

Preparation of Naringenin-Load Polyethyleneglycol(PEG)/Polycaprolactone (PCL) Electrospun Nanofibers for Evaluating the In-Vivo Wound Healing of Naringe

Elnaz Moradi ^a, Mohsen kahrarian ^a, Leila Behbood ^b, Mhammad Hosein Farzaei ^b

a. Student Research Committee, Kermanshah University of Medical Sciences, Kermanshah, Iran

b. Pharmaceutical Sciences Research Center, Health Technology Institute, Kermanshah University of Medical Sciences, Kermanshah, Iran



15-18 February 2022

Poster: P4

Abstract Presenter:

Elnaz Moradi

Correspondence:

Mohammad Hosein Farzaei

Email:

mh.farzaei@gmail.com

Abstract:

The skin is one of the most important defenses against pathogens. It can also be a penetrate way by wounds, damages and diseases. Some compounds like polycaprolactone fibers, phenolic plant compounds and naringenin are considered in wound treatment due to their stimulating collagen production, less side effects and high efficiency, respectively. Combining nanofibers and phenolic compounds is noticed to accelerating wound treatment. Materials and methods Synthesizing nanofibers of polycaprolactone and polyethylene glycol 3:1 in ratio using electrospinning and confirming by scanning electron microscope and FTIR test was done to perform this project. Then the rate of releasing of 3.125% naringenin of synthesized nanofibers were investigated by UV-visible. The animal test was done by creating wound on the Wistar breed rat and measuring the wound area during the test for 14 days and analyzing the datas use of imageJ and spss softwares. The wound tissue was removed for the tissue studies on the 15th day. Test results showed that the increase in naringenin concentration along nanofibers reduces the releasing rate. Likewise, in animal studies, outcomes showed that wound treatment in the nanofibers group on 1st, 4th, 7th days has no noticeable differences compared with the control group, on 10th and 14th days the treatment was decreased significantly and on the 1st day there was no significant differences compared with the nanofibers group containing naringenin. On the 4th, 7th, 10th, and 14th days there was no significant difference in nanofibers group containing naringenin compared with control group, but on 1st, 7th, 10th, and 14th days a noticeable increase in healing was observed.

Keywords: Nanofiber, Polycaprolactone, Naringenin, Polyethylene Glycol, Wound

References:

1. McGrath JA, Eady RAJ PF. No TitleAnatomy and organization of human skin. In: Rook A, Burns T (eds) Rook's textbook of dermatology. In 2004.