

REFERENCES

1. Chi, S. C., and Jun, H. W., Release rates of ketoprofen from poloxamer gels in a membraneless diffusion cell. *J. Pharm. Sci.*, 80(3), pp.280-283, 1991.
2. Rhee, G. J., Woo, J. S., Hwang, S. J., Lee, Y. W., and Lee, C. H., Topical oleo-hydrogel preparation of ketoprofen with enhanced skin permeability. *Drug Dev. Ind. Pharm.*, 25(6), pp. 717-726, 1999.
3. Lu, G.W., and Jun, H. W., Diffusion studies of methotrexate in carbopol and poloxamer gels. *Int. J. Pharm.*, 160, pp. 1-9, 1998.
4. Allen L. V., The basics of compound. *Int. J. Pharm. Comp.*, 3(5), pp. 385-389, 1999.
5. BF. Goodrich Company., Formulating Topical Products. BF. Goodrich Pharmaceuticals Division, Bulletin 14, May, pp. 1-13, 1995.
6. Dabbagh, M. A., Ford, J. L., Rubinstein, M. H., and Hogan, J. E., Effects of polymers particle size, compaction pressure and hydrophilic polymers on drug release from matrices containing ethylcellulose. *Int. J. Pharm.*, 140, pp. 85-95, 1996.
7. El-Kattan, A. F., Asbill, C. S., Mickniak, B. B., The effect of terpene enhancers lipophilicity on the percutaneous permeation of hydrocortisone formulated in HPMC gel systems. *Int. J. Pharm.*, 198, pp. 179-189, 2000.
8. Vazquez, M. J., Casalderrey, M., Duro, R., Gomez, J. L., Martizer-Pacheco, R., Souto, C., and Concheiro, A., Atenolol release from hydrophilic matrix tablets with HPMC mixtures as gelling agent : Effects of the viscosity of the HPMC mixture. *Eur. J. Pharm. Sci.*, 4, pp. 39-48, 1996.
9. Technical Data Sheet from Colorcon Company., "Methocel".
10. Chien, Y. W., *Transdermal Controlled Systemic Medications*. Marcel Dekker, Inc. New York, USA., 1987.

11. Hadgraft, J., and Guy, R. H., *Transdermal Drug Delivery*. Volume 35. Marcel Dekker, Inc., New York and Basel., USA., 1989.
12. Osborne, D. W., and Amann, A.H., *Topical Drugs Delivery Formulations*. Marcel Dekker, Inc., New York and Basel., USA., 1990.
13. Barry B. W. Action of skin penetration enhancers-the lipid protein partitioning theory. *Int. J. Cos. Sci.* 10, pp. 281-293, 1988.
14. Levang, A. K., Zhao, K., and Singh, J., Effect of ethanol/propylene glycol on the in vitro percutaneous absorption of aspirin, biophysical changes and macroscopic barrier properties of the skin. *Int. J. Pharm.*, 181, pp. 255-263, 1999.
15. Berner, B., Mazzenga, G. C., Otte, J. H., Steffens, R. J., Juang, R. H., and Ebert, C. D., Ethanol: water mutually enhanced transdermal therapeutic system II: skin permeation of ethanol and nitroglycerin. *J. Pharm. Sci.*, 78(5), pp.402-407, 1989.
16. Kurihara-Bergstrom, T., Knutson, K., De Nobel, L. J., and Goates, C. Y., Percutaneous absorption enhancement of an ionic molecule by ethanol-water systems in human skin. *Pharm. Res.*, 7(7), pp. 762-766, 1990.
17. Berner, B., Juang, R. H., and Mazzenga, G. C., Ethanol and water sorption into stratum corneum and model system. *J. Pharm. Sci.*, 78(6), pp. 472-476, 1989.
18. Manabe, E., Sugibayashi, K., and Morimoto, Y., Analysis of skin penetration enhancing effect of drug by ethanol-water mixed systems with hydrodynamic pore theory. *Int. J. Pharm.*, 129, pp. 211-221, 1996.
19. Kobayashi, Y., Nakamura, H., Sugibayashi, K., and Morimoto, Y., Estimation of action site of L-lactic acid-ethanol-isopropyl myristate mixed system for its enhancing effect on the skin permeation of ketotifen. *Int. J. Pharm.*, 156, pp. 153-162, 1997.

