

2nd International Conference on Pharmaceutics & Novel Drug Delivery Systems

20-22 February 2012 San Francisco Airport Marriott Waterfront, USA

TITLE

Microencapsulation of Centrally Acting Non- sedative Analgesic Nefopam HCl by Phase-separation Technique: In-vitro Assessment

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This study was aimed to develop the sustained release formulations of a novel analgesic agent nefopam hydrochloride by simple phase separation-temperature change method. Non-toxic commonly available hydrophobic polymer ethyl cellulose has been used to formulate the 90 mg nefopam HCl. The microparticles containing nefopam HCl were prepared as N1, N2 and N3 with drug:polymer ratio of 1:1, 1:2 and 1:3. The prepared microparticles were evaluated for their physical characteristics, compressibility index, and angle of repose. In-vitro release characteristics were assessed and zero order, first order, Higuchi model, Korsmeyer-Peppas and Hixson-Crowell models were applied to determine the mode of drug release from microcapsular system. Interaction of polymer with drug was investigated by the thermal analysis using differential scanning calorimetry and thermo-gravimetric analysis. FTIR and X-ray diffraction were also employed to characterize the prepared microparticles. The formulated microparticles showed good flow properties and did not demonstrate any incompatibility of polymer and drug. Ethyl cellulose retarded the release of nefopam HCl up to twelve hours and showed 84% entrapment efficiency. The release pattern of drug followed the Higuchi's model.

This novel centrally acting analgesic could be formulated as sustained release dosage form by commonly available polymer and simple technique. The ethyl cellulose can be used to modify the release of nefopam HCl

Biography

Prof. Dr. Mahmood Ahmad has completed his Ph.D. from University of Punjab, Pakistan in 1991. He is Dean, Faculty of Pharmacy and Alternative Medicine, The Islamia University of Bahawalpur-Punjab, Pakistan. He is the author of more than 100 scientific International and National publications in reputed journals. He is also author of three books in the fields of Pharmacokinetics and Drug Delivery Systems. He has honored with BEST TEACHER AWARD-2009 by the Higher Education Commission of Pakistan.