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## Magnetic field enhanced delivery of drugs from transdermal patch systems

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Skin is a significant barrier for the penetration of hydrophilic drugs. Generally, chemical permeation enhancers have been utilized in the dermal and transdermal systems to enhance the delivery of drugs. However, use of chemical permeation enhancers is associated with several disadvantages. Particularly, enhancers such as glycols, terpenes, surfactants, solvents such as alcohol and DMSO have been found to cause dermal irritation and more severe side effects on prolonged use. Therefore, there is huge demand for safer and economical methods of drug permeation enhancement across the skin. The existing biophysical technologies such as iontophoresis, sonophoresis, microneedles, electroporation and laser ablation methods are known to perturb the skin barrier which would take considerable amount of time to recover. Some of the technologies are not patient compliant either. A technology that enhances the delivery of drugs across the skin without affecting the skin structure and barrier properties is required in the present scenario. Magnetically mediated enhancement of drugs is a novel and simple approach to enhance the transdermal delivery of drugs. The magnetic field could be generated by placing simple permanent magnets on the drug reservoir or as a backing membrane in magnetic field. In this presentation, the use of magnetic field in the transdermal patch system and its efficacy as compared to chemical enhancers will be discussed. The development of patch system in addition to the data of *in vitro* permeation test and pharmacokinetic studies in human subjects will be presented.

### Biography

Shobha Rani R Hiremath is a Professor and Principal of Al-Ameen College of Pharmacy, Bangalore. She is the recipient of Dr. Mumtaz Ahmed Khan Award for distinguished community service for the Exemplary and Yeoman Services rendered to the community through education in the year 2012. She is also the recipient of the 2006 STARS Award for Teachers for "Excellence in Academic Research" in recognition of merit in academic research and motivation to further the research of young minds. She has won 10 best research paper awards. She has 80 research publications, 2 patents and 4 text books to her credit. Presently she is serving as Editor-in-Chief of the quarterly journal entitled *Indian Journal of Pharmacy Practice* (IJOPP) published by APTI. She has received research grants from AICTE, ICMR, WHO, AAGCPA and CDSCO (Govt. of India). Her research areas include Novel Drug Delivery Systems, Herbal Formulations, Clinical Pharmacokinetics and Pharmacovigilance. She has expertise in the formulation and evaluation of drug delivery systems such as Controlled delivery systems, Transdermal, Nanoparticles, Liposomes and Microspheres, Bioavailability-Bioequivalence studies and Pharmacokinetic studies and analysis.

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