

数据资源: [林业专题资讯](#)

打印

下载

分享

Fabrication of cellulose nanocrystal reinforced nanocomposite hydrogel with self-healing properties

编号 020024103

推送时间 20200601

研究领域 [林产化工](#)

年份 2020

类型 期刊

语种 英语

标题 Fabrication of cellulose nanocrystal reinforced nanocomposite hydrogel with self-healing properties

来源期刊 Carbohydrate Polymers

期 第241期

发表时间 20200422

关键词 [Nanocomposite hydrogels](#); [Quaternary ammonium xylan](#); [Polyvinyl alcohol](#); [Cellulose nanocrystals](#); [Self-healing property](#);

摘要 High strength and self-healing properties of hydrogels are of great interest in tissue engineering and biomedical fields. In this paper, nanocomposite hydrogels were prepared by freeze-thaw cycle method via fabricating physical cross-links into chemical-crosslinked formed polymer network. The properties of nanocomposite hydrogels were characterized by FTIR, XRD, SEM, rheological analysis, swelling analysis and mechanical test. The results showed that the electrostatic interaction between CNC and QAX and the high amount of PVA (20wt%) were favorable to improve the mechanical properties of nanocomposite hydrogels, in which the maximum compressive strength and elongation at break of nanocomposite hydrogels were 1.56MPa and 771 %, respectively. Prepared hydrogels achieved self-healing without any external stimuli at room temperature with the help of hydrogen bonds and the entanglement of long polymer chains, the healing efficiency was 37.03 % within 48h. These hydrogels with high strength and self-healing properties will offer new insights for xylan application.

服务人员 尚玮姣

PDF文件 [浏览全文](#)

相关主题

[聚乙烯醇](#)

相关记录

[更多](#)

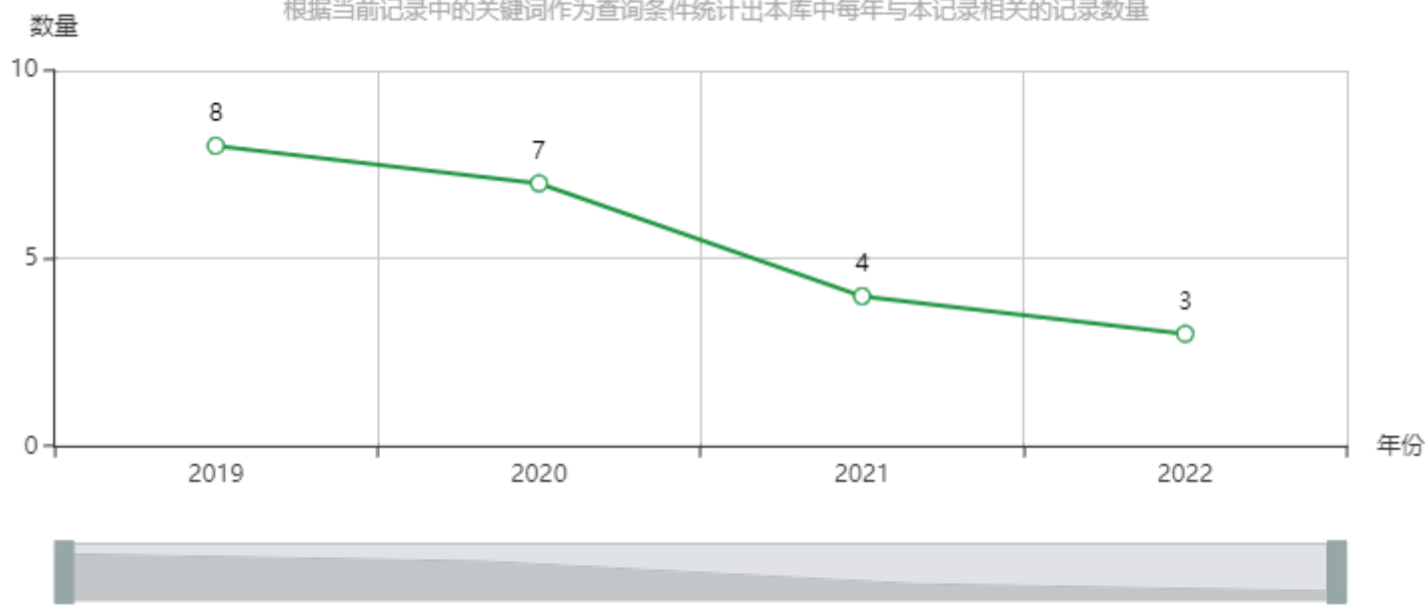
Design and fabrication of recyclable and reshape vitrified elastomer reinforced wit...	2023-01-23
Recyclable, self-healable and reshape vitrified poly-dimethylsiloxane composite fil...	2022-11-28
Surface modifications of nanocellulose: From synthesis to high-performance nano...	2021-12-20
Nanocellulose-based composites for packaging applications	2021-12-27
Cellulose bionanocomposites for sustainable planet and people: A global snapsh...	2021-11-01

相关图谱

相关主题趋势分析图



根据当前记录中的关键词作为查询条件统计出本库中每年与本记录相关的记录数量



相关链接: [中国工程院](#) [国家林业和草原局](#) [中国林业科学研究院](#) [中国林业信息网](#) [中国林业数字图书馆](#) [国家林业和草原科学数据中心](#)

友情链接: [自然资源部](#) [科学技术部](#) [中国林学会](#) [中国科技资源共享网](#) [中国林草植物新品种保护](#) [中国林业知识产权网](#) [中国林业新闻网](#)

主办单位: [中国林业科学研究院林业科技信息研究所](#) 电话: 010-62889748 E-mail: wangjiaosky92@163.com 京ICP备14021735号-2 访问量: 12656071
建议使用谷歌、火狐、360、IE8或IE8以上版本的浏览器