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Design of Polymeric Prodrugs of Ibuprofen Using Dextran: Synthesis, Hydrolytic Behaviour, Pharmacological and Antigenicity Studies

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SUMMARY. **An N-acyl imidazole derivative of ibuprofen was condensed with a biodegradable polymer dextran 10,000 and 20,000 to obtain ibuprofen-dextran prodrugs IB10 and IB20, respectively. Synthesis and characterization of these prodrugs were carried out with an aim to improve the aqueous solubility, therapeutic efficiency and to reduce gastrointestinal side effects. IR and NMR studies confirmed the formation of ester linkage. *In vitro* hydrolysis carried out in SGF, SIF and SCF showed a faster hydrolysis in SIF and SCF. The hydrolysis followed first order kinetics. The prodrugs showed better anti-inflammatory and analgesic activities and remarkable reduction in ulcerogenicity when compared with the parent drug. The prodrugs showed no antigenicity under the conditions used and the dose levels of prodrug employed in the present study were confirmed not to suppress the immune reactions. The results thus proved that dextran can be employed as a promoiety for efficient drug delivery.**

KEY WORDS: Anti-inflammatory activity, Antigenicity, Dextran, Ibuprofen, Polymeric prodrug.

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