



School of Agricultural Technology  
**Walailak University**  
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The 2<sup>nd</sup> International Symposium on Sustainable Agriculture and Agro-Industry  
March 28<sup>th</sup>-29<sup>th</sup>, 2017  
Walailak University, Nakhon Si Thammarat, Thailand

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The 2<sup>nd</sup> International Symposium on Sustainable Agriculture and Agro-Industry (ISSAA2017)  
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Walailak University

## Effectiveness of effervescent tablets clay Kutai for reduction pathogenic microbes in sewage

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### ABSTRACT

A high-level of microbial pathogens in sewage is caused by water pollution from waste water in a domestic area. The measurements obtained from *E. coli* and Coliform MPN  $9.2 \times 10^4$  bacteria/100ml in drainage around the settlement in Samarinda district, East Kalimantan Province, Indonesia. The analysis of concentration clay in Kutai soil was 55.9% and it had a potential to reduce the coliform bacteria by physical power that it had reduced pathogenic bacteria and could develop the technology to reduce pathogenic bacteria by activation utilization clay Kutai with manufacture of effervescent tablets. In this research, the measured level of efficiency reduction effervescent tablets of clay kutai against microbial pathogen in sewage or waste water. This study investigated the measurements MPN coli and *E. coli* in sewage, manufactured effervescent tablets of clay kutai, and analyzed the efficiency reduction effervescent tablets of clay MPN coli. The result of study showed that the highest reduction of clay kutai against formula with concentration clay 10g at 99.9%. The comparative effectiveness clay kutai all form included: such as powder with and without white cement and effervescent tablets have high reduction rate of 99.99%. The use of effervescent tablets of clay kutai in a laboratory test had high effectiveness of reduction of MPN coli even though without the addition of white cement and could be developed in the application of appropriate technology in order to reduce microbial pathogens in domestic waste water in particular.

**Keywords:** Clay kutai, effectiveness, effervescent, pathogenic microbes, reduction



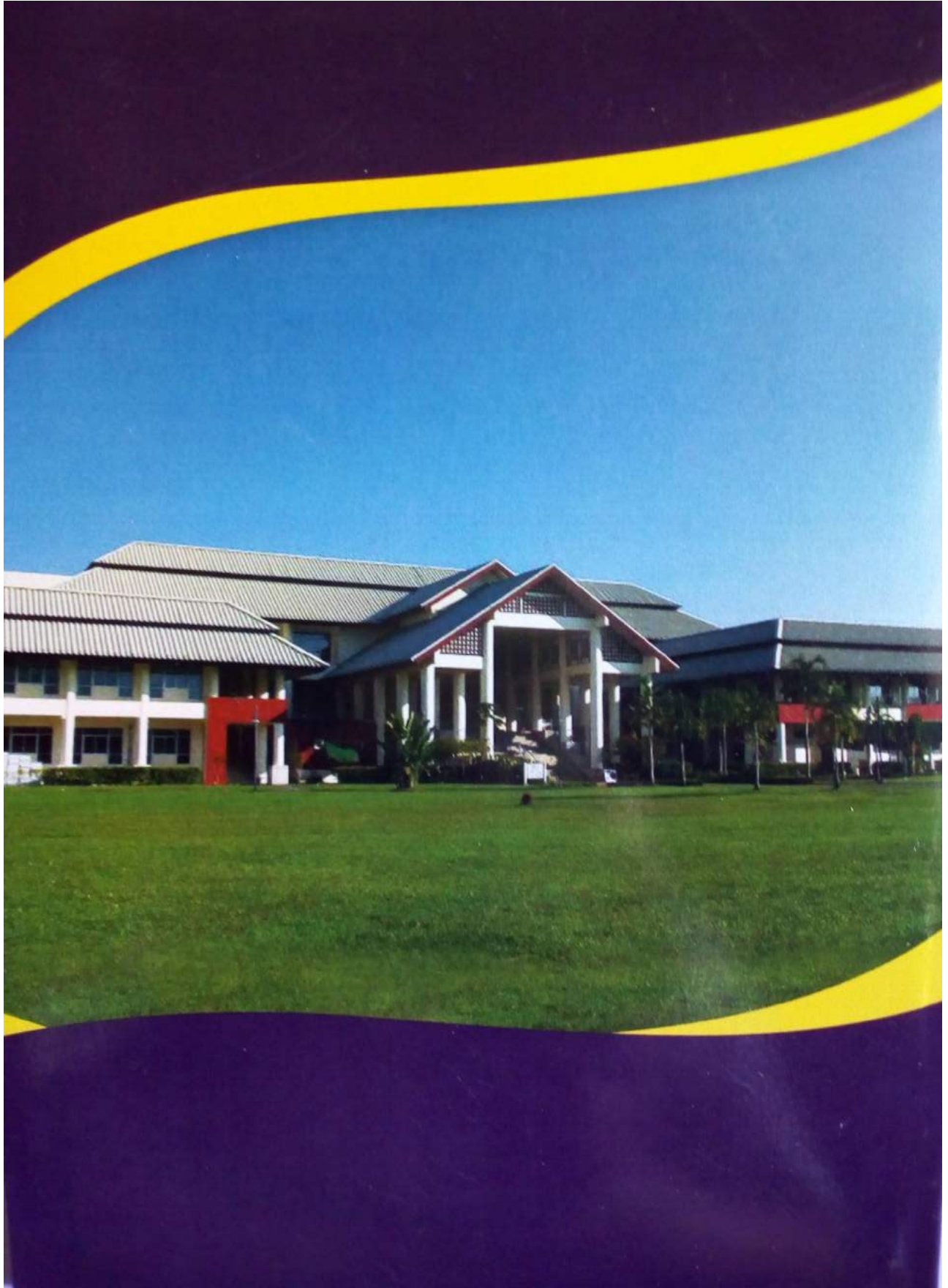
การประชุมวิชาการและวิจัยระดับชาติ  
และนานาชาติทางเทคนิคการแพทย์ ครั้งที่ 5  
The 5<sup>th</sup> National and International  
Conferences on Medical Technology 2017

