ABSTRACT

MODEL OF THE DENGUE HEMORRHAGIC FEVER TRANSMISSION
IN THE HIGHLAND OF WONOSOBO DISTRICT
OF CENTRAL JAVA PROVINCE

(A Study on Bionomic Vector and Environment)

DHF cases increased significantly in the last years, in the highland of Wonosobo District. In 2009, the incidence reached 59.3/100,000 populations, while in the past years, the incidence was only less than 10/100,000 populations. This study aimed to design a model of DHF transmission dynamics in the highland of Wonosobo District, Central Java Province. The study design used was a cross sectional study. The samples were 46 villages, which included 20 villages from 500-1,000 m altitude, 8 villages from >1,000 m above sea level (asl) altitude and 18 villages from Semarang City, which were in lowland. The observed variables were vector competition, physical, social, biology environment, transovarial infection level, and virus strain of the vector. IHC and PCR methods were used to identify the virus. The result of study showed that *Ae. albopictus* were still found in the highland of > 1,000 m asl. The number of *Ae. aegypti* and *Ae. albopictus* was similar and both were found indoors or outdoors. Based on HI and OI index, the larvae density in the highland was higher than standard of the program, especially in the altitude of 500–1.000 m asl. Transovarial infection using immunohistochemistry (IHC) was found on *Ae. aegypti* and *Ae. albopictus*, 39.7% and 24.2%, respectively. However, vector confirmation by PCR method could not be shown. Environment parameters such as temperature and relative humidity in Wonosobo fulfilled the optimum requirement to support the vectors' life cycle. Transovarial infection has been proven to increase DHF incidence in the highland (500-1.000 m asl), thus, it indicates that the local transmission has been occurring in this area. To control the vector population in the highland, it is important to conduct breeding places elimination (PSN) indoors as well as outdoors, through active participation of the community.

***Keywords**: dengue hemorragic fever, vector, Aedes sp, transovarial infection, highland area*