Format: Abstract

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In vitro and in vivo evaluation of novel interpenetrated polymer network microparticles containing repaglinide.

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Abstract

Interpenetrated polymer network (IPN) microparticles of sterculia gum and sodium alginate loaded with repaglinide were developed by ionic gelation and emulsion crosslinking method. The drug entrapment efficiency was as high as 91%. FTIR and TG analyses confirmed the crosslinking and IPN formation. Microparticles have demonstrated the drug release up to 24h depending upon type of crosslinking agents; the glutaraldehyde treatment of ionically crosslinked microparticles has resulted in decreased drug release rate. The in-vivo anti-diabetic activity performed on streptozotocin induced diabetic rats indicated that the pristine repaglinide has shown maximum percentage reduction of elevated blood glucose within 3h and then the percentage reduction in blood glucose was decreased. In the case of rats treated with KA8 IPN microparticles, percentage reduction of elevated glucose was slow as compared to pristine drug within 3h, but it was gradually increased to 81.27% up to 24h.

KEYWORDS: Drug release; Interpenetrated polymer network; Microparticles; Repaglinide

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