**“Infectious Diseases and Innovation for Clinical Diagnosis”**

28 - 29 March 2017

The Twin Lotus Hotel, Nakhon Si Thammarat  
Thailand

Organized by  
Department of Medical Technology, School of Allied Health Sciences, Walailak University



การประชุมวิชาการและวิจัยระดับชาติและนานาชาติทางเทคนิคการแพทย์ ครั้งที่ 5  
The 5<sup>th</sup> National and International Conferences on Medical Technology 2017

14.20-14.40 pm.	Utilization Clay Soil Kutai for Reducing MPN Coliform and <i>Escherichia Coli</i> in Domestic Wastewater	Mr. Blego Sedionoto
14.40-15.00 pm.	Phylogeny of <i>Vermamoeba vermiformis</i> Isolated from a Freshwater Fish in Lake Taal	Prof. Dr. Giovanni D. Milanez
<b>15.00-15.30 pm.</b>	<b>Coffee Break and Exhibitions</b>	
15.30-15.50 pm.	Melioidosis in North Central Part of Vietnam: a Series of Cases Detected after Raising Awareness and Introducing a Simple Laboratory Algorithm	Dr. Trinh Thanh Trung
15.50-16.10 pm.	Antimalarial, Anti-hemolytic, Hepatoprotective and Nephroprotective Activities of <i>Gynostemma pentaphyllum</i> Leas Extract in Plasmodium berghei Infection in Mice	Asst. Prof. Dr. Voravuth Somsak
16:10-16:30 pm.	Acanthamoeba – from Malaysian Plants to Natural Amoebicidal Agents	Ms. Tooba Mahboob
16.30-18.00 pm.	Exhibitions	
18.00 -22.00 pm.	Welcome Dinner/MT-WU Alumni Homecoming Party	



