

Pathogenic fungal contamination in soil samples from Thailand: an overview

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Citation

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Abstract

Soil contamination with pathogenic fungus is a health concern in tropical developing countries. There are many important soil-transmitted fungus in Thailand, i.e. *Cryptococcus neoformans* and *Histoplasma capsulatum*. In this article, the author summarized the prevalence of soil contamination with pathogenic fungus in Thailand. According to this study, overall prevalence of contamination is equal to 8.7 %. There is no significant correlation between setting and prevalence.

INTRODUCTION

Soil contamination with pathogenic fungus is a health concern in tropical developing countries. Diseases transmitted by soil are common in many tropical areas, including Thailand. Several efforts for control of those diseases are in place [1]. There are many important soil-transmitted fungus in Thailand, i.e. *Cryptococcus neoformans* and *Histoplasma capsulatum*. In this article, the author summarized the prevalence of soil contamination with pathogenic fungus in Thailand.

MATERIALS AND METHODS

PRIMARY DATA

This study was designed as a descriptive retrospective study. A literature review on the papers concerning blood lead level among several risk occupations in Thailand was performed. The author performed the literature review from database of the published works cited in the Index Medicus and Science Citation Index using key word "soil" and "fungus". The reports that lacked English text or contained no complete data were excluded for further analysis.

STATISTICAL ANALYSIS

Descriptive statistics were used in analysis. For each report, the prevalence of soil contamination was extracted. The summarization to find overall prevalence was performed. In addition, the correlation between the prevalence and setting was also assessed using Chi-square test. All the statistical analyses in this study were made using SPSS 7.0 for Windows Program.

RESULT

According to the search there are 6 reports [2,3,4,5,6,7] covering 1774 soil samples on soil parasitic contamination in Thailand (December 2007). The details of each study were presented in Table 1. Overall prevalence of contamination is equal to 8.7 %. There is no significant correlation between setting and prevalence.

Figure 1

Table 1: Reports of soil contamination with pathogenic fungus in Thailand.

Report	Setting	Number of soil samples	Prevalence
Boriraj et al [2]	Central	1128	13.1 %
Imwirthaya et al [3]	Central	362	0 %
Balankura et al [4]	Central	40	0.1 %
Surasawadee J et al [5]	Central	40	0.1 %
Thasnakorn et al [6]	Central	158	0 %
Doungbarn et al [7]	Northern	46	7.2 %

*There are five main regions of Thailand: northern, northeastern, southern, eastern and central regions.

DISCUSSION

Although the deep fungal infection is not the main infectious disease in the tropics the increase rate can be observed within the past 2 decades due to the emerging of human immunodeficiency virus infection (HIV). Mainly, the fungal agents causing the systemic fungal infection in HIV infected case are soil contaminants [8,9]. In some cases, those pathogenic fungi can also infect immunocompetent cases. Disease surveillance by soil contamination surveying is a

recommended preventive protocol.

According to this work, the author analyzed the data on pathogenic contamination in Thailand. As high as 8.7 % of soil samples pose pathogenic fungus contamination.

However, a variation of the contamination rate from study to study is very high. This might be due to the fact that fungus usually colonizes in a very specific site with proper environment.

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