CHAPTER I

INTRODUCTION

Melioidosis caused by *Pseudomonas pseudomallei* is one of the major health problem in Southeast Asian countries including Burma[1], Vietnam[2], Malaysia[3] and Thailand.[4] The disease was first reported in Burma by Whitmore[5] in 1912. In Thailand, the first case was reported by Chittvej[6] from Army Hospital in 1955. Since then all physicians have been alert for this disease. There were 773 reported cases from Thailand in 1983-1985, most cases were in the northeastern part and southern part of the country[4].

The clinical manifestation of melioidosis varies from mild to severe and resembles those of many other acute and chronic bacterial infections. Therefore, melioidosis has been termed "The great imitator" for every infectious disease[7,8,9], and every organ can be involved[8]. Usually the chronic form has been misdiagnosed for anaerobic[10], tuberculotic or fungal infection[11,12]. On the other hand, the acute form has been mistaken for staphylococcal or other acute bacterial septicemias. For disseminated septicemia, the mortality rate is as high as 80 percent[4]. The isolation of this organism from hemoculture is essential for diagnosis but this is time consuming.

There are many serological tests for detecting the level of antibody titer, but regularly, the indirect haemagglutination test (IHA) is used. However there are still some problems with the

serological tests they may cross react with other bacterial infections such as other pseudomonads and enterobacteriaceae[13,14,15]. Another difficulty is that low level of antibody can usually be found among people in endemic areas[13,14,16,], therefore the physicians have to observe rising antibody titers in paired sera which takes time. In some cases of septicemia, the level of antibody titers is not high enough to be detected[17]. Because serological tests are relatively unsatisfactory for detecting antibody a new approach which is more accurate, reliable, rapid and easy to perform needs to be found. For this reason, we needed to focus on *P. pseudomallei* antigen and increase our knowledge of the antigenicity, serology and pathogenicity of this organism.

Recently, electrophoretic techniques have been used to study the cellular component of bacteria such as SDS-PAGE which has been widely applied to microbial taxonomy identification and typing of various organisms such as *Acinetobacter* strains[18], *Bacteroides ureolyticus* [19] and *Streptobacillus moniliformis* [20]. Using this technique, the patterns of the sonic extract of *P. pseudomallei* from clinical isolates will be performed and evaluated. Such preliminary data will allow for further studies of the taxonomy, epidemiology and serology of this organism.

Our other purpose is to define the antigenic relationship between various *P. pseudomallei* from clinical isolates, the reference -strain of *P. pseudomallei* and some other microorganisms, which showed cross reaction in serological test by immunoblotting against rabbit antiserum to the reference *P. pseudomallei* strain. We hope

that the results of such investigation will form the basis for studying the serotypes and finding common antigen or species specific antigen for further studies, and thus improve diagnostic or prophylactic methodology.