RESISTANCE OF Aedes aegypti (L.) Larvae to Temephos in Surabaya, Indonesia

Kris Cahyo Mulyatno1,2, Atsushi Yamanaka1,3, Ngadino4 and Eiji Konishi3,5,6*

1Indonesia-Japan Collaborative Research Center for Emerging and Reemerging Infectious Diseases, 2Laboratory of Entomology, Institute of Tropical Disease, Airlangga University, Surabaya, Indonesia; 3Center for Infectious Diseases, Kobe University Graduate School of Medicine, Kobe, Japan; 4Environmental Health Academy, Surabaya, Indonesia; 5Department of International Health, Kobe University Graduate School of Health Sciences, Kobe, Japan, 6*BIKEN Endowed Department of Dengue Vaccine Development, Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand

Abstract. The resistance of Aedes aegypti mosquitoes to insecticides threatens dengue virus control efforts. In this study, Ae. aegypti larvae collected from 12 subdistricts in Surabaya, Indonesia, where dengue is endemic, were tested for resistance to the organophosphate, temephos. Susceptibility testing, performed according to World Health Organization (WHO) methods, showed all field strains were resistant to temephos at a dose of 0.012 mg/l, with mortality rates at 24 hours of 22% to 60%. Another susceptibility test to determine median lethal time (LT50) indicates resistance ratios ranging from 2.2 to 8.5. Although incipient resistance was detected at a dosage of 1 mg/l, as determined by the LT50, mortalities higher than 80% within 24 hours were detected using the WHO method in nine subdistricts of Surabaya, indicating temephos at 1 mg/l is still effective in field conditions in these areas. In three subdistricts (Tambaksari, Gubeng and Sawahan), the mortality rates were under 80%, indicating possible resistance to temephos.

Keywords: Aedes aegypti, temephos, susceptibility test, Indonesia

Correspondence: Dr Atsushi Yamanaka, Institute of Tropical Disease, Airlangga University, Kampus C UNAIR, Jl Mulyorejo, Surabaya 60115, Indonesia.
Tel/Fax: +62-31-594-0917
E-mail: paradios99@yahoo.co.jp

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