



# CERTIFICATE

This is to certify that

**Lilis Suryani**

has participated in the

**7<sup>th</sup> ASEAN CONGRESS OF TROPICAL MEDICINE AND PARASITOLOGY**

and 3<sup>rd</sup> International Conference on Molecular and Clinical Aspects of HIV-AIDS, Tuberculosis and Malaria

“Combating the Big Three of Infectious Diseases (AIDS, Tuberculosis and Malaria)  
and Increasing Awareness of the Neglected Tropical Diseases”

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as

**Oral Presenter & Participant**

*THE SPREAD PATTERN RATS INFECTED LEPTOSPIRA IN YOGYAKARTA, INDONESIA*



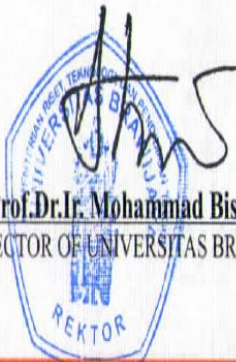
SKP No. 218/PKB/IJI-WJ/III/2016

Participant : 18 SKP

Speakers : 10 SKP

Moderator : 2 SKP

Committee : 1 SKP



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L.O.03

## THE SPREAD PATTERN RATS INFECTED LEPTOSPIRA IN YOGYAKARTA, INDONESIA

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Rats was the group rodent who made disorder on various human life in agricultural, economy and healthy. Rats was a carrier for some pathogenic microbes causing infectious disease. Most rodents are animals commensal including Norway (*Rattus norvegicus*), house rats (*Rattus rattus*) and wirok (*Bandicota bengalensis*). Various zoonosis diseases had generated loss of material and death. The presence of rats as infectious vector could not be ignored. Some rat-borne diseases such as: plague, scrub typhus and leptospirosis. There were two types of pathogenic bacteria caused leptospirosis, *Leptospira interrogans* and *Leptospira icterohaemorrhagica*. Leptospira usually attacks rats, both the ditch rats and house rat. This study was conducted to know the spread pattern infected leptospira in Yogyakarta. This study is an observational method with cross sectional design. The research included trapping, identification, and examination of Leptospira in rats. A total of 200 traps installed in all districts of Yogyakarta city, which leptospirosis cases reported from 2011 to 2013. The blood and kidneys rats were taken for leptospirosis examination by Polymerase Chain Reaction. The geographical positions of rats was located using the GPS. The spread pattern and spatial autocorrelation was analyzed by spatial autocorrelation Moran Index and Average Nearest Neighbor. The result showed that Moran Index: -0.4151, Zscore: -0.3199 with Z-c/2: -2.58. By Average Nearest Neighbor (ANN) analysis, Z score: 9.969, with ANN: 3.237 > 1. It can be concluded that there was a spatial relation the spread of rats infected Leptospira and the spread pattern was dispersed.

L.O.04

## PERSISTENT LEPTOSPIRA SEROVARS AND ASSOCIATED FACTORS AFFECTING THE URBAN RAT POPULATIONS IN PENINSULAR MALAYSIA

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Leptospirosis is an emerging infectious disease of global significance, and endemic in mainly tropical countries including Malaysia. Over the last decade, a dramatic increase of human cases were reported however information on the main host reservoir, the rat and serovars circulating among the population is limited. Therefore, the present study was undertaken to determine the prevalence and *Leptospira* serovars circulating in the urban rat populations from selected main cities in Peninsular Malaysia. Five urban cities were chosen as study sites to represent different geographical locations in Peninsular Malaysia with trapping commencing from October 2011 to February 2014. Microscopic agglutination test (MAT) and PCR was carried out to identify and determine the pathogenic status of the isolates while pulsed-field gel electrophoresis (PFGE) and random amplified polymorphic DNA (RAPD)-PCR to characterize the isolates. Three species were identified from 357 rats captured with *Rattus rattus* the dominant rat species (285, 80%) followed by *Rattus norvegicus* (53, 15%) and *Rattus exulans* (19, 5%). Only 11.0% were positive through culture and confirmed pathogenic *Leptospira* through molecular techniques. Two serogroups were distinctive through culture and confirmed pathogenic *Leptospira* through *L. interrogans* serogroup Bataviae (n=23). Significant associations were shown between host infection with host-age and species (intrinsic) and locality with infections higher during the wet season (extrinsic). Despite, the low infection prevalence in the population, this findings still highlight risk of exposure to infection particularly coupled with other factors.



