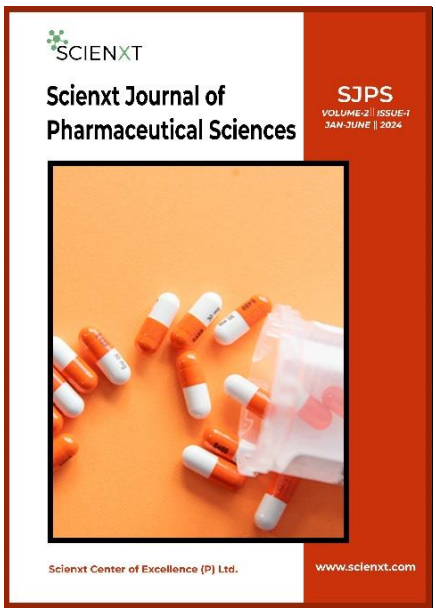

Scienxt Journal of Pharmaceutical Sciences
Volume-2 || Issue-1 || Jan-June || Year-2024 || pp. 1-35

Developmentand components of chitosan primarily based microspheres of glibenclamide

[*1]Souravh Jha, [2]Pinky Singh, [3]Neetu Saket, [4]Arti Rai
Faculty of Globus college Of Pharmacy, Bhopal

**Corresponding Author: Souravh Jha*
Email: souravhandjha@gmail.com

Abstract:

Microspheres is novel drug delivery system for improving therapeutic action of drug, increasing prolong action, lowering dose frequency of dosage form and to improve patient complies. Microspheres are reducing oral administration side effect such as gastric irritation in stomach. Glibenclamide microspheres were developed by ionotropic gelation method using sodium alginate and chitosan. Calcium chloride was used as a cross linking agent. Prepared microspheres were evaluated for entrapment efficiency, microsphere size, morphology, FTIR, DSC, in-vitro drug release and drug release kinetics. Prepared Glibenclamide microspheres were found discrete, free flowing and spherical. The mean particle size ranged from 349-540 µm and percentage yield ranged between 70 to 98.92%. The size of microsphere was increased by increasing concentration sodium alginate and calcium chloride while the entrapment efficiency was increased with increasing concentration of chitosan. XRD studies confirmed the crystalline nature of Glibenclamide. SEM studies showed that the microspheres are spherical and with rough surface. The in-vitro drug release study was carried out in phosphate buffer pH 7.4. Percent drug release was decreased with increase in concentration of sodium alginate and calcium chloride. Decreased drug release rate was obtained in case of F3 formulation containing sodium alginate and chitosan at 3:1 ratio and 5% calcium chloride as a cross-linking agent. The present study conclusively that Glibenclamide microsphere could be prepared successfully and formulation F3 was shows satisfactory result.

The prepare Glibenclamide microspheres to maintain an effective of drug concentration in serum for long period of time and reducing gastric irritation.

Keywords:

Glibenclamide, Chitosan, HPLC, FTIR, UV spectrum