

عنوان مقاله:

Chitosan Immobilization onto Poly Acrylic Acid Grafted Silicone as Wound Dressing

محل انتشار:

هفتمین کنگره ملی مهندسی شیمی (سال: 1390)

تعداد صفحات اصل مقاله: 8

نویسندگان:

Elham Babaie - *Amirkabir university of Technology, Biomedical engineering Department, P.O. Box ۱۵۸۷۵-۴۴۱۳, Tehran, Iran*

Hamid Mirzadeh - *Amirkabir university of Technology, Biomedical engineering Department, P.O. Box ۱۵۸۷۵-۴۴۱۳, Tehran, Iran*

Hamid Keshvari - *Amirkabir university of Technology, Biomedical engineering Department, P.O. Box ۱۵۸۷۵-۴۴۱۳, Tehran, Iran*

Atefeh Solouk - *Amirkabir university of Technology, Biomedical engineering Department, P.O. Box ۱۵۸۷۵-۴۴۱۳, Tehran, Iran*

خلاصه مقاله:

Chitosan (CS) and silver sulfadiazine (AGSD) were simultaneously immobilized onto the surface of polydimethylsiloxane (PDMS) using acrylic acid (AAc) as spacer. Two-step oxygen plasma treatment (TSPT) method was applied to graft AAc onto the surface of PDMS. In order to make optimum grafting density, different time of plasma pretreatment and copolymerization were considered. After AAc was grafted onto PDMS film, in the next step chitosan and silver sulfadiazine were immobilized onto PAAc-g-PDMS through covalent bonding. The films were characterized by water contact angle (WCA), inductively couple plasma (ICP), attenuated total reflection Fourier transform infrared (ATR-FTIR) spectroscopy. To evaluate the cell behavior in contact with the prepared wound dressing (WD) the mouse L-929 fibroblast cells were used. By immobilizing AAc and CS/AGSD the hydrophilicity of WD increase in comparison with PDMS. The presence of silver sulfadiazine drug which is known as an antibacterial agent in the WD was confirmed via ICP methods. The ATR-FTIR spectrum of the WD showed the two new characteristic bands of PAAc and CS. It was observed that CS/AGSD immobilized surfaces with the maximum amount of grafted AAc significantly showed better cell adhesion and proliferation in comparison with other samples. It seems that CS/AGSD immobilized surfaces with the maximum grafting density (GD) of PAAc may have an excellent potential to be used as a .derm-like matrix

کلمات کلیدی:

Wound Dressing, Chitosan, Silver Sulfadiazine, Acrylic acid, Immobilization

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/341186>



