CHAPTER I

INTRODUCTION

According to many problems associated with the use of corticosteroids in the treatment of rheumatoid arthritis, several groups of nonsteroidal anti-inflammatory drug (NSAIDs) are now the first choice of drug therapy in rheumatoid arthritic patients. Recently, a new chemical compound of NSAIDs groups has been intensively searched for providing some advantages over those currently available. Naproxen is one of those. It is a propionic acid derivatives with antiinflammatory, analgesic, and antipyretic actions which is widely used in rheumatic diseases and mild to moderate pain including dysmenorrhea (1, 2).

Naproxen was first synthesized by Harrison et al. (3) in 1970 and became available in the United States for the treatment of rheumatoid arthritis in 1976 (4). It was introduced to be the first choice as an alternative to aspirin because it produced a good response and caused fewer side effects as well as incompatibility problems in the treatment of inflammatory disease (5). Moreover, the dosage of naproxen is more convenient than those in the same groups because of its long half-life. These advantages of naproxen are continuously accepted by patients.

In Thailand, naproxen is one of the drugs in the National Essential Drug List of Thailand (6) which must be used by generic name in all government hospitals.

Although there were at least nine different brands of 250 mg. naproxen tablets commercially available in Thailand, there appeared to be no bioavailability data of these products in order to confirm whether the local manufactured brands were bioequivalent to that of the original brand. Additionally, it is documented that the manufacturing processes and final formulations could markedly affect the bioavailability of the drug products (7). These observations made it of interest to assess the bioavailability of the local products relatively to their original product following oral administration in Thai healthy volunteers.

Therefore, the purposes of this study were :

1. To compare the bioavailability of the local manufactured brands of naproxen tablets to that of the original brand.

2. To compare the hardness, the disintegration time, and the dissolution rate of naproxen tablets commercially available in Thailand.

3. To determine the pharmacokinetics of naproxen tablet after single oral administration in Thai healthy volunteers.

4. To correlate the disintegration time and/or the dissolution rate with the in vivo parameters .

Significances of the study.

1. This study will provide the meaningful informations about the bioavailability of naproxen tablets manufactured in Thailand which will enable to select the effective and economical products to provide the same therapeutic efficacy.

2. The pharmacokinetic parameters of naproxen obtained from Thai volunteers will be compared with previously reported studied in other countries. If any differences were detected, a readjustment to an appropriate dosage regimen of naproxen for Thai people could be recommended

3. This study will provide an information about the correlation between the in vitro parameters, the disintegration time and/or the dissolution rate, of naproxen tablet and those from bioavailability reports. If relationships between the in vitro tests and the in vivo bioavailability data were observed, results obtained from the in vitro studies may be used to predict the in vivo bioavailability of tablets.