Development of physically-contained facility for evaluation of genetically engineered OX513A *Aedes aegypti* L. mosquito strain in Maharashtra, India

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GBIT is working in collaboration with OXITEC to drive environmental friendly self-limiting technology for the control of Ae. aegypti mosquito, a primary vector responsible for transmitting dengue, chikungunya and the emerging zika disease.

- OX513A strain is a genetically-engineered transgenic strain of *Aedes aegypti* L. developed by carrying a dominant repressible lethal gene construct, which produces lethality in the progeny when reared in the absence of tetracycline (Phuc *et al.*, 2007).

- The OX513A strain was imported from Oxitec, UK, under a licensed agreement and the culture is being maintained under Arthropod Containment Level II lab (ACL, 2003).

- The strain was evaluated under laboratory conditions for mating competitiveness and efficacy (Patil *et al.*, 2015).

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The present study deals with a development of a physically-contained facility to conduct phase-II trials on a self-limiting transgenic OX513A Aedes aegypti mosquito strain in Maharashtra, India.

Physically-contained facility:

Experimental Site

Cage Design

Layout

Physically-contained facility

Approved by RCGM, Permit No: BT/BS/17/328/2008/-PID; dated: 15-02-2017
Objectives:

1. Mating Competitiveness:

   - Adult Males (OX513A and WT) × Adult Females (WT)
   - Mating for 24 hr
   - Blood feeding
   - Females collected and reared individually for oviposition
   - Eggs collected from individual females are hatched
   - Screening of larvae for presence of fluorescence (DsRed marker)
   - Fluorescence indicates mating with OX513A males
   - No fluorescence indicates no mating with OX513A males
   - Both fluorescence and no fluorescence indicates double mating

   Progeny of Individual females showing
Objectives:

2. Population Suppression Study:


*Experiments completed when no eggs are produced for more than two successive weeks in treatment cages indicating suppression of population.

The results under confined field cages in phase II would be used to proceed to phase III staged limited scale open release trials on OX513A strain.
THANK YOU