

## عنوان مقاله:

Fabrication of polymeric wound dressing using by bio ceramic nanoparticles for rapid healing of trauma wounds by freeze-drying method

## محل انتشار:

کنفرانس ملی نانو ساختارها علوم و مهندسی نانو (سال: 1398)

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## خلاصه مقاله:

Skin injuries mainly include chronic wounds, burns, and cuts. An injury in medical science is damage that causes the skin to be scratched, torn, cut, pierced or shattered, or due to a trauma, even though the skin remains healthy but there may be red or bruising effects. In short, the separation of the intercellular junction is called part of the skin or flesh wound. Injuries are divided into two types of closed and open injuries; cuts or ruptures of the skin, including open injuries and bruises on the skin are common closed injuries. Severe injuries to the soft tissue of the skin are known as trauma wounds. Abrasions, cuts and tears are trauma wounds, and they can become infected if left untreated. Therefore, today the fabrication of wound dressings for wound healing has increased dramatically. Traditional wound dressing delays the wound healing process by creating a dry environment, while the wound bed requires an open and healthy wound healing environment, leading to traditional wound dressing replacing to the new generation of the wound dressing. In this study, bio nanocomposite scaffolds were prepared by nanocrystalline hydroxyapatite powder (HA) and titanium oxide (TiO<sub>2</sub>) (prepared by mechanical grinding method) by freeze-drying method with different values of 0, 5, 10 and 15 wt% of TiO<sub>2</sub>. Then mechanical tests were performed to investigate the tensile strength of the porous samples. The mechanical properties of the scaffolds were also evaluated using a tensile test device to obtain the stress-strain diagram. The matrix of this composite is biocompatible polycaprolactone (PCL). This polymer is semi-crystalline, so for dissolution of this polymer, dimethylformamide (DMF) solvent was used, which is common solvent in chemistry. Finally, scaffolds implant on the animal's body as wound dressings to treat trauma wounds.

## کلمات کلیدی:

Bio nanocomposite, Hydroxyapatite, Titanium oxide, Polycaprolactone, Wound dressing

## لینک ثابت مقاله در پایگاه سیویلیکا:

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