



Mucoadhesive Microcapsules of Glipizide Formulated with Gum Kondagogu: *In Vitro* and *In Vivo* Evaluation

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SUMMARY. Mucoadhesive microcapsules are proposed for the antidiabetic drug glipizide, to obtain controlled release. Glipizide microcapsules with a coat consisting of alginate and gum kondagogu were prepared by employing ionic gelation process and emulsification ionotropic gelation process. The microcapsules were evaluated for flow properties, Carr's index, Hausner factor, microencapsulation efficiency, drug release characteristics, surface characteristics, compatibility studies, mucoadhesive properties and *in-vivo* hypoglycemic activity. These two methods showed individual, large sized, free flowing spherical microcapsules without any interactions. Glipizide release from the microcapsules was slow and followed zero order kinetics and followed non-fickian release and depended on the coat: core ratio and the method employed in the preparation of microcapsules. Among the two methods emulsification ionotropic gelation method was found to be more suitable for slow and complete release of glipizide over a long period of time. These microcapsules exhibited good mucoadhesive property in the *in vitro* wash-off test. *In vivo* evaluation in rabbits demonstrated significant hypoglycemic effect of glipizide.

KEY WORDS: Ionic Gelation, Ionotropic Gelation, Mucoadhesion, Hypoglycemic Activity, *In vitro*, *In vivo*, Controlled release.

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