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Cross linked chitosan based gel as self modifying bioadhesive film for enhanced wound healing

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The present study intended to formulate a cross linked self modifying bioadhesive film forming chitosan based hydrogel for heighten wound healing activity of Ciprofloxacin hydrochloride. Chitosan hydrogels have been prepared in 1% lactic acid and in situ cross linking through various metal viz. zinc chloride, copper sulphate, calcium chloride, and aluminium chloride (cytotoxic effects of cross-linking cation and chitosan on skin cells were established before use). Application of polyvalent cations as cross linking to a chitosan hydrogel resulted in an indissoluble, elastic, gentle rubbery structure within 90 seconds and further converted into a film within 8-10 min onto the skin. Transdermal epidermal water loss through formed film and mechanical properties of cross linked gel as well as films were also determined: In order to evaluate its wound healing effect, full-thickness skin incisions were created on dorsal surface of the rat below the cervical region. A cross linked chitosan hydrogel was applied onto the wound. Cross-linking agents, released from chitosan dressings during use could interact with the anti-microbial agent and significantly affect the therapeutic outcome. The macroscopic appearance indicated that the wound healing occurred by 6th day for the treated groups whereas it was noticed only on the 10th day in the control animals. Complete healing of the wound in dressing applied groups took only 14 and 18 days in case of marketed formulation, whereas it took 24 days for the control groups. On the 4th day, the wound contraction of control was 13% whereas 21% for marketed formulation and 35% closure were observed for film forming chitosan based hydrogel. Due to its ability to accelerate wound contraction and healing, situ film forming chitosan hydrogels may become accepted as an occlusive dressing for wound management.

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Development and evaluation of sustained release oral solid dosage form using various polymers and their blends

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Pellet is often referred to as bead-type preparation. In general the beads are prepared by coating drug powder onto preformed cores called non-pareil seeds. The non-pareil seeds are made from slurry of starch, sucrose, and lactose. The use of various amounts of coating solution can provide beads with various coating protection. Blends of GIT-insoluble and GIT soluble polymers are frequently used in coating of sustained released pellets. Ethyl cellulose is used with water soluble polymers HPMC. Upon contact with aqueous media these additives hydrates and potentially leach out from polymeric membrane resulting in more permeable films and increased drug release rate. Pellets were prepared by powder layering method using Diltiazem HCl drug in coating pan. All the batches of pellets were evaluated for the various test i.e., size distribution, friability, moisture content, flow property, content uniformity, water uptake study etc. Final dosage forms were evaluated for weight variation, *in-vitro* release profile study and drug release kinetic studies as per I.P. /U.S.P. The optimized batch was studied for the stability study. The results revealed that formulation batch F 6 showed drug release rates as per acceptance criteria for USP Test 2 mentioned in USP-NF 2005 for 24 hour dosing of Diltiazem HCl. From this work it can be concluded The result suggest that desired sustained release profile can achieved by the optimized ratio of polymer blends of hydrophobic cellulose polymer Ethyl cellulose and hydrophilic cellulose polymer, HPMC 50 cps for 24 hour dosing pellets

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