**Utilization Clay Soil Kutai for Reducing MPN Coliform and *Escherichia Coli* in Domestic Wastewater**

**Blego Sedionoto<sup>1,2\*</sup>, Witthaya Anamnat<sup>1</sup>**

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**Abstract**

High levels of microbial pathogens in domestic wastewater are caused by water pollution from wastewater in domestic area. Previous studies have showed that the number *Escherichia coli* and coliform were found us  $9.2 \times 10^4$  bacteria/100ml on drainage around the settlement in Samarinda district, East Kalimantan, Indonesia. The concentration clay in soil kutai was found us 55.9% and it potential to reduce the coliform bacteria by physical power. This study investigated the measurements of MPN coliform and *Escherichia coli* in the domestic wastewater. The analysis chemical and physical clay soil kutai were used in this research. In addition, the analysis of the reduction efficiency of clay soil kutai against MPN coliform and *Escherichia coli* in four formulas of activation clay soil kutai, including 100% clay kutai, and the addition of white cement 25%, 50%, and 75% dose for the total formulas 10 gram/100ml in domestic wastewater was performed. The result showed that all of the formulas of clay soil kutai showed a significant reduction of MPN coliform from  $9.2 \times 10^4$  bacteria/100ml to 190 bacteria/100ml ( $p = 0.000$ ) and *Escherichia coli* from  $9.2 \times 10^4$  bacteria/100ml to 130 bacteria/100ml ( $p = 0.021$ ). Suggesting that, the utilization of clay soil kutai may have the potential for reducing MPN coliform and *Escherichia coli* in domestic wastewater.

**Keywords**

Clay, MPN coliform, *Escherichia coli*

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# **PROGRAM BOOK**

**One Health International Seminar  
On Zoonotic Disease and Wildlife**

Swiss Belhotel, Yogyakarta, Indonesia, July 22<sup>nd</sup>, 2017



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One Health Approach to Control Zoonotic Disease and Improve Quality of Life

# One Health International Seminar On Zoonotic Disease and Wildlife

Swiss Belhotel, Yogyakarta, July 22<sup>nd</sup> 2017

## THE PREVALENCE AND DIVERSITY OF HOOKWORM INFECTIONS AND STRONGYLOIDIASIS IN CATS AND HUMANS IN A RURAL THAILAND VILLAGES

Blego Sedionoto<sup>1</sup>, Witthaya Anamnart<sup>2</sup>

<sup>1</sup>Lecturer in Environmental Health, Faculty of Public Health Mulawarman University, Indonesia

<sup>2</sup>Professor, Tropical Medicine, School of Allied Health Sciences and Public Health Walailak University, Thailand

In southern Thailand, hookworm infections and strongyloidiasis are prevalent in humans and particularly in rural areas. Yet, information on potentially zoonotic parasites in animal reservoir hosts is lacking. In 2014, fecal samples from 96 cats and 1050 humans, 96 cats were collected from households in Moklalan and Photong villages, Thasala district, Nakhon Si Thammarat province, Thailand. Fecal samples were examined microscopically using modified formal-ether concentration technique and Koga Agar plate culture. PCR and DNA sequencing were used to confirm genomes and species of hookworm. Result of study showed hookworm infections and strongyloidiasis found in cats including hookworms (46%), and *Strongyloides stercoralis* (1,7%).

In humans, hookworm (52%), *Strongyloides stercoralis* (13%), *T. trichiura* (14%) and *Ascaris* (1%). Identify species of hookworm is *N. americanus*, but cats usually could be infected by *Ancylostoma caninum* and this study given statement that cats was not equal with human hookworm infections which have not zoonotic potential also *Strongyloides stercoralis*, *Ascaris lumbricoides* and *T. trichiura* because Cats behavior on defecation made larvae of soil transmitted helminth not completed to infective filariae form larvae especially hookworm and strongyloidiasis *stercoralis*. Further environmental epidemiology studies of hookworm infections and strongyloidiasis are important for detrimental analyze zoonotic diseases especially in community.

