Residual effect of Bacillus thuringiensis israelensis against Aedes aegypti in common household containers in Jakarta = Efek residual Bacillus thuringiensis israelensis terhadap Aedes aegypti di tempat penampungan air perumahan di Jakarta

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Abstrak

Demam Berdarah Dengue (DBD) merupakan masalah kesehatan masyarakat di Indonesia. Bacillus thurigiensis var israelensis (Bti) dianjurkan untuk pengendalian DBD, tetapi mengenai efikasinya dalam membunuh Ae. aegypti belum diketahui. Tujuan penelitian ini adalah mengetahui efek residu Bti di tempat penampungan air yang sering digunakan masyarakat. Penelitian dilakukan di Departemen Parasitologi Universitas Indonesia pada bulan April-Juni 2010. Bti formulasi cair (4 mg/m2) diteteskan ke tempat penampungan air (TPA) terbuat dari keramik, semen dan plastik dengan perlakuan tidak dikuras dan dikuras (sebanyak 2/3 isi bak dibuang dan diisi kembali dengan air tanah setiap hari). Ke dalam TPA dimasukkan 100 larva instar III Ae. aegypti lalu kematiannya dihitung setelah 24 jam. Hasil studi menunjukkan pada minggu pertama kematian larva 100% di semua TPA. Pada minggu kedua, kematian larva di TPA semen dan plastik >70%, kecuali di TPA keramik yang dikuras (44%). Pada minggu ketiga, mortalitas larva di semua kontainer <70%. TPA keramik mempunyai efek residu paling rendah dibandingkan plastik dan semen. Disimpulkan formulasi cair Bti tidak dapat dipakai untuk pengendalian DBD karena efek residunya hanya 1-2 minggu. Tidak ditemukan assosiasi antara jenis kontainer dengan mortalitas Ae. aegypti.
.....Dengue Hemorrhagic Fever (DHF) is a public health problem in Indonesia. Biological controls such as Bacillus thurigiensis var israelensis (Bti) has been implicated as a possible control of DHF. However its efficacy against Ae. aegypti is not known. The aim of the study is to know residual effect of Bti in common household containers. This study is conducted in Department of Parasitology Universitas Indonesia from April to June 2010. A liquid formulation of Bti with a concentration of 4 mg/m2 and three common household containers were used. Each container was added 100 third instar larvae of Ae. aegypti. Mortality count was done in 24 hour after the addition of the larvae. The results showed that in the first week there was 100% mortality in all containers. In the second week concrete and plastic containers had mortality >70%, except for water treated ceramic container (44%). In the third week, none of the water containers had mortality rate of 70%. Ceramic has the least residual effects compared to concrete or plastic containers. In conclusion, liquid formulation of Bti could not be used as vector control as its efficacy only lasted up to 1-2 week. There is no association between the type of containers with the mortality of Ae. aegypti larvae.