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SOLUBILIZATION OF IBUPROFEN BY INCLUSION COMPLEXES TECHNIQUE BY USING β-CYCLODEXTRIN FOR PEDIATRIC THERAPY

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ABSTRACT

Different concentration of ibuprofen- β-cyclodextrin complexes were prepared to study the effect of inclusion complexes on solubility of ibuprofen. A study on standard calibration curve of ibuprofen was conducted to determine the amount of ibuprofen dissolved. Uv-vis spectroscopy was used to analyze the solubility of ibuprofen in β-cyclodextrin .The results proved that β-cyclodextrin can improved the solubility of ibuprofen.

Keywords: solubility, ibuprofen, inclusion complexes, β-cyclodextrin

CHAPTER 1

INTRODUCTION

1.1 Introduction

Improvement of solubility of poorly soluble drugs is essential to ensure the bioavailability of the drug in reaching the intended site of action. Bioavailability of a drug depends on its solubility and dissolution rate. Dissolution may be the rate determining step for the onset of therapeutic activity(Jafar, MHG, & Shareef, 2010). Improvement of a drug solubility is importance because poorly water soluble drug will show low bioavailability and absorption rate, and thus require high doses in order to reach therapeutic plasma control of after administration. Many studies have been reported for improving the solubility of drugs.

Ibuprofen is a drug classified under non- steroidal anti-inflammatory drugs (NSAIDs) that act by inhibiting isoforms of cyclo-oxygenase 1 and 2. NSAIDS are usually poorly soluble in water and it has usually associated with a GIT upset such as ulceration, bleeding and perforation. Ibuprofen is NSAIDs with analgesic, antipyretic and anti inflammatory properties. They are effective for the treatment of inflammatory disorders and painful condition such as headache, gout, osteoarthritis and also to treat mild to moderate pain of dysmenorrhoea. Before it can act,