

Representative Concentration Pathways Approach on Wolbachia Controlling Dengue Virus in Aedes aegypti

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Abstract : Wolbachia is recently developed as the natural enemy of Dengue virus (DENV). It inhibits the replication of DENV in Aedes aegypti. Both DENV and its vector, Aedes aegypti, are sensitive to climate factor especially temperature. The changing of climate has a direct impact on temperature which means changing the vector transmission. Temperature has been known to effect Wolbachia density as it has an ideal temperature to grow. Some scenarios, which are known as Representative Concentration Pathways (RCPs), have been developed by Intergovernmental Panel on Climate Change (IPCC) to predict the future climate based on greenhouse gases concentration. These scenarios are applied to mitigate the future change of Aedes aegypti migration and how Wolbachia could control the virus. The prediction will determine the schemes to release Wolbachia-injected Aedes aegypti to reduce DENV transmission.

Keywords : Aedes aegypti, climate change, dengue virus, Intergovernmental Panel on Climate Change, representative concentration pathways, Wolbachia

Conference Title : ICEESD 2017 : International Conference on Ecosystems, Environment and Sustainable Development

Conference Location : Sydney, Australia

Conference Dates : January 26-27, 2017