

EFFECT OF MICROCAPSULES SOLID DISPERSION OF METFORMIN HCl ORAL ADMINISTERED FORMULATION ON HYPERGLYCEMIA IN RATS

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Abstract

The present study is to examine In-vivo pharmacodynamics antidiabetic effect following oral administration of the selected optimized microcapsules in comparison with oral metformin solution. Solid dispersions microcapsules were prepared using solvent evaporation method which enclosed preparation of a uniform dispersion of Metformin HCl in (Hydroxy propyl methylcellulose k100, Ethyl cellulose, Eudragit RL PO, Eudragit RS PO and Compritol 888 ATO). A two-factor, General factorial statistical design was used to quantitate the effect of polymer type(X1) and drug: polymer ratio(X2) on the release profile. Where polymer type and drug: polymer ratio were selected as independent variables, while Y1 (cumulative drug release after 1 h) and Y2 (cumulative drug release in 3 h), Y3 (cumulative drug release in 10 h), Y4 (angle of repose) and Y5(Hausner ratio) were selected as dependent variables. A convenient statistical model was made and a significantly controlled release rate was exhibited. The solid dispersions were characterized for their in vitro- release rate. The oral administration of formulae (T20) which consists of metformin HCl and compritol 888 ATO) in drug/polymer ratio (1:4) was chosen as optimum formula resulted in a clear long lasting Statistically significant anti-hyperglycemic effect up to 12 h as compared to diabetic control Group and metformin HCl solution treated group. Factorial design suggested only one optimized combination of the polymer by which maximum desirability obtained. The oral administration of formulae (T20) resulted in a clear long lasting statistically significant anti-hyperglycemic effect.

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