CHAPTER I

INTRODUCTION

Paracetamol has earned a prominent place as a "common household analgesic." It has been very extensively used as a nonprescription analgesic and antipyretic agent (1).

Because of its poor solubility in water (1:70), the paracetamol is therefore formulated using mixtures of alcohol, propylene glycol, and glycerol as vehicle. When alcohol is used, the concentration should keep as low as possible since its physiological activity as well as, at high concentrations,burning taste (2).The presence of ethyl alcohol in pediatric medication is of major toxicological interest with respect to both acute ingestion and passive exposure that would occur during therapy. The Committee on Drugs of the American Academy of Pediatrics has stated that "It is desirable that no ethyl alcohol be included in medicinal products intended for use in children "(3).

As continued efforts,there should be made to have alcohol removed from liquid preparations for children.Hence, paracetamol oral solution has been formulated using other inert solvents (i.e.,propylene glycol and polyethylene glycol) to replace alcohol or reduce its content. However

the use of these solvents is still limited, this is because some of them are toxic when high concentration are utilized (4-8). Recently, paracetamol suspensions have been developed (9) and are available in Thailand for a few years. It would be an effective and safe dosage form for use with children.

Basically, one would expect oral suspension to be more rapidly bioavailable than a tablet or capsule. This is because the suspension already contains discrete drug particles. Moreover its appropiate particle size and shape, surface characteristics, polymorphism, and viscosity of the vehicle used to suspend the particles , can potentiate the bioavailability of the drug (10).Since the bioavailability of paracetamol suspension has never been evaluated before, the question was arisen whether paracetamol suspensions were bioequivalent to paracetamol elixir or not.

Therefore, the objectives of the present study were

1. To evaluate the relative bioavailability of paracetamol suspensions to paracetamol elixirs.

2. To compare the bioavailability of paracetamol suspensions commercially available in Thailand.

3. To compare the in vitro absorption rate of paracetamol suspensions and paracetamol elixir using Sartorius Absorption Simulator SM 16750.

4. To investigate the correlation of the in vitro and in vivo absorption results of these dosage forms.