# Abstract

This study aimed to determine the factors affected to malarial disease in Surin province, and the application of Geographic Information System for analysis the risk areas of malarial disease. Data were collected during 2007-2011, included malarial cases, mosquito larval index (HI, CI, BI), densities of mosquito adult inner and outer of house, land use, forest area, water reservoir, rainfall, humidity, and temperature. The results showed that the significantly environmental factors related to the number of malarial cases were land use, population, distance of forest, water reservoir, landfill, larval index, densities of mosquito, and densities of mosquito adult outer of house, respectively (*p value* =0.05). The significantly weather factors related to malarial cases were rainfall, temperature, and humidity, respectively (*p value* =0.05).

The risk areas to malarial disease in Surin province were analyzed and found that the high risk areas (16.91%), moderately risk areas(72.70%), and low risk areas (10.39%). By district, Sang Kha was the high risk area (covered area 5.30%), followed by Bua Ched (covered area 4.18%). By number of village, the high risk areas were covered 65.28%, moderately risk areas(25.00%), and low risk areas (9.72%).

This study indicates that Surin province is still a major problem of malarial disease therefore prevention and control need to consider.

Keyword: factor, malaria, Surin, Geographic information system