**Key words:** Cats, Humans, Hookworm infection and Strongyloidiasis, Zoonosis

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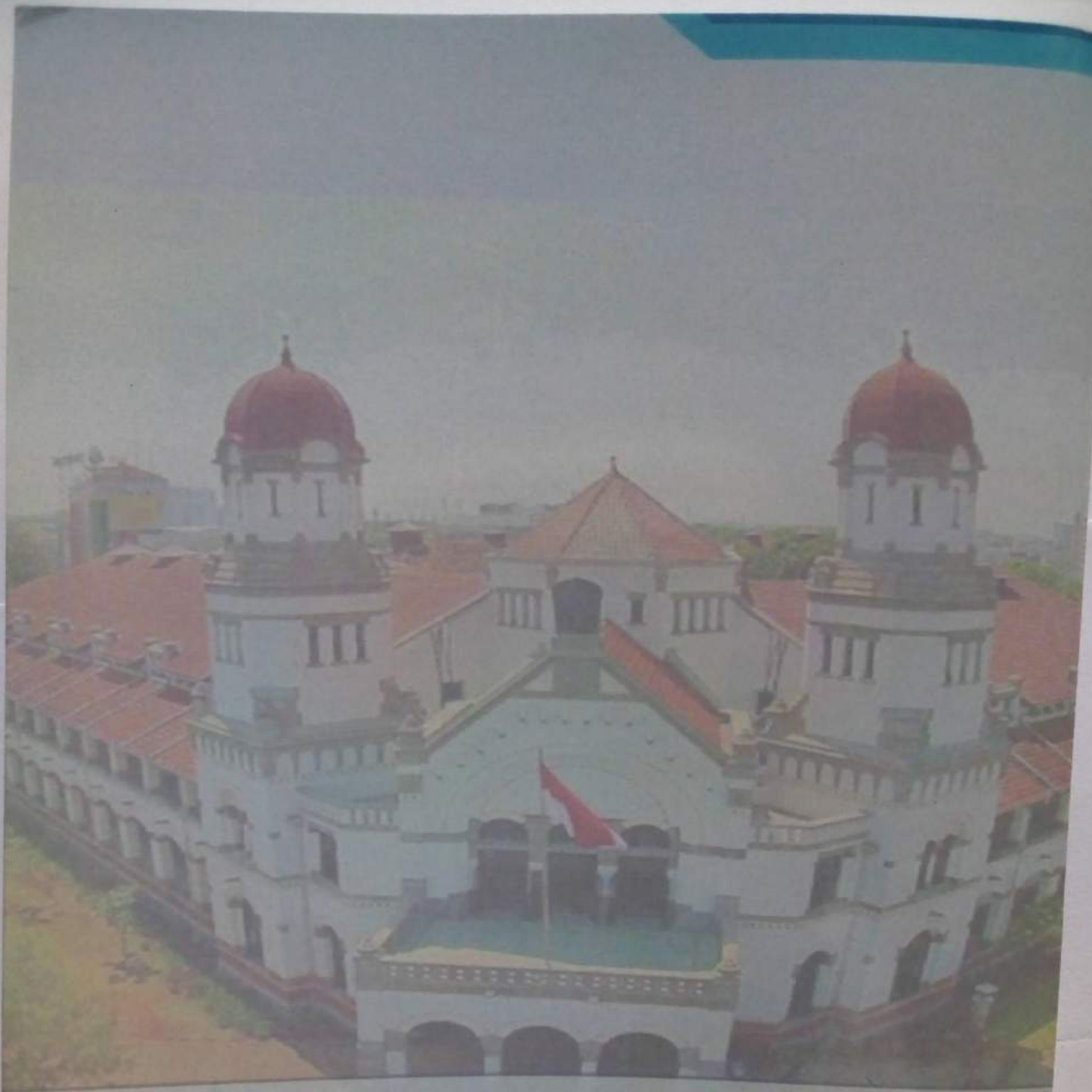


**ON ENERGY, ENVIRONMENT, AND INFORMATION SYSTEM**

AUGUST, 15<sup>th</sup> - 16<sup>th</sup> 2017  
SANTIKA PREMIERE HOTEL  
SEMARANG, INDONESIA

**PROGRAMME AND ABSTRACT BOOK**

[www.icenis.org](http://www.icenis.org)



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[www.pasca.undip.ac.id](http://www.pasca.undip.ac.id)