20. Bendas, B., Schmalfuß, U., and Neubert, R., Influence of propylene glycol as cosolvent on mechanisms of drug transport from hydrogels. *Int. J. Pharm.*, 116, pp. 19-30, 1995.
21. Santoyo, S., Arellano, A., Ygartua, P., and Martin, C., Penetration enhancer effects on the in vitro percutaneous absorption of piroxicam through rat skin. *Int. J. Pharm.*, 117, pp. 219-224, 1995.
22. Lopez, A., Linares, F. L., Cortell, C., and Herraes, M., Comparative enhancer effects of Span[®] 20 with Tween[®] 20 and azone[®] on the in vitro percutaneous penetration of compounds with different lipophilicities. *Int. J. Pharm.*, 202, pp. 133-140, 2000.
23. Wade, A., and Weller, P. J., *Handbook of Pharmaceutical Excipients*, Second Edition, The Pharmaceutical Press, London, England, 1994.
24. Arellano, A., Santoyo, S., Martin C., and Ygartua, P., Surfactant effects on the in vitro percutaneous absorption of diclofenac sodium. *Eur. J. Drug met. Pharmacok.*, 23(2), pp. 307-312, 1998.
25. Nakamura, H., Pongpaibul, Y., Hayashi, T., Sugibayashi, K., and Morimoto, Y., Effect of lipophilic multicomponent system on the skin permeation of ketotifen fumarate. *Int. J. Pharm.*, 141, pp. 71-80, 1996.
26. Chi, S. C., and Jun, H. W., Anti-inflammatory activity of ketoprofen gel on carragenan-induced paw edema in rats. *J. Pharm. Sci.*, 79(11), pp. 974-977, 1990.
27. Ossipov, M. H., Jerussi, T. P., Ren, K., Sun, H., and Porreca, F., Differential effects of spinal (R)-ketoprofen and (S)-ketoprofen against signs of neuropathic pain and tonic nociception: evidence for a novel mechanism of action of (R)-ketoprofen against tactile allodynia. *Pain.*, 87, pp. 193-199, 2000.
28. Renold, A., *Martindale The Extra Pharmacopoeia*, Thirty first Edition, The Pharmaceutical Press, London, England, 1993.
29. Kawata, M., Suzuki, T., Kim, N., Ito, T., Kurita, A., Miyagoe, Y., and Goto, S. Preparation and evaluation of Eudragit gels II: In vitro release of salicylic

- acid, sodium salicylate, and ketoprofen from Eudragit L and S organo gel. *J. Pharm. Sci.*, 80(11), pp. 1072-1074, 1991.
30. Hildebrand, and G. E., Moller-Geymann, C. C., Podium presentation Drug delivery I. *Eur. J. Pharm. Sci.*, 4 suppl., pp. S.43-S.45, 1996.
31. Beetge, E., De Plessis, J., Müller, D. G., Goosen C., and Rensburg, F. J. V. (Francois Janse van Rensburg), The influence of the physicochemical characteristics and pharmacokinetics properties of selected NSAIDs on their transdermal absorption. *Int. J. Pharm.*, 193, pp. 261-264, 2000.
32. De Jalon, E. G., Josa, M., Campanero, M. A., Santoyo, S., and Ygartua, P., Determination by high performance liquid chromatography of ketoprofen in vitro in rat skin permeation samples. *J. Chromatograp. A.*, 870, pp. 143-149, 2000.
33. Obata, Y., Li, C. J., Fujikawa, M., Takayama, K., Sato, H., Higashiyama, K., Isowa, K., and Nagai, T., Evaluation and structure relationship of synthesized cyclohexanol derivatives on percutaneous absorption of ketoprofen using artificial neural network. *Int. J. Pharm.*, 212, pp. 223-231, 2001.
34. United States Pharmacopeial Convention. *The United States Pharmacopia, The Nation Formulary.*, 23th rev. ed. Mack Printing Company, Easton, PA, 1995.
35. ปลื้มจิตต์ วจนพันธ์., "การพัฒนาตำรับเภสัชผลิตภัณฑ์เจล" ในการพัฒนาผลิตภัณฑ์เจลตำรับยาทางผิวหนังและเครื่องสำอาง. กรุงเทพฯ: บริษัทประยูรวงศ์พรินท์ติ้ง จำกัด, หน้า 38-65, 2537.