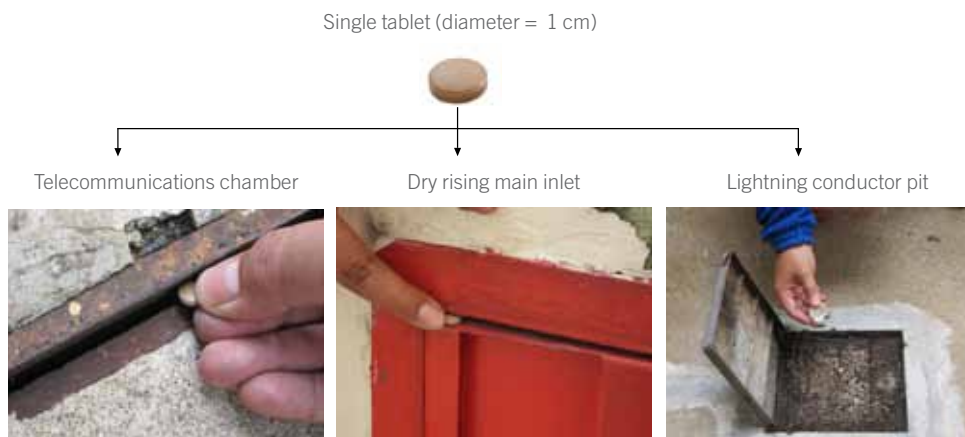


VectoBac® DT

BIOLOGICAL LARVICIDE

TABLET

VectoBac® DT is a tablet formulation of *Bacillus thuringiensis* subsp. *israelensis* (*Bti*, Strain AM65-52) designed for direct application to artificial water containers for the control of dengue vectors *Aedes aegypti* and *Aedes albopictus*. This easy to use tablet is designed to provide extended residual control in all types of artificial water collecting containers. VectoBac® DT contains the same *Bti* strain that has completed the World Health Organization Pesticide Evaluation Scheme and contains no viable spores or biological contaminants.



VECTOBAC® DT

VectoBac DT is a direct tablet formulation of *Bacillus thuringiensis* subsp. *israelensis* (*Bti*, Strain AM65-52). The product has a potency of 2,200 ITU/mg against *Aedes aegypti* larvae. It is designed to be used for the control of dengue vectors, *Aedes aegypti* and *Aedes*

albopictus, in varied type of artificial water containers. The tablet is irradiated to remove any biological contaminants and to inactivate spores. **VectoBac DT** contains the same *Bti* strain that has completed the World Health Organization Pesticide Evaluation Scheme (review was for the water disperse granule [WG] formulation).



HISTORY

Bacillus thuringiensis subsp. *israelensis* (*Bti*) is a naturally occurring, soil bacterium found in soil and aquatic environments throughout the world. At the time of sporulation, *Bti* produces a highly specific delta endotoxin, which is only toxic to larvae of mosquitoes, black flies and closely related flies upon ingestion. During 30 years of field use in a variety of settings around the globe, *Bti* has been shown to provide effective, reliable, and environmentally compatible control of mosquito larvae. In addition to *Bti*'s effectiveness, it has an excellent safety record and very low mammalian toxicity: LD50 values for both oral and dermal toxicity are more than 30,000 mg/kg. The mosquitocidal crystal proteins and vegetative cells of *Bti* administered by different routes have been found to be non-pathogenic and non-toxic to various animal species in maximum challenge tests.¹ WHO concluded *Bti* is safe for use in aquatic environments, including drinking water reservoirs, for the control of mosquito, black fly and nuisance insect larvae.²

1 Siegel JP and Shaddock JA. 1990. Mammalian safety of *Bacillus thuringiensis* subsp. *israelensis*. In: Bacterial Control of Mosquitoes and Black Flies. (de Barjac H, Sutherland DJ eds). pp. 202-220. Unwin Hyman Ltd. London.

2 World Health Organization (WHO). 2004. Report on the 7th WHOPES Working Group Meeting. Geneva, Switzerland: WHO.

MODE OF ACTION

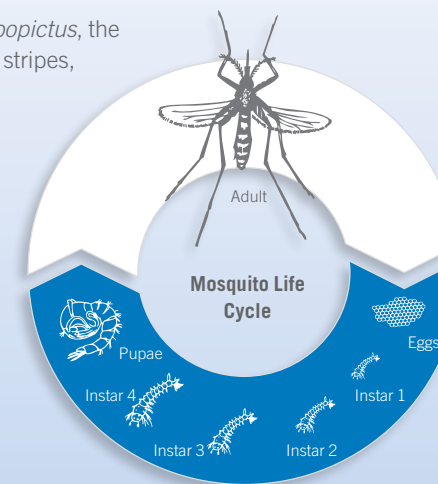
Bti produces complex crystal proteins known as protoxins during sporulation. When these proteins are applied to larval habitats of mosquitoes, the mosquito larvae ingest them by filter feeding. The crystal proteins are solubilized by the alkaline juices in the larval midgut and are cleaved by the midgut proteases, yielding active peptide toxins called delta-endotoxins. The delta-endotoxins cause the formation of holes in the midgut cell wall, leading to immediate lysis of cells and larvae death within 24 hours.

