Malaria vectors can disseminate insecticides (Pyriproxyfen) into their breeding sites

Infanticidal Mosquitoes

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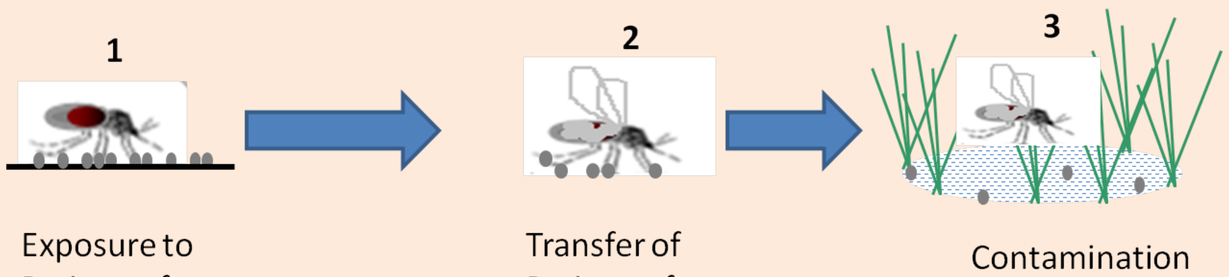
Background

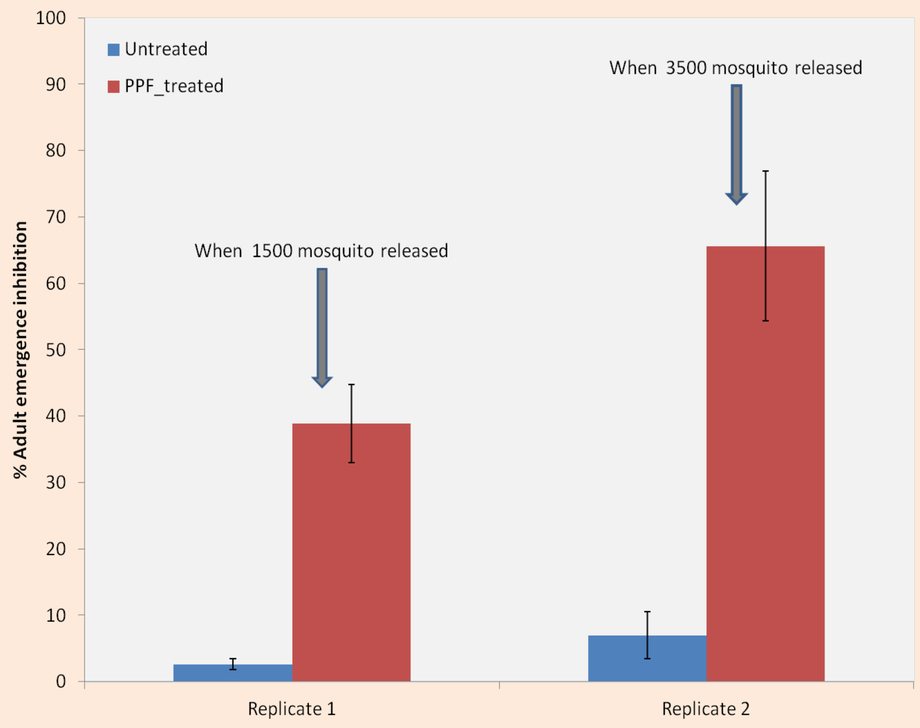
The potential for malaria vector control by larviciding is challenged by the difficulty in locating mosquito habitats and the cost of treating them all. This study assesses the feasibility of contaminating blood-fed *Anopheles arabiensis* while resting inside clay pots treated with pyriproxyfen (PPF) and the potential of these contaminated mosquitoes to transfer PPF into their breeding habitats (Autodissemination).



Autodissemination concept

Result

There was a significantly higher inhibition in adult emergence (39 – 66 %) in breeding habitats with PPF-treated resting sites compared to those without (3 – 7%).



