

EDITORIAL

NATURE BASED SOLUTIONS FOR MOSQUITO CONTROL

Mosquito-borne diseases are illnesses spread by the bite of an infected mosquitoes. They include a long list of common diseases like, chikungunya, dengue fever, encephalitis (of several types), malaria, yellow fever and zika, etc. Virus causes most of the diseases except the malaria, caused by protozoan parasite. Thus, mosquito control can help in avoiding many diseases in the modern world.

Insecticide uses in controlling of mosquito and the diseases is the common approaches from sciences. Anthropological approaches like awareness on to the environmental control of insects, health hazards of pesticides, led to the approaches like nature-based solutions to these threats. Plans for controlling insects, particularly mosquitoes by non-chemical techniques not only improve the ecological footprint but also assures a safer environment for human, domestic and wild animals, and the beneficial insects. A non-chemical approach to mosquito control involves in using biological agents like, insect repellent-plants, natural predators, etc. to control mosquito populations. This approach not only reduces the risks associated with pesticides but also promotes human welfare and biodiversity protection.

The presence of natural predators in the households is one of the effective methods to control mosquitoes. Some of the research from zoology departments showed that, dragonflies, insectivorous birds, small bats, and certain predatory fish species, such as mosquitofish (*Gambusia* sp.), Stinging catfishes (*Heteropneustes* sp.), certain frogs, etc, feed on mosquito larvae and adults. These scientific evidences may help in keeping mosquito populations low. However, installing predator-friendly water bodies, birdhouses, is must. This can attract and help in survival of the beneficial predators in the household periphery.

Mosquito-repelling herbs and flowers like basil, citronella grass, lemon grass, lavender, marigolds, mints, rosemary, etc. can act as a natural preventive agent in Bangladesh. Besides beautifying homes, these plants provide benefits by reducing mosquito menace without the use of insecticides.

Mosquitoes prefer to lay eggs in standing water. Thus, eliminating stagnant water from drains and pots is must in controlling mosquito populations. Regularly emptying containers, drains, and dry up water logs and cleaning

weeds from ponds can significantly decrease the breeding chances of mosquitoes. Good drainage system can also prevent water accumulation, destroying mosquito breeding grounds.

Biological control is another avenue for mosquito control. Introducing bacterial agents like *Bacillus thuringiensis israelensis* (Bti) into wetland and drains can effectively kill mosquito larvae without damaging other wild populations. Adaptive research on Bti products is ongoing at the mosquito labs of zoology of the University of Dhaka. Bti could provide a safe, targeted approach to mosquito control in megacities of Bangladesh.

Mosquito control doesn't have to rely on strict chemical approaches. By mass public awareness for adopting preventive measures or natural control methods, one can effectively manage mosquito populations in their locality. This in turn ensuring a healthier environment for the society and ecosystem. The zoologists from the major universities of Bangladesh are conducting research on mosquitoes since early 60's. So far, 17 genera with 123 species of mosquitoes are recorded from Bangladesh. Among these, Anopheles (36 species), Aedes (25 species) and Culex (25 species) are dominant.

More research on the exploration of the eco-friendly options can be available from adaptive research outputs by the zoologist of Bangladesh. Engaging experts and employing mosquito biologist trained exclusively from zoology departments can enhance the mosquito control program of the governments of Bangladesh. Every municipal and district public health offices should have mosquito laboratory and mosquito biologist, graduated from the reputed zoology department of Bangladesh. Zoologist can help in sustainable pest management movement for Bangladesh.

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