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Indomethacin solid dispersions: Pharmaceutical development

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Indomethacin is a nonsteroidal anti-inflammatory drug which inhibits the cyclo-oxygenase enzyme, in order to reduce the precursors of prostaglandins and thromboxanes formation from arachidonic acid. Many therapeutical and side effects of indomethacin can be produced by the inhibition of prostaglandin synthesis in different tissues, while other actions may also contribute significantly to the therapeutic effect of indomethacin (Delta).

It is used to reduce pain/swelling involved in osteoarthritis, rheumatoid arthritis, bursitis, tendinitis, gout, ankylosing spondylitis, and headaches. The drug is described as poorly soluble and highly permeable (Class II) drug. Because water-insoluble drugs often show low absorption and this undesirable physical property may increase the incidence of irritating side effects on the gastrointestinal tract because of a prolonged contact time with the mucosa.

Our aim is to increase indomethacin solubility in order to reduce the gastrointestinal damage produced. In order to this, we have studied the solubility of indomethacin at three different pH (1.2; 7.4; 8.4). The best solubility was achieved at pH 8.4 adding sodium laurylsulfate (0,125 mg/mL). Six different formulations were prepared with different ratios of indomethacin and L-HPC (1:0; 1:1; 1:2.5; 1:5; 1:10; 1:20).

Biography

Estefanía Tascón (Pharm D) has obtained her degree in Pharmacy in 2014 at Salamanca University and she is attending her PhD, at Complutense University of Madrid. Our investigation group was formed at the Department of Pharmacy and Pharmaceutical Technology of the Complutense University of Madrid, and it has established collaboration with the Department of Parasitology. It is composed by several professors, from Parasitology and from Pharmaceutical Technology department, and several PhD students. We started studying indomethacin solid dispersions in 2015.

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