Meetings International

Polym Sci 2017, 3:4
DOI: 10.4172/2471-9935-C1-006

ANNUAL MEETING ON
BIOPOLYMERS AND DRUG DELIVERY SYSTEMS
OCTOBER 12-13, 2017 OSAKA, JAPAN

Sustained Release and Skin Permeability Enhancement of Pentazocine by Proniosome derived Niosomes and Niosomal Gel

Asadullah Madni1, Muhammad Abdur Rahem1, Muhammad Ahmad Mahmood1, Mubashar Rehman1 and Nayab Tahir1
1The Islamia University of Bahawalpur, Pakistan

Proniosomes (PN) are the dry water soluble carrier systems that may enhance the oral bioavailability, stability and topical permeability of therapeutic agents. The low solubility and low oral bioavailability due to extensive first pass metabolism make Pentazocine as an ideal candidate for oral and topical sustained release delivery. The present study was aimed to formulate the PNs by quick slurry method that are converted to niosomes (liquid dispersion) by hydration, and subsequently formulated to semisolid niosomal gel. The PNs were found in spherical shape in the SEM and stable in the physico-chemical and thermal analysis (FTIR, TGA and XRD). The quick slurry method produced high recovery (>80% yield) and better flow properties (θ=28.1-37.4°). After hydration, the niosomes exhibited desirable entrapment efficiency (44.45-76.23%), size (4.98-21.3µm) and zeta potential (-9.81mV to -21.53 mV). The in vitro drug release (T100%) was extended to more than three half-lives (2-4 hrs) and showed good fit to Fickian diffusion indicated by Korsmeyer-Peppas model (n=0.136-0.365 and R¬2=0.9747- 0.9954). The permeation of niosomal gel was significantly enhanced across rabbit skin compared to the pure drug-derived gel. Therefore, the PNs are found promising candidates for oral as bioavailability enhancement and sustained release for oral and topical delivery of pentazocine.

asadpharmacist@hotmail.com