CONTROLLING AEADES WITH VECTOBAC® DT

- The mosquito vector population can be controlled using the bacterial larvicide, *Bacillus thuringiensis* subsp. *israelensis* (*Bti*).
- The larval stages of the *Aedes* mosquito are highly susceptible to the *Bti* toxins.
- *Aedes* larvae do not have any resistance to *Bti* toxins.
- **VectoBac DT** formulation is specifically designed to deliver the *Bti* toxins into the feeding zone of *Aedes* larvae, which are at the sides and base of the artificial containers.

AEDES AEGYPTI AND AEDES ALBOPICTUS

- *Aedes aegypti* and *Aedes albopictus*, the black mosquitoes with white stripes, are the two most important dengue vectors.
- *Aedes* larvae are found breeding in both artificial and natural containers.



- The size of the tablet, 1 cm in diameter, allows it to be introduced with ease into containers with narrow openings such as bamboo pole holders, storage tanks, drums, jars, flower pot plates, ground pits (gully traps, lightning conductor pits, scupper drain, stock cork pits), aquariums, ornamental pools, fountains, roof gutters, etc.
- The tablet is compact, weighing approximately 0.4 g per tablet, causing it to sink immediately to the base of the container and be available in the feeding zone of the *Aedes* larvae.
- The tablet is small and easy to use by field officers or residents.
- A single tablet can be applied to dry containers or containers holding water volumes of ≤ 50 L. Retreat at label rates as required when pupae appear.



FIELD TRIALS

Figure 1. Efficacy of a single VectoBac® DT tablet to control *Aedes* larvae in bamboo pole holders (≤ 50 L volume) in Singapore.

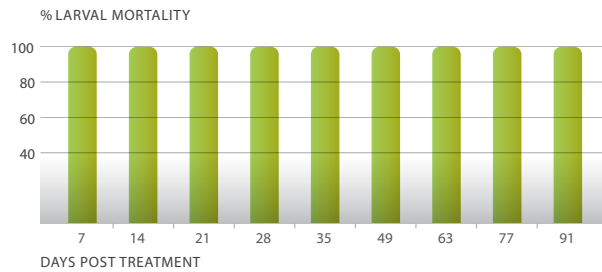


Figure 2. Efficacy of a single VectoBac® DT tablet to control *Aedes* larvae in earthen containers (50 L volume) with daily 50 % water volume replenishment in Malaysia.

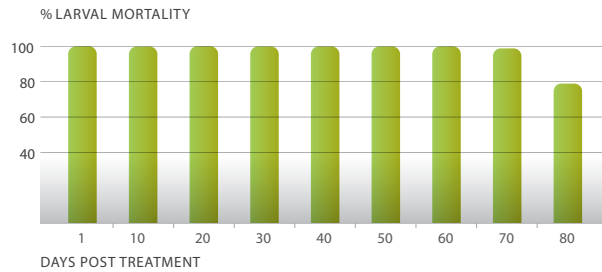
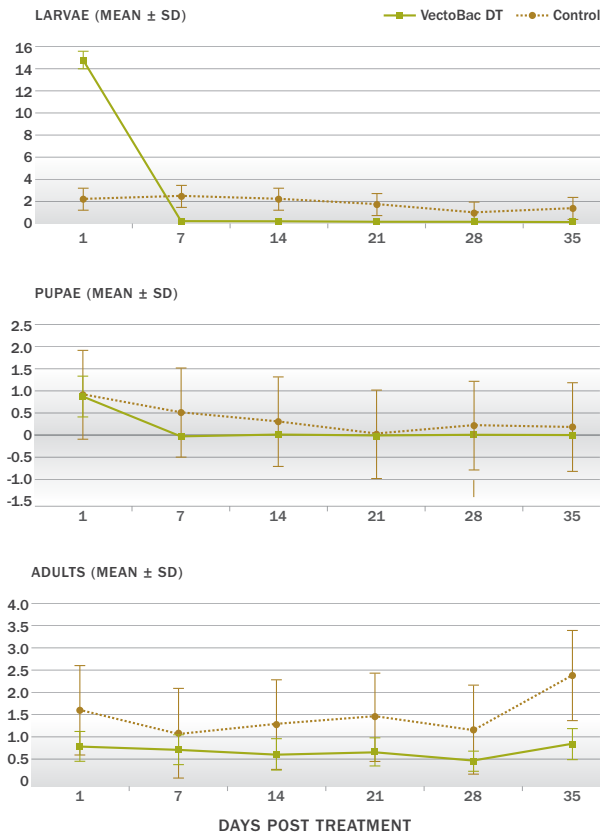


Figure 3. Effect of VectoBac® DT on *Aedes aegypti* larvae, pupae and adults. One tablet/50 liters for initial application with subsequent weekly treatments of 1 tablet/200 liters; cement water storage tanks in Colombia



CONTACT US

To learn more about Valent Biosciences Corporation call **800.968.4700** or visit us at publichealth.valentbiosciences.com

Valent BioSciences Corporation is an ISO 9001:2008 Certified Company

Read and follow label instructions before using.

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TECHNICAL USE BULLETIN

VectoBac® DT
Biological Larvicide

