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Synthesis and *in-vitro* studies of novel 5-fluorouracil pro-drugs using xylan as a carrier for sustained release

Sauraj and Yuvraj Singh Negi

Indian Institute of Technology Roorkee, India

In order to develop a sustained release drug delivery system for colon specific drug delivery, a novel Xylan-based 5-fluorouracil pro-drug was synthesized in two step method. Firstly, Xylan is extracted from corn-cob as an agro waste. Secondly, 5-fluorouracil-1-acetic acid (FUAC) was prepared and then covalently conjugated to Xylan through ester linkage. Prepared conjugates were characterized by analytical techniques such as FTIR and NMR. The successful synthesis was further confirmed by DSC/TGA and powder X-ray diffraction techniques. The degree of substitution was estimated by complete hydrolysis of conjugates in alkaline solution. *In-vitro* hydrolysis study of conjugates was performed in acidic (pH 1.2) and basic (pH 7.4) buffers, showed their stability in upper GIT environment, which is the primary requirement of colon specific drug delivery. The synthesized Xylan based ester prodrug of 5-fluorouracil is found to be the potential candidate for colon targeted drug delivery with minimal undesirable side effects.

Biography

Sauraj is a Research Scholar under the supervision of Prof. Yuvraj Singh Negi, Department of Polymer and Process Engineering, IIT Roorkee. He is working on Synthesis and bio-evaluation of colon-specific pro-drugs. His research area includes synthesis of anti-cancer drugs, drug derivatives, co-drugs & pro-drugs and their *in-vitro/in-vivo* studies.

saurajpolymeriitd@gmail.com

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