only when compared to CO, C, and T groups ($p < ۰.۰۵$). The results of the present study showed that a combination of ciprofloxacin + ethanolic extract of propolis and ciprofloxacin + propolis nanoemulsion had better therapeutic effects than either agent alone.

کلمات کلیدی:

Rabbit, Cutaneous Infection, *Pseudomonas Aeruginosa*, Propolis Ethanol Extract, Propolis nanoemulsion

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