Ultrasonic eradication of mosquito larvae in water for malaria and dengue prevention

Technology #cu12086

Malaria and dengue remain major problems in the developing world, due to a high population of disease-transmitting mosquitoes. Mosquito larvae breed in standing water such as puddles, swamps, and water storage containers. This technology uses acoustic waves generated by an ultrasound transducer to destroy mosquito larvae in standing water. Extended exposure to ultrasound has been shown to kill mosquito larvae, and could potentially kill other troublesome biological agents.

A 60-second ultrasound pulse using a low-cost transducer eliminates 94% of larvae

Not only has this technology been shown to be highly effective, it is also reusable and available at a relatively low cost. Preliminary trials achieved 94% eradication of mosquito larvae after 60 seconds of ultrasound exposure using a transducer costing less than $40. This device could be implemented as a permanent fixture in water storage tanks, periodically generating acoustic waves for water purification. However, a portable design may also be used, since the required hardware is relatively small. This provides “on-the-go” disease prevention in remote locations. Furthermore, this system requires very little upkeep and can be programmed to run automatically, minimizing the need for human inspection and maintenance.

Unlike many harmful chemical treatments, this technology is safe for humans and can be operated by users with minimal training.

Lead Inventor:

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Applications:

- Malaria and dengue prevention in populated areas near standing water sources
- Elimination of mosquito larvae and pest control in puddles, pools, and water containers
Advantages:

- Quickly and efficiently cleans water sources
- Low-cost method for treating water
- Can be placed permanently in water containers for automated cleaning
- Can be highly portable for cleaning water containers or puddles
- Poses no health risk to humans and other animals
- Environmentally friendly
- Requires little energy, can be solar or battery powered

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