



RESEARCH ARTICLE

# FORMULATION DEVELOPMENT OF MOUTH DISSOLVING TABLETS OF A POORLY WATER SOLUBLE DRUG USING SUBLIMATION TECHNIQUE

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Received: January 04, 2012 / Revised: January 23, 2012 / Accepted: January 24, 2012

The purpose of this research was to develop mouth dissolving tablets of etoricoxib. Materials containing etoricoxib, camphor, low substituted-hydroxypropyl cellulose (L-HPC) and lactose were compressed by direct compression technique. Camphor was sublimed from the tablets by exposure to vacuum. The porous tablets were evaluated for percentage friability, wetting time and disintegration time. Sublimation of camphor from tablets resulted in superior tablets. The systematic formulation approach helped in understanding the effect of formulation processing variables. The best results for the batch D3 in terms of crushing strength; friability and disintegration were obtained, when sublimation was carried out of the tablets containing camphor as a sublimating agent at 5% and L-HPC as disintegrant at the 12% concentration. The drug release data showed that the entire drug was released within 60 min. The best batch prepared using camphor sublimation technique possessed crushing strength (kg/cm<sup>2</sup>) of 3.5, friability (%) of 0.26, wetting time of 21 sec and disintegration time of 24 sec, respectively.

**Key words:** Mouth dissolving tablet, Sublimation, Camphor, Etoricoxib, Poorly water soluble drug.

## INTRODUCTION

Oral route is the most widely used route of drug administration. However, the poorly soluble drugs may show difficulty in their absorption but their solubility can be enhanced by various approaches (Sachan and Pushkar, 2011; Pabreja and Dua, 2011). The demand for orally disintegrating tablets has enormously increased during the last decade, particularly for geriatric and pediatric patients who have difficulty in swallowing conventional tablets and capsules (Dinesh Kumar *et al* 2011). To provide the patient with the most convenient mode of administration, there is need to develop a fast disintegrating dosage form, particularly one that disintegrates and dissolves/disperses in saliva

and can be administered without water, anywhere, anytime (Solanki and Dahima, 2011; Basu *et al* 2011; Dahiya *et al* 2011; Parkash *et al* 2011). Such tablets are also called as "melt in mouth tablets". This is an innovative technology where the dosage form containing active pharmaceutical ingredients disintegrates rapidly, usually in seconds, without the need for water, providing optimal convenience to the patient. Innovators and inventor companies have given these tablets various names such as mouth dissolving, fast melting, fast dissolving or orodispersible. Etoricoxib is an effective anti-inflammatory agent with minimal incidences of side effects and is indicated for various conditions like osteoarthritis, rheumatoid