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TITLE

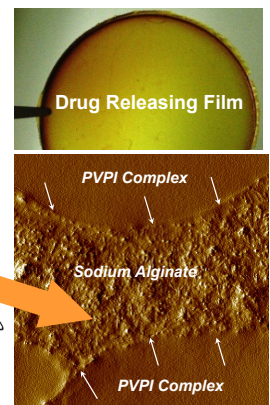
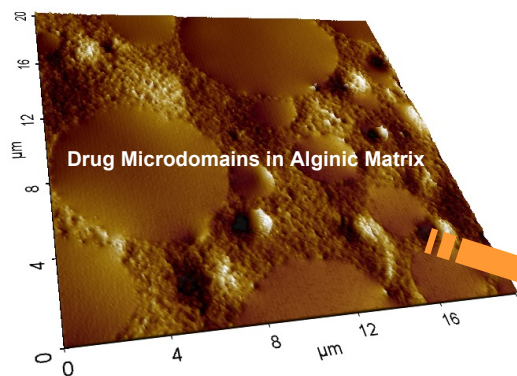
Polymeric composite materials with antimicrobial and biodegradable properties and uses thereof

INVENTORS

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DESCRIPTION

Povidone Iodine (PVPI) is a well known broad spectrum antiseptic for wound treatment and irrigation. PVPI, however, is a very hydrophilic substance having poor resistance against water. Wound treatments with PVPI are, therefore, short lived. We have developed a simple and inexpensive method to directly incorporate PVPI in alginic (sodium & calcium) polymer matrices to enable its slow and controlled release into infected areas. The process also prolongs antiseptic effects of PVPI considerably. Aqueous PVPI solutions are blended with sodium alginate solutions at any proportion from which films can be cast. Droplets or continuous liquid streams of the blend solutions can be cross-linked in calcium salt solutions to form PVPI encapsulated beads and fibers.



APPLICATIONS

Various applications of the present technology are mainly anticipated in the biomedical field. Large area biodegradable antimicrobial films and coatings can be fabricated suitable for hygienic packaging of medical devices or surfaces. Calcium cross-linked macro and micro-beads with antiseptic compound release properties can be used to disinfect contaminated still waters. Edible beads can be taken orally to treat ulcer related problems in patients and other internal stomach wounds. PVPI encapsulated fibers can be used as hygienic biodegradable wound sutures. Antiseptic microfibers can be incorporated into woven or nonwoven materials for protection against bacterial and fungal contamination.

KEYWORDS

Povidone iodine, alginate polymer, drug encapsulation, drug release, sutures.

BIBLIOGRAPHIC DATA

Materiali compositi polimerici con proprietà antimicrobiche e biodegradabili e loro usi

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Applicants

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