

16th International Conference and Exhibition on

PHARMACEUTICS & NOVEL DRUG DELIVERY SYSTEMS

March 19-21, 2018 | Berlin, Germany

Transfersomes as novel carriers for sustained buccal delivery of local anaesthetic

Ruba Bnyan, Ifiikhar Khan, Touraj Ehtezazi, Imran Saleem, Francis O'Neill and Matthew Roberts
Liverpool John Moores University, UK

The aim of this work was to design and develop a delivery system to treat dental and buccal pain. Transfersomes show many advantages as delivery vesicles such as their ability to deform and pass through small pores between cells, and to encapsulate drugs with a wide range of solubilities and molecular weights. The rationale of preparing sustained release transfersomes of local anaesthetic (LA) was mainly to reduce the frequency of administration and enhance the safety profile of LA by producing a localized effect. Transfersome preparation parameters were optimized using a Taguchi design of experiment (DOE) in terms of phospholipid to edge activator (EA) ratio, type of EA and type of lipid. The delivery systems were characterised for vesicles size, polydispersity index (PDI), charge, and entrapment efficiency (EE). They were generally less than 200 nm in size with a low PDI. The %EE varied as the formulation parameters changed, but was generally between 44-50%. Analyzing the data by Taguchi DOE showed that the effects of factors on both size and %EE were in the following rank: EA type>lipid: EA ratio>lipid type. Samples that showed higher encapsulation with smaller vesicles size were chosen for further studies. *In vitro* release studies were performed using a dialysis bag (3-5 kDa) as a donor compartment, which was sealed and placed in a receptor compartment containing PBS. The system was stirred at 250 rpm and incubated at 37°C. Initial *in vitro* release results showed a sustained release over 72 hours.

Biography

Ruba Bnyan is a PhD student in the Formulation and Drug Delivery Research Group, School of Pharmacy and Biomolecular Sciences, Liverpool John Moores University. Her research interests are generally in designing drug delivery system, nanotechnology and pharmaceutical technology, focus being on preparing non-invasive delivery systems for several routes of administrations.

r.a.bnyan@2015.ljmu.ac.uk

Notes: