



ICOLIB

International Conference on Life Sciences and Biotechnology

## EXPLORATION AND CONSERVATION OF BIODIVERSITY

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VENUE : Aston Jember Hotel & Conference Center, 28-29 September 2015

Jalan Sentot Prawirodirjo, Kaliwates, Jember City, East-Java, INDONESIA 68131

1 September 2015

**TRI WULANDARI KESETYANINGSIH**

Dear Sir / Madam

Attach is your letter of acceptance for **ORAL** presentation of your paper entitle: **“The influence of the difference maximum-minimum environments temperature to DHF incidence in endemic areas in Sleman, Yogyakarta, Indonesia”** on the 1<sup>st</sup> International Conference on Life Sciences and Biotechnology (ICOLIB), September 28-29, 2015.

Please send your **full paper** in English for proceeding before 15 September 2015 to [biology@unej.ac.id](mailto:biology@unej.ac.id) with the **EMAIL SUBJECT: FULL PAPER**.

The committee will send you the program soon.

Sincerely,



ICOLIB  
International Conference on Life Sciences and Biotechnology

Kahar Muzakhar,  
Chairman

# The influence of the difference maximum-minimum environments temperature to DHF incidence in endemic areas in Sleman, Yogyakarta, Indonesia

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## Abstract

Dengue hemorrhagic fever (DHF) is transmitted by *Aedes aegypti*. Total population of mosquitoes is one of the factors that influence transmission. Total population depends on mosquitoes long live that are influenced by environmental temperature. In the dry season there are big different of temperature between day and night. During the dry season, incidence of dengue fluctuate throughout the year, with the incidence tends to decrease. This study investigates the relationship between the maximum-minimum temperature different and the incidence of DHF in endemic areas. The research is quantitative with serial data retrospectively, conducted in two sub-districts which are medium-high endemic area in Sleman, Yogyakarta, namely Gamping and Godean. Secondary data such as dengue fever incidence monthly and minimum - maximum temperature-monthly from 2008-2013 respectively obtained from the district health office of Sleman and Agency of Meteorological, Climatology and Geophysics of Yogyakarta. Data were analyzed using linear regression to determine the influence of environmental temperature fluctuations with incidence of DHF. Results showed fluctuations of temperature effect on the incidence of dengue in two subdistricts of Godean  $p = 0.000$ ;  $R^2 = 0.207$  and Gamping  $p = 0.006$ ;  $R^2 = 0.125$ . This suggests that the difference in the maximum-minimum daily temperatures affect the incidence of dengue, with the ability to influence by 20.7% in Godean and only 12.5% in Gamping.

Key words: dengue hemorrhagic fever, regression, daily temperature fluctuation, *Aedes aegypti*

**The influence of the difference  
maximum-minimum natural  
temperature to DHF incidence in  
endemic areas in  
Sleman, Yogyakarta, Indonesia**

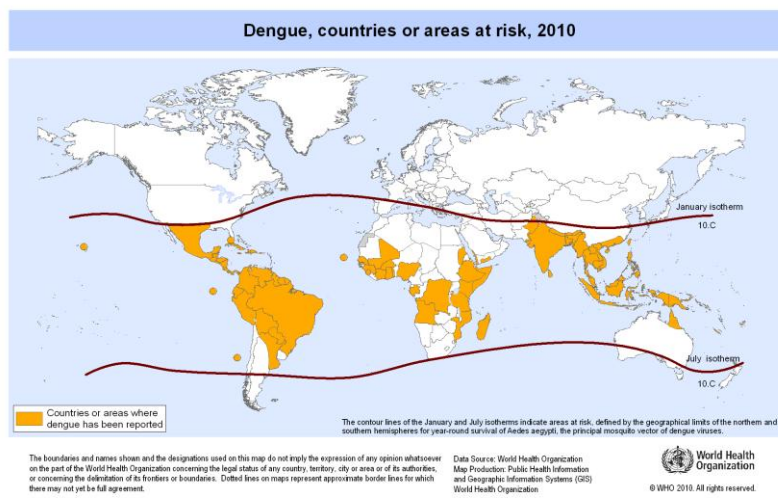
T.W. Kesetyaningsih

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# BACKGROUND

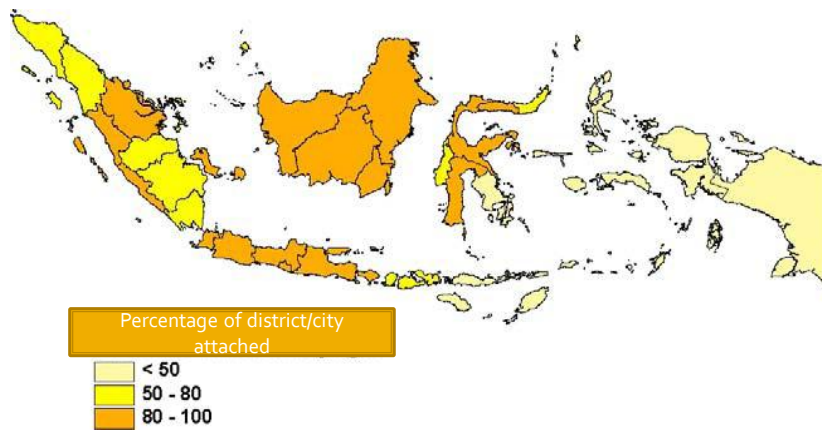


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## PERCENTAGE OF DISTRICT/CITY AT RISK IN INDONESIA YEAR 2009



Source: GD of PP&PL, Ministry of Health RI 2009

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## INCIDENCE RATE IN INDONESIA YEAR 1968-2009



Sumber : Ditien PP & PL Deokes RI, 2009

Figure 3. Incidence Rate of DHF per 100.000 people in Indonesia Year 1968-2009

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## THE AIM OF STUDY

- To reveal the effect of daily fluctuating temperature on the incidence of DHF in Sleman.



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# DISCUSSION

- Daily fluctuating nature temperature affect DHF incidence both in Gamping and Godean sub-district
- Carrington *et al.* (2013):
  - Low temperature with fluctuating (16°C) in lab condition
    - Increasing larval development time
    - Reducing survival
    - Failed to lay eggs



Thank you