World Academy of Science, Engineering and Technology
International Journal of Chemical and Materials Engineering
Vol:10, No:02, 2016

Synthesis and Solubilization of Flurbiprofen Derivatives and Investigation of Their Biological Activities

Authors : Muhammad Mustaqeem, Musa Kaleem Baloch, Irfan Ullah, Ammarah Luqman, Afshan Ahmad

Abstract : Flurbiprofen is one of the most potent nonsteroidal 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. Microemulsions 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 microemulsions 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, therefore, concluded that in this way, we can not only enhance the solubility of the drug and increase its bioactivity, but also reduce the risk of stomach cancer.

Keywords : Flurbiprofen, microemulsion, surfactants, hyrazides
Conference Title : ICC 2016 : International Conference on Chemistry
Conference Location : Istanbul, Türkiye
Conference Dates : February 15-16, 2016