## THE SPREAD PATTERN RATS INFECTED LEPTOSPIRA IN YOGYAKARTA, INDONESIA

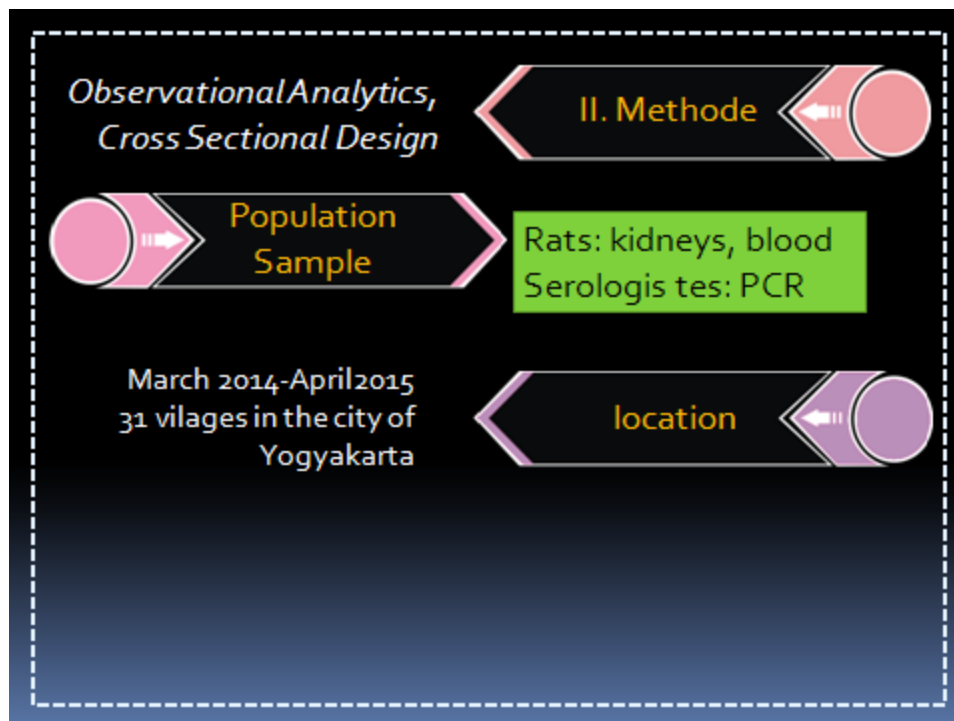


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### I. INTRODUCTION



- Leptospirosis : a significant zoonosis in developing world
- Related with: socioeconomic, climatic conditions (endemicity in animal vectors and human exposure)
- More than 50000 cases leptospirosis/year worldwide.
- Mortality is greater than 10%
- Epidemics occur during seasonal heavy rainfall and flooding



- The biotic environment risk factors: house rats >5 potential (1.7)
- There are three species house rats: *Rattus tanezumi*, *B.bengalensis*, *S.murinus*
- Two species house rats as reservoir Leptospira: *R. tanezumi*, *B.bengalensis*
- Prevalence house rats infected Leptospira: 12.7%
- Moran index: -0.4151, Z score: -0.3199 with Z  $-\alpha/2$ : -2.58, ANN analysis Z score: 9.569, with ANN: 3.237 >1.
- The spread pattern of rats infected Leptospira was dispersed.