



## CHAPTER I

### INTRODUCTION

#### Statement of the problems

*Ascaris lumbricoides*, the human roundworm is one of the most common intestinal parasites in the world. It has been estimated to infect approximately one billion people. Transmission to human is closely related to socioeconomic factors. A single infection can consist from one to hundreds of adult parasites. The disease is chronic in nature, a single infection lasting for up to two years if untreated. Reinfection in endemic areas is common so that children and adults may have some degree of *Ascaris* infection for most of their lives. Intestinal obstruction or blockage of a bile duct are complications which occur especially in cases of massive infection. The habitual migration of immature parasites through livers and lungs of infected persons may cause liver damage and respiratory disease. the WHO Expert Committee Report on Control of *Ascaris* (1976) cites relationships between *Ascaris* infection and stunting, general undernutrition, avitaminosis, decreased protein absorption, xerophthalmia, and ascorbic acid deficiency for being of possible nutritional importance. Despite these considerations this parasite has been subject of relatively little scientific inquiry and ascariasis is a neglected public health problem. However in terms of public health the morbidity and mortality due to the complications of ascariasis have not been well documented and their significance has not been adequately discussed. An objective analysis of the impact of ascariasis on the nutritional and immune status of the human host is also lacking. The alterations that, *A.lumbricoides* produces on the structure physiology and biochemistry of the human intestine and the indirect nutritional and

immunologic consequences of ascariasis are not yet fully understood. Economy studies regarding the costs of the disease are scarce or at least to be criticized (Schultz, 1982). However an extensive study in Kenia has elucidated that massive use of relatively inexpensive drugs in effectively lower the worm burdens would cost less than one - fifth of the cost of the actual disease (Stephenson et al., 1980). The question whether an attempt to control ascariasis is worth the effort can not be answered from these figures.

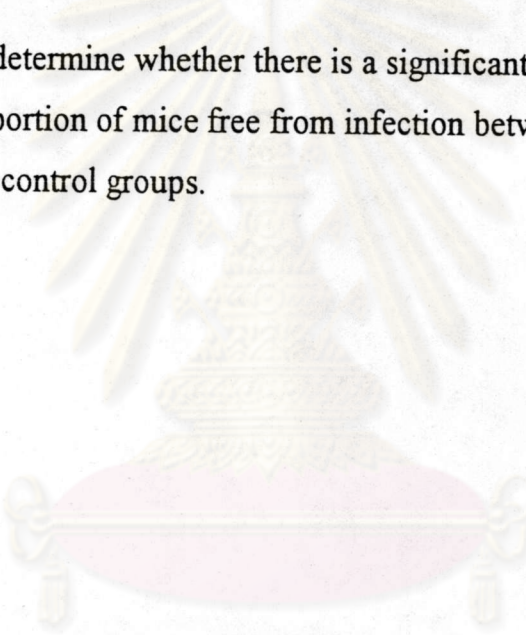
The idea that the infection is relatively harmless in most cases is simply not true, especially in preschool children in endemic areas. Mass-treatment in a sense will also be a form of prevention since this kills the adult ova producing worms. It is probable that *Ascaris* and other intestinal helminths will then virtually disappear from poor tropical areas with improvements in personal hygiene, increased latrine use and greater availability of safe water supplies. It is clear that such improvement will not reach the estimated one billion *Ascaris* infected people (Vietnam about 60-80% people suffer from Ascariasis) in the near future. There are examples from South-East-Asia that the control of ascariasis is well accepted by the people and may be an effective "entry point" for promoting participating in other important health problems (Pawlowski, 1984, Kunii 1980). It is therefore that an attempt is being made to search for a other way to actively immune children by means of a safe vaccine.

## Purposes of study (objective)

General purpose: to determine the effectiveness of *Ascaris* antigens against ascariasis in mice.

Specific purposes are:

- To determine whether the average number of migrating larvae in groups infected with *Ascaris* antigens (E/S antigens-somatic antigens) are significantly lower than in control groups (in mice).
- To determine whether there is a significant difference in the proportion of mice free from infection between the experimental and control groups.



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