

Trypsin Modulating Oostatic Factor (TMOF) (105403) Fact Sheet

Summary

Trypsin Modulating Oostatic Factor (TMOF) is used against mosquito larvae in aquatic environments. TMOF is a small protein that interferes with digestion in mosquito larvae, leading to their starvation. No harm to humans or the environment is expected from use of TMOF as a pesticide active ingredient.

I. Description of the Active Ingredient

The active ingredient, Trypsin Modulating Oostatic Factor (TMOF), is a small protein containing 10 amino acids. The genes for making TMOF have been inserted into yeast cells (*Pichia pastoris*) so the yeast cells make large amounts of the protein. The yeast cells are then killed by exposure to extremely high temperatures. Killed yeast cells containing TMOF are applied to bodies of water to control mosquito larvae. Once eaten by mosquito larvae, TMOF interferes with the production of trypsin, a critical enzyme needed by the larval digestive system. Exposed larvae are unable to digest food and therefore starve to death.

II. Use Sites, Target Pests, and Application Methods

- **Use Sites:** Habitats for mosquito larvae such as ponds, streams, ditches, puddles, and other sources of standing water.
- **Target Pests:** Mosquito larvae.
- **Application Methods:** TMOF is applied directly to water or other places mosquito larvae may be found.

III. Assessing Risks to Human Health

No harmful health effects to humans are expected from use of TMOF as a pesticide active ingredient. No evidence of toxicity or infectivity was found in animal laboratory studies, largely because digestive systems in humans and other mammals contain many enzymes besides trypsin. Also, the TMOF protein is broken down quickly in the human gut and doesn't have the opportunity to inhibit trypsin synthesis.

IV. Assessing Risks to the Environment

No adverse environmental effects are expected when products containing TMOF are used according to label instructions. Laboratory studies and a literature search found no evidence indicating that TMOF is harmful to birds, mammals, plants, marine species, or insects other than mosquitoes.

V. Regulatory Information

EPA defines a public health pest as any organism that can cause or transmit human disease, or can cause human discomfort or injury. Examples include mosquitoes, ticks, and rats. To help protect the public's health, EPA requires registrants of products used against public health pests to demonstrate that the product meets specific standards for effectiveness as well as for safety. End products produced with TMOF as the active ingredient will have to meet these stringent standards.

VI. Registrant Information

May 24, 2004: EPA grants registration (approval for sale and distribution) to one product containing TMOF as the active ingredient: 1) "TMOF Technical" (manufacturing use product)

Note: TMOF cannot be used for controlling mosquitoes until an end product containing this active ingredient is registered by EPA.

VII. Additional Contact Information

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