

Analisis Indikator Entomologi Vektor Demam Berdarah Dengue dan Deteksi Virus Dengue pada Nyamuk *Aedes aegypti* (Diptera Culicidae) pada Daerah Endemis dan Sporadis di Kabupaten Sumba Timur

INTISARI

Latar belakang : Demam Berdarah Dengue (DBD) adalah penyakit infeksi yang disebabkan oleh virus dengue ditularkan nyamuk *Aedes aegypti* dan *Aedes albopictus*. Demam berdarah dengue di Indonesia telah menyebar di 34 Provinsi dan 463 Kabupaten Kota. *Incidence Rate (IR)* DBD tahun 2015 sebesar 89,37 per 100.000 penduduk, tahun 2016 sebesar 78,85 per 100.000 penduduk.

Tujuan : Menganalisis indikator entomologi vektor DBD, status *maya index* dan mendeteksi virus dengue dari *Ae.aegypti* pada daerah endemis dan sporadis .

Metode : Penelitian observasional deskriptif dengan desain *Cross sectional*, pemasangan Ovitap, koleksi larva dan pengambilan titik koordinat pada rumah penderita DBD dan rumah yang positif larva *Aedes sp.* Deteksi virus dengue menggunakan RT-PCR.

Hasil : *Ovitrap index* pada daerah endemis lebih besar yaitu 32,5% dan sporadis 25,0%. *Maya Index* pada daerah endemis termasuk kategori risiko sedang 35,3% dan sporadis termasuk kategori tinggi 36,7% untuk perkembangbiakan vektor DBD. Nilai *house index*, *container index* dan *breteau index* berdasarkan *Density Figure* pada daerah endemis maupun sporadis berisiko tinggi untuk penularan DBD. Nilai pupae per person pada daerah endemis sebesar 3,5 *pupae per person* dan sporadis 2,2 *pupae per person*. Hasil deteksi virus dengue terhadap 140 nyamuk pada daerah endemis dan 100 pada daerah sporadis terbukti tidak ditemukan virus dengue. Nilai *neirest neighbor ratio* daerah endemis sebesar $0,292003 < 1$, *Z-score* $-12,560631 < -2,58$ dan pada daerah sporadis nilai *neirest neighbor ratio* sebesar 0,718375 nilai ini < 1 dan *Z-score* $-3,321189 < -2,58$ artinya baik pada daerah endemis maupun sporadis terdapat hubungan spasial antara kasus dan habitat dengan pola penyebaran *cluster*.

Kesimpulan : *Maya index* pada daerah endemis berisiko sedang dan pada daerah sporadis berisiko tinggi untuk perkembangbiakan vektor DBD. *House index*, *Container index* dan *breteau index* kategori risiko tinggi untuk penularan DBD pada daerah endemis maupun sporadis. Virus dengue pada nyamuk *Ae. aegypti* yang diambil dari daerah endemis maupun sporadis tidak ditemukan. Pola penyebaran kasus dan habitat vektor DBD secara *cluster* dan terdapat hubungan spasial.

Kata kunci : Indikator Entomologi, *Maya index*, Virus dengue, Sumba Timur.

Entomological Indicator Analysis for Dengue Hemorrhagic Fever Vectors and Detection of Dengue Virus in *Aedes aegypti* (Diptera Culicidae) Mosquitos in Endemic and Sporadic Areas in East Sumba Regency

ABSTRACT

Background: Dengue Hemorrhagic Fever (DHF) is an infectious disease caused by dengue virus transmitted by *Aedes aegypti* and *Aedes albopictus* mosquitos. Dengue hemorrhagic fever in Indonesia has spread in 34 provinces and 463 municipal districts. The 2015 Incidence Rate (IR) of DHF was 89.37 per 100,000 population while it was 78.85 per 100,000 population in 2016.

Objectives: To analyze the status of maya index and entomological indicators of DHF vectors and detect dengue virus in *Ae.aegypti* mosquitoes.

Method: This was a descriptive observational study with cross sectional design, Ovitrap installation, collecting larvae and determining coordinate points at the DHF sufferers houses and houses with positive of *Aedes sp* larvae were completed in this research. Detection of dengue virus was also done using RT-PCR.

Results: The ovitrap index in the endemic area was higher at 32.5% whereas in the sporadic area it was 25.0%. The maya index in the endemic area was categorized into medium risk category by 35.3% while in the sporadic area it was categorized into high category by 36.7% for DHF vector proliferation. The values of HI, CI, BI based on Density Figure in both endemic and sporadic areas showed high risk for dengue transmission. This research also found 3.5 pupae per person for the endemic area and 2.2 pupae per person for the non-endemic area. The results of dengue virus detection on 140 mosquitoes in the endemic area and 100 mosquitos in the sporadic area showed no dengue virus was found. Meanwhile, the Nearest Neighbor Ratio values obtained were $0.292003 < 1$, Z-scores $-12.560631 < -2.58$ for the endemic area and 0.718375 , which was < 1 and Z-score $-3.321189 < -2.58$ for the sporadic area. This means that in both sporadic and endemic areas there was a spatial relationship between the cases and the habitats with cluster distribution pattern.

Conclusions: It was proved that dengue virus in the mosquito samples from endemic and sporadic areas was not found. The maya index in the endemic area was in medium-risk category whilst it was in high-risk category in the sporadic area for DHF vector proliferation. House index, container indicator, and breteau index values were also in high-risk categories for DHF transmission in both endemic and sporadic areas. Patterns of distribution of cases and DHF vector habitats in clusters and there is a relationships spatial.

Keywords : Dengue Virus, Entomological Indicators, Maya index, East Sumba.