



**THE USE OF REMNANT HUMAN BLOOD FOR THE
DEVELOPMENT OF AN ARTIFICIAL FEEDING METHOD FOR
*Aedes albopictus***

By

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DECLARATION

I hereby declare that this thesis is my original work and has not been submitted previously or currently for any other degree at UiTM or any other institutions.

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ABSTRACT

The use of remnant human blood for the development of an artificial feeding method for *Aedes albopictus*.

This research was concluded to develop an artificial feeding (AF) method for *Aedes albopictus* in order to replace the direct host feeding (DHF) for the maintenance of the mosquito colonization and can be alternative blood source for research purposes. The use of remnant human blood as a blood source for the female mosquito to produce an egg. This viability of remnant human blood used in artificial membrane feeder (AMF) was compared to a live animal blood source. The procedure can be utilized due to its simplicity and availability the materials present in the laboratory. In this study, 12 ml of remnant human blood (1-2 weeks and more than 5 weeks) from the National Blood Centre were used filled in the plastic petri dish (8 cm). Then the Parafilm M (Bemis ®) with 8 cm² was stretched thinly covered the blood contained in the petri dish. Following this, blood were pre-heated with glycerol to keep blood warm and maintain its temperature on top of the harden part of petri dish. The insulated styrofoam box with hole that fit the petri dish was used to ensure the mosquito can access the membrane. The AMF was placed on top of the cage and was given 15 minutes for feeding. To validate the efficiency of the AF method, feeding rate and fecundity rate of female mosquitoes were measured and compared to those feeding on a live rat (DHF). The feeding rate of mosquito fed by DHF method was increased than AF method human blood 1-2 weeks and human blood more than 5 weeks (76.66%±6.67, 26.66%±6.67 and 0.00%±0.0 respectively where p <0.05). Consequently, the fecundity rate of *Aedes albopictus* was affected. DHF method have higher number of eggs produced per mosquito 43.13±1.59 than AF method with human blood 1-2 weeks (29.38±2.90) and human blood more than 5 weeks (no eggs seen). Although the method cannot completely replace the DHF, it suggests that the AF method can be an alternative tool for feeding mosquitoes upon further improvement and modifications to be used for experimental and rearing purposes.

Keywords: artificial membrane feeder, *Aedes albopictus*, direct host feeding