

International Conference on
Targeting Diabetes and Novel Therapeutics
September 14-16, 2015 Las Vegas, Nevada, USA

Modification of dietary fiber psyllium for use in oral insulin delivery

Nirmala Chauhan
Himachal Pradesh University, India

There is no doubt that fibers, in particular viscous dietary fibers, have positive effects on human health, both in the prevention and in treatment of chronic diseases. Psyllium, a medicinally important serum glucose reducing natural polysaccharide, if suitably tailored to prepare the hydrogels for controlled release of insulin; it can act as double potential candidate for cure of Diabetes Mellitus. Keeping in view the therapeutic importance of psyllium and its gel-forming nature, psyllium and acrylamide/methacrylamide based hydrogels have been prepared by using N,N'-methylenebisacrylamide as crosslinker. The present article discusses the effect of pH on swelling kinetics of the hydrogels and release dynamics of insulin from drug-loaded hydrogels, for the evaluation of the swelling mechanism and drug release mechanism from the hydrogels. Non-Fickian diffusion mechanism has been observed for the release of insulin in the pH 7.4 buffer for which the rate of drug diffusion and rate of polymer chain relaxation are comparable. Therefore, drug release depends on two simultaneous rate processes, water migration into the device and drug diffusion through continuously swelling hydrogels. In each release medium, the earlier stage of the diffusion coefficient has been observed more than the late time diffusion coefficient.

Biography

Nirmala Chauhan has completed her PhD in 2013 from Himachal Pradesh University, Shimla, India. She is presently working as Assistant Professor in Department of Chemistry in Government Degree College, Kullu (under Himachal Pradesh University Shimla-5), India. She has published 14 papers in reputed journals and has also presented more than 8 research papers in national symposia/conferences.

nirmalchauhan46@gmail.com

Notes: