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Design, development and characterization of ethosomal gel of Naproxen

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Naproxen is an anti-inflammatory drug used in the treatment of inflammation, fever, gout and arthritis. It has many side effects like gastric irritation, heat burn and nausea when taken orally. The purpose of present investigation was to develop ethosomes containing naproxen, which was incorporated in gel for transdermal delivery of naproxen for systemic effect in order to avoid side effects and minimize frequency of administration and show sustained release. The ethosomal formulations were developed using different concentration of ethanol (20%, 30% and 40%) and soy lecithin (1%, 1.5%, 2%, 2.5%, 3%, 3.5%). Further selected formulation was subjected to sonication to verify the effect on characterization. Photomicrographs revealed that all ethosomal vesicles were spherical in shape and uniform size. It was also observed that the concentration of ethanol increases as the entrapment efficiency decreases. *In vitro* release studies of formulation containing 20% ethanol and 2.5% of soy lecithin showed highest % drug release (71.39%) with high transdermal flux (69.27). Release kinetics of all formulations showed first order kinetics and followed Higuchi mechanism. Present investigation revealed that enhanced release kinetics of naproxen in ethosomal formulation. Ethosomal gel containing drug showed prolonged, predictable release kinetics and is certainly it is useful for treatment of arthritis by transdermal route.

Biography

K Kishore Kumar received D Pharmacy and B Pharmacy from SBTET and JNTU Hyderabad, respectively. He pursued PG in Biotechnology (M Tech-Biotech) from University College of Engineering, Department of Chemical Engineering, Andhra University, India. He accomplished SRF-UGC, University College of Engineering, Department of Chemical Engineering, Andhra University, for Ph.D. in Biotechnology. Later, he achieved M Pharmacy with the specialization of Pharmaceutics from JNTU Kakinada. He was an awardee of Dr. Kothari PDF, a prestigious Indian Post Doctoral fellowship, worked in Department of Plant Sciences, School of Life Sciences, University of Hyderabad, India. He has more than 7 years of teaching experience and guided 20 MPharm students and guiding 4 Ph.D. students. He is the life member of Association of Pharmaceutical Teachers of India (APTI) and Indian Institute of Chemical Engineers (IICHE). He has published more than 25 research papers in high impacted journals and presented more than 25 research papers in international and national conferences. He is an internationally renowned expert reviewer for various journals of Elsevier, Springer, Taylor & Francis publishers. Presently, he is the Professor with Mallareddy Group of Institutions, in Mallareddy College of Pharmacy, Hyderabad.

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