Time	Code	Title and Author	
13.45 – 14.00	EPPE-30	Environmental Analysis Of The Impacts Of Batik Waste Water Polution On The Quality Of Dug Well Water In The Batik Industrial Center Of Jenggot Pekalongan City. <b>Slamet Budiyanto</b>	
14.00 – 14.15	EHT-01	Analysis of Work Design in Rubber Processing Plant. <b>Dini Wahyuni</b>	10.45
14.15 – 14.30	EHT-03	Indoor Air Pollution In Non Ac Passenger Bus. <b>Iksiroh El Husnaa</b>	11.00
14.30 – 14.45	EHT-05	Work Environment Factors and Their Influence on Urinary Chromium Levels in Informal Electroplating Workers. <b>Yuliani Setyaningsih</b>	11.15
14.45 – 15.00	EHT-07	Comparison of Sellers's Awareness to Environmental Hygiene of Market Bulak, Market Klender and Market Rawamangun, East Jakarta. <b>Maulidya</b>	11.30
15.00 – 15.15			11.45
<b>COFFEE BREAK</b>			
15.30 – 15.45	EE-01	Prevalence of Hookworm infection and Strongyloidiasis in Cats and Potential Risk Factor of Human Diseases. <b>Blego Sedionoto</b>	12.00
15.45 – 16.00	EE-02	Implementation of Geographical Information System for Bacteriological Contamination Analysis on Refill Drinking Water Depot (Study in Tembalang District). <b>Amelia Rahmitha</b>	12.15
16.00 – 16.15	EE-03	The Presence Of Rat And House Sanitation Associated With Leptospira sp. Bacterial Infection In Rats (A Cross Sectional Study In Semarang, Central Java Province, Indonesia). <b>Endang Setiyani</b>	12.30
16.15 – 16.30	EE-04	Mapping Of Leptospirosis Environmental Risk Factors And Determining The Level Of Leptospirosis Vulnerable Zone In Demak District Using Remote Sensing Image. <b>Siti Rahayu</b>	14.00
16.30 – 16.45	EE-05	Environmental And Behavioral Study Of Refractive Abnormality In Elementary School Students In Coastal Areas. <b>Didik Wahyudi</b>	14.15
16.45 – 17.00			14.30
			14.45
			14.55
			15.00
			15.15
			15.30

ROOM 4 / 1 <sup>st</sup> Day		
Time	Code	Title and 1 <sup>st</sup> Author
13.45 – 14.00	EPPE-30	Environmental Analysis Of The Impacts Of Batik Waste Water Pollution On The Quality Of Dug Well Water In The Batik Industrial Center Of Jenggot Pekalongan City. <b>Slamet Budiyanto</b>
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16.45 – 17.00		





## Prevalence of Hookworm infection and Strongyloidiasis in Cats and Potential Risk Factor of Human Diseases

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**Abstract.** Hookworm infection and Strongyloidiasis are public health problem in the worldwide which both of them could infective in human by penetrated on skin and they have potential risk from Gastrointestinal zoonotic helminths of pets, including cats. We investigated the prevalence soil transmitted helminths infection in human and cats used modified Formal-Ether Concentration and agar plate culture. Fecal samples of 23 cats and human from Naitung and Subua Villages (area study 1), and fecal samples of 15 cats and 17 humans from Thasala Beach villages (area study 2) were collected. Result of study in area study 1 showed prevalence of infection in human was not hookworm and strongyloidiasis but 10% humans have infected *Ascaris* and *Tricuris*, and in cats have infected by hookworm 75.2% and *S. stercoralis* 8.5%, *toxocara* 13%, *spirometra* 13% and overall prevalence 82.5%. In area study 2 showed in human has infected by *Trichuris* 100% and *S. stercoralis* 29.4% and in cats have infected by hookworm 100% and *S. stercoralis* 40%, *toxocora* 20%, and *spirometra* 20%. Helminth infection found in both humans in two areas study are *S. stercoralis*. Hookworms were the most common helminth in cats but did not connection with infection in human, while *S. stercoralis* was helminth infection in cats which has potential zoonotic disease to human.

**Keywords:** Cats; human diseases; hookworm infection; strongyloidiasis.

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