

ABSTRACT

THE EFFECT OF POLYMER COMBINATION ON PHYSICAL AND CHEMICAL CHARACTERISTICS OF MATRIX SYSTEM PATCH MELOXICAM

(Combination of polymer ratios : Carboxymethyl chitosan,
Hydroxypropyl methylcellulose E15 and Ethylcellulose N22)

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Meloxicam is an enolic acid derivative of the oxicam group of nonsteroidal anti-inflammatory drugs (NSAIDs) whose mechanism of action may be related to prostaglandin (cyclooxygenase-2 preferential) synthetase inhibition. In previous studies, meloxicam has been found to be safe and effective in the treatment of osteoarthritis (OA) at doses of 7.5 to 15 mg daily. However, it has been reported that meloxicam can irritate the gastrointestinal tract. Transdermal drug delivery system (TDDS) is potential in order to use an alternative route which can reduce side effect of meloxicam. This aimed of research to determine the effect of polymer combination on physical and chemical characteristics of matrix system patch meloxicam. In this research, the matrix system patch meloxicam was made by solvent vaporation method. The polymer used in carboxymethyl chitosan, hydroxypropyl methylcellulose E15 as hydrophilic polymers and ethyl cellulose N22 as hydrophobic polymer. Patch will be made in 3 formulas with ratio of CMCs : HPMC E15 : EC N22 (4:5.5:5.5 ; 5:4.5:4.5 and 6:3.5:3.5). The transdermal patches were evaluated for physical characteristic such as visual appearance, weight, moisture content, thickness, flatness, surface test with SEM and chemical characteristic such as drug content, drug homogeneity. This research resulted that combination of hydrophilic polymers between carboxymethyl chitosan, hydroxypropyl methylcellulose E15 and hydrophobic polymer ethyl cellulose N22 can increase MC from patches of meloxicam. Comparison of the composition in formula 3 is the most optimal combination for the patch preparation of meloxicam.

Keywords : Meloxicam, transdermal drug delivery system, patch, carboxymethyl chitosan, hydroxypropyl methylcellulose E15, ethyl cellulose N22.