

## INTISARI

**Latar belakang.** Nyamuk *Ae. aegypti* merupakan vektor utama virus dengue yang menyebabkan virus tumbuh dan berkembang dengan baik. Metoda *Artificial Membrane Feeding* (AMF) merupakan metoda penularan virus dengue secara tidak langsung dalam tubuh nyamuk *Ae. aegypti*. Metoda ini menggunakan pakan darah berantikoagulan dan virus DEN-3 di insektarium. Antikoagulan berfungsi memperlambat terjadinya penjendalan darah untuk pakan nyamuk *Ae. aegypti*.

**Tujuan.** Penelitian ini bertujuan untuk menentukan perbedaan pengaruh pemberian antikoagulan EDTA dan heparin terhadap persentase nyamuk *Ae.aegypti* yang mampu menghisap darah sampai kenyang darah, persentase mortalitas nyamuk setelah terinfeksi virus DEN-3 *per oral* melalui metoda AMF pada masa inkubasi 6 dan 12 hari, menentukan *Positive Infection Rate* virus DEN-3 dengan pemeriksaan Imunositokimia SBPC serta menentukan nilai *Minimum Infection Rate* (MIR) virus DEN-3 dengan pemeriksaan *one-step* PCR dan *nested* PCR.

**Metode.** Rancangan penelitian ini adalah eksperimental. Nyamuk *Ae.aegypti* diinfeksi menggunakan darah berantikoagulan yang mengandung virus DEN-3 secara *per oral* sebagai sampel infeksius. Kontrol negatif menggunakan nyamuk *Culex Sp* dan kontrol positif menggunakan nyamuk *Ae.aegypti* dewasa yang diinfeksi virus DEN-3 secara injeksi. Pendeteksian virus DEN-3 pada tubuh nyamuk *Ae.aegypti* melalui pemeriksaan Imunositokimia SBPC, *one-step* PCR dan *nested* PCR.

**Hasil.** Antikoagulan EDTA (45%) lebih baik dibandingkan heparin (31%) terhadap persentase nyamuk *Ae. aegypti* yang mampu menghisap darah sampai kenyang darah setelah diinfeksi virus DEN-3 *per oral* melalui metoda AMF ( $p=0,002$ ). *Positive Infection Rate* nyamuk *Ae.aegypti* dengan pemberian antikoagulan EDTA (23,20%) lebih baik dibandingkan heparin (17,80%) melalui pemeriksaan Imunositokimia SBPC. Antikoagulan EDTA dan heparin tidak mempengaruhi persentase mortalitas nyamuk *Ae.aegypti* yang terinfeksi virus DEN-3 *per oral* melalui metoda AMF pada masa inkubasi 6 hari ( $p=0,382$ ) dan 12 hari ( $p=0,278$ ). Nilai *Minimum Infection Rate* (MIR) adalah nol, artinya tidak terdeteksi virus DEN-3 yang menggunakan antikoagulan EDTA dan heparin melalui pemeriksaan *one-step* PCR dan *nested* PCR.

**Kesimpulan.** Antikoagulan EDTA lebih baik dibandingkan heparin terhadap infeksi virus DEN-3 dalam tubuh nyamuk *Ae.aegypti* yang diberi pakan darah manusia secara *per oral* melalui metoda AMF.

**Kata kunci:** EDTA, heparin, AMF, *blood feeding*, *Ae. aegypti*

## ABSTRACT

**Background.** *Aedes aegypti* is the main vector of dengue virus. Artificial Membrane Feeding (AMF) assay is a method of indirectly transmitting dengue virus in *Ae.aegypti*. This method uses blood-coagulated and DEN-3 virus in insectarium. Anticoagulants function to slow the occurrence of the blood sprinkling for *Ae.aegypti* mosquito fed.

**Objectives.** The aim of this study was determine the difference of anticoagulant effect of EDTA and heparin on the percentage of *Ae.aegypti* which is capable of sucking blood to full blood, and the percentage of mosquito mortality after DEN-3 virus infected via AMF method in the incubation period of 6 and 12 days. It also determines Positive Infection Rate of DEN-3 virus with SBPC immunocytochemical examination. The last, it determines Minimum Infection Rate (MIR) of DEN-3 virus with one-step PCR and nested PCR examination.

**Methods.** This study was experimental. *Aedes aegypti* mosquitoes were infected using antistatic blood containing per oral virus DEN-3 as infectious samples and for negative control using *Culex sp.* Positive control using *Ae.aegypti* infected by DEN-3 virus by injection. Immunocytochemical assay, one-step and nested PCR are used to detect the DEN-3 virus in *Ae.aegypti*.

**Results.** EDTA anticoagulant (45%) was better than heparin (31%) to the percentage of *Ae.aegypti* which is capable of sucking blood until satiated after infected with DEN-3 virus via oral AMF method ( $p=0.002$ ). Positive Infection Rate of *Ae. aegypti* with anticoagulant EDTA (23.20%) was better than heparin (17.80%) with SBPC Immunocytochemical assay. The anticoagulant EDTA and heparin did not influence the percentage mortality of *Ae.aegypti* infected with DEN-3 virus via oral AMF method at incubation period of 6 days ( $p=0,382$ ) and 12 days ( $p=0,278$ ). The Minimum Infection Rate (MIR) value was zero which proved that there was no DEN-3 virus infection in the *Ae.egypti* had used anticoagulant EDTA and anticoagulant heparin with one-step and nested PCR examination.

**Conclusions.** EDTA anticoagulant is better than anticoagulant heparin against DEN-3 virus infection in *Ae.aegypti* fed via oral the AMF method.

**Keywords:** EDTA, heparin, AMF, blood feeding, *Ae. aegypti*