عنوان مقاله:

In vitro study on solidification of hydatid cyst fluid with chitosan and carboxymethylcellulose blend hydrogel

محل انتشار:

سومین کنفرانس ملی و اولین کنفرانس بین المللی پژوهش های کاربردی در علوم شیمی و مهندسی شیمی و سومین کنفرانس ملی و اولین کنفرانس بین المللی پژوهش های کاربردی در زیست شناسی (سال: 1395)

تعداد صفحات اصل مقاله: 11

نویسندگان:

M Azadi Dowlat Abadi - *Department of Chemical Engineering, School of Chemical and Petroleum Engineering, Shiraz University, Shiraz, Iran*

Sh. Hassan Ajili - *Department of Chemical Engineering, School of Chemical and Petroleum Engineering, Shiraz University, Shiraz, Iran*

Kh. Zarrabi - *Department of Cardio Vascular Surgery, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran*

B Shahriari - *Department of Parasitology and Mycology, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran*

خلاصه مقاله:

The aim of this study was to solidify the hydatid cyst fluid (HCF) for easy and secure remove of hydatid cyst disease from patient's body. Currently, the most common way to treat of the this disease is surgery techniques. Because of issues and problems that exist during treatment of this disease, such as rupture of the cyst wall and spread of parasite material (protoscoleces) in the abdominal cavity and contaminate them and formation of daughter cysts, it is essential that solidify the HCF before surgery. In this study, an injectable and thermosensitive chitosan (CS) /carboxymethylcellulose (CMC) /beta glycerol phosphate (BGP) blend hydrogel was synthesized. Such polymeric systems were injectable liquid solutions at low temperature (4 ˚C) and were converted to gel under physiological conditions within the body (37 ˚C & pH=7.2 - 7.4), Fourier-transform infrared spectroscopy (FTIR), scanning electron microscopy (SEM), water uptake and rheological analysis were employed to characterize the hydrogel. Investigations showed that, the intermolecular interactions of amino groups of chitosan and hydrogen groups of CMC correctly were established and appreciable swelling with a good strength was obtained. Hydrogel morphology had a porous structure. Rheological analysis showed that CS/CMC/BGP blend had a phase transition of sol-gel closed to the body temperature. In the final object, a polymer solution of CS(1.75%)/CMC(3.5%)/BGP(28%) was injected to HCF (1 ml polymer solution to 3 ml HCF) at 37 ˚C and solidification took place for about 45 min.

کلمات کلیدی:

Hydatid cyst, Injectable Hydrogels, Thermosensitive polymers, Chitosan, solidification carboxymethylcellulose

لینک ثابت مقاله در پایگاه سیویلیکا: