

# CHAPTER 1

## INTRODUCTION

Amoebiasis, caused by *Entamoeba histolytica*, is estimated to infect up to 10% of the world population. Fifty million cases of amoebic dysentery and liver abscess are reported each year (Ravdin, 1995). These infections resulted in approximately 50,000 to 100,000 deaths annually. Among parasitic infections, amoebiasis ranks the third worldwide, behind malaria and schistosomiasis, in lethal infection (Walsh, 1988; Petri and Mann, 1993). In developing countries such as South Africa and India, the disease is far more prevalent (Walsh, 1986).

In Thailand, during 1987-1997, there were at least 50,000 cases of dysentery reported each year and approximately 400 people die. The unreported cases were estimated to be much higher. Mostly (90%), the causes of dysentery are unknown. However, *E. histolytica* was detected in about 2-3% of cases (Anon, 1997). Apart from amoebic dysentery, *E. histolytica* also cause extraintestinal amoebiasis such as amoebic liver abscess, lung abscess, brain abscess and amoebic appendicitis (Shulman *et al.*, 1997).

Metronidazole is the drug most commonly used for amoebic dysentery and other extra-intestinal amoebiasis (Tracy and Webster, 1996). However, its side effects such as mutagenicity in bacteria (Legator, Connor and Stoeckel, 1975), carcinogenicity in rodents (Rustia and Shubik, 1972; Shubik, 1972), along with the report on the occurrence of metronidazole resistance to human pathogenic bacteria, *Helicobacter pylori*, (van Zwet *et al.*, 1994) as well as an immunosuppression agent in both cell-mediated and humoral immune responses (Saxena, Chugh and Vinayak, 1985), are the main reasons for reinforcing the need of developing safe and effective alternative antiamoebic agent.

Medicinal plants may be the new choice for people in developing countries because they are safe, low cost availability and easy access. In the present study, a crude methanol extracts of *Piper longum* fruit, *Piper sarmentosum* root and *Quercus infectoria* nut gall were selected because they are routinely used to cure bloody diarrhea in Thai traditional medicine. It might be of great value to evaluate their effect on amoebiasis scientifically. The *in vivo* antiamoebic effect of each extract was evaluated in experimental caecal amoebiasis of mice. Their effects on rats or guinea-pigs ileum were also studied *in vitro* to determine whether the antidiarrheal activity is due to the inhibition of intestinal motility.