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Enhancement the solubility of Flurbiprofen and its derivative by using micro-emulsion

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Flurbiprofen is one of the most potent non-steroidal anti-inflammatory drugs. It is widely used for relief of pain in patients suffering from rheumatic diseases, migraine, sore throat and primary dysmenorrhea. However, its aqueous solubility is very low and hinders the skin permeation. Thus, it is imperative to develop such a drug delivery systems which can improve its aqueous solubility and hence improve the skin permeation and therapeutic compliance. Micro-emulsions have been also proven to increase the cutaneous absorption of lipophilic drugs as compared to conventional vehicles. Micro-emulsion is thermodynamically stable emulsion that has the capacity to 'hide/solubilize' water-insoluble molecules within a continuous oil phase. Therefore, Flurbiprofen was converted to Easters through chemical reactions with alcohols such as methanol, ethanol, propanol and butanol. The product was further treated with hydrazine to get hydrazide. The solubility of the parent drug Flurbiprofen and the products were solubilized in micro-emulsions formed using various surfactants like ionic, non-ionic and zwitterions. It has been concluded that the product was more soluble than the parent compound. The biological activities of these were also investigated. The outcome was very promising and the product was more active than the parent compound. It is therefore concluded that in this way we can not only enhance the solubility of the drug, increase its bioactivity but also reduces the risk of stomach cancer.

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