Total Pupae collected

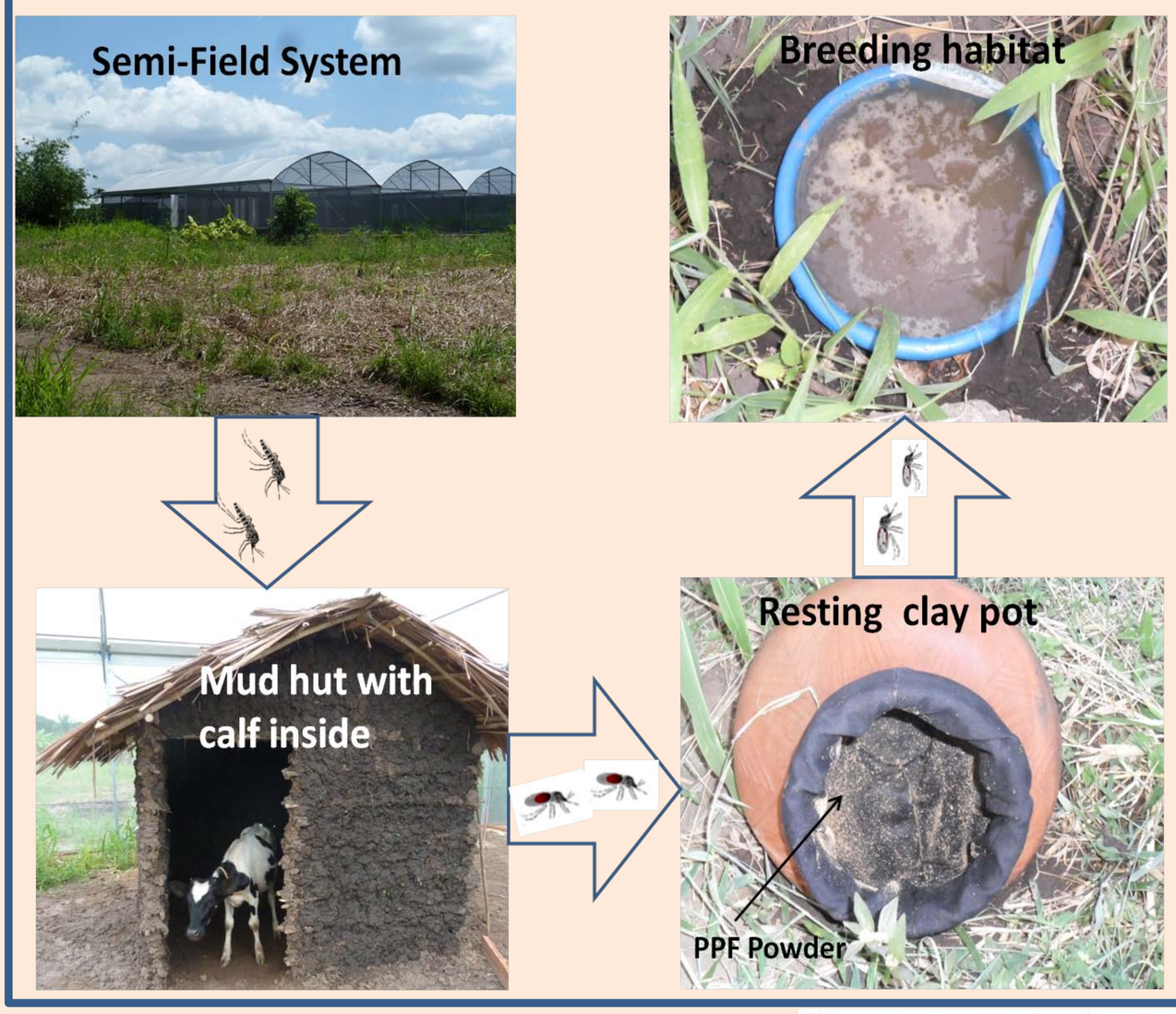
Replicate 1: **745**

Replicate 2: **2343**

Conclusion

- Clay pots treated with pyriproxyfen can successful contaminate mosquitoes resting in them.
- Resting mosquitoes contaminated with PPF can transfer sufficient dose of PPF to inhibit emergence in their breeding habitats.
- Autodissemination of PPF with *An.arabiensis* is possible and offers a unique approach for controlling malaria vectors in their breeding habitats.

Methodology



- The study was carried out in rural Tanzania, in semi field systems (SFS). Mud huts were built inside the SFS to house the calves serving as blood meal source for mosquitoes.
- Clay pots lined with black cotton cloth were deployed as contamination and resting sites for blood-fed mosquitoes.
- Eight clay pots brushed with water only without PPF, were set in a separate room of the SFS and served as control and in the other room 8 clay pots were brushed with water and pulverized PPF (Sumilarv 10%).
- Two artificial breeding habitats, buried to ground level and filled with 2L of water and 250mg of soil was provide in each SFS room.
- At two different experimental replicates, 1500 and 3500 unfed *Anopheles arabiensis* from an insectary were released in each SFS room.
- Emergence inhibition was monitored by recording the number of dead pupae and dead emerging adult on the water surface.

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