

August 13-14, 2018  
Paris, FranceAm J Pharmacol Pharmacother 2018, Volume 5  
DOI: 10.21767/2393-8862-C1-003

# SUSTAINED RELEASE OF METFORMIN HYDROCHLORIDE MICROSPHERES FOR ORAL DRUG DELIVERY SYSTEM

**Abdulrhman A Akasha**

Tripoli University, Libya

**B**iodegradable microspheres may develop improved drug delivery system to gastrointestinal tract for treatment of diabetes. Metformin hydrochloride having the ability to produce effect for extended period were prepared using ethyl cellulose and polyvinyl alcohol as the retardant material with entrapment efficiency and extended release using solvent evaporation techniques. Microspheres were prepared by the double emulsification technique (W/O/W). A mixed solvent system of water and chloroform contains metformin, ethyl cellulose and PVA in the ratio of (1:2:1) respectively. The product with a yield (50%) was investigated under immersion lens with magnification of 40X using immersion oil. The prepared microspheres were characterized by drug loading and showed a low entrapment. Microspheres were examined by optical microscopy, the size and the external features of particles determined. The microspheres indicated a mean microsphere size 100  $\mu\text{m}$  in diameter. IR study was carried out to check the compatibility between the selected polymer and metformin hydrochloride. This study was performed to assure that there is complete physical entrapment of the drug into the polymer without any mutual interaction. The DSC and XRD studies proved that, there was retention of the crystalline nature of the drug in solid dispersion ruling out any probability of drug and polymer interaction or complex formation. Initial in vitro experiments are under taken to examine the release profiles of metformin HCl from microspheres in phosphate buffer at 37°C, pH 6.4, the process is followed up to 8 hrs by which the particles mass is eroded.

Akashaabdu@yahoo.co.uk