



TANZANIA BIOTECH PRODUCTS LIMITED

P.O. BOX 30119 KIBAHA

www.tanzaniabiotech.co.tz



Tanzania Biotech Product Ltd is a state-of-art Biolarvicides factory that promises to wipe out Mosquito Vector Borne Diseases in Africa such as Malaria, Dengue, Zika etc

TBPL Ltd is a subsidiary company under Tanzania National Development corporation (**NDC**). The plant is located along TAMCO Industrial Estate at Kibaha Coastal. The factory is a main producer of biolarvicides which are *Griselesf (Bs) and Bactivec (Bti)*.

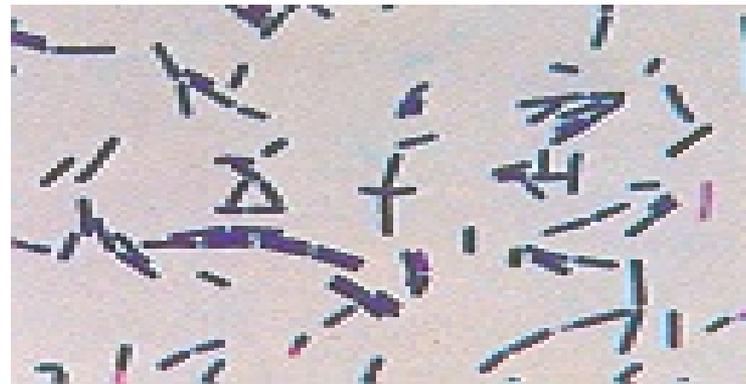
What are Biolarvicides?

Are biological products whose active ingredient are entomopathological spore forming bacteria used for controlling mosquitoes larval stages. Among the most commonly used bacteria for mosquitoes Biological Control are:

- *Bacillus sphaericus* , strain 2362.
- *Bacillus thuringiensis*, var. *Israelensis* SH-14, strain 266/2
(*Bti*)



Bacillus sphaericus



**Bacillus
thuringiensis**

OUR PRODUCTS

BIOLARVICIDES

20Lt and
30ml pack

BACTIVEC

*Bacillus thuringiensis SH-14 strain
266/2*

20Lt pack

GRISELESF

Bacillus sphaericus strain 2362

In liquid form

Our Products



- Bactivec is quick in action that kills 100% of the mosquito larva within 24– 48 hours. It is used in clean water
- Griselesf is slow in action, kills 100% of mosquito larva within 48 – 72 hours. Effective in polluted water
- These biolarvicides are innocuous, highly specific and very restricted

30mL Pack



It is a small family pack size, 30 mL flasks. It can be used outdoor as well as indoor for applying in the indoor water storage tanks.

The application dose is 1mL for 50 Litres of water



20lt Pail Pack



Bactivec and **Griselesf** are biological products used to control the breeding of different types of mosquito species. The products are highly efficient with absolutely no effect on human beings and environment.

In the field it can be sprayed either by air or land targeting the surface of mosquito breeding sites.

The application dose is 5 – 10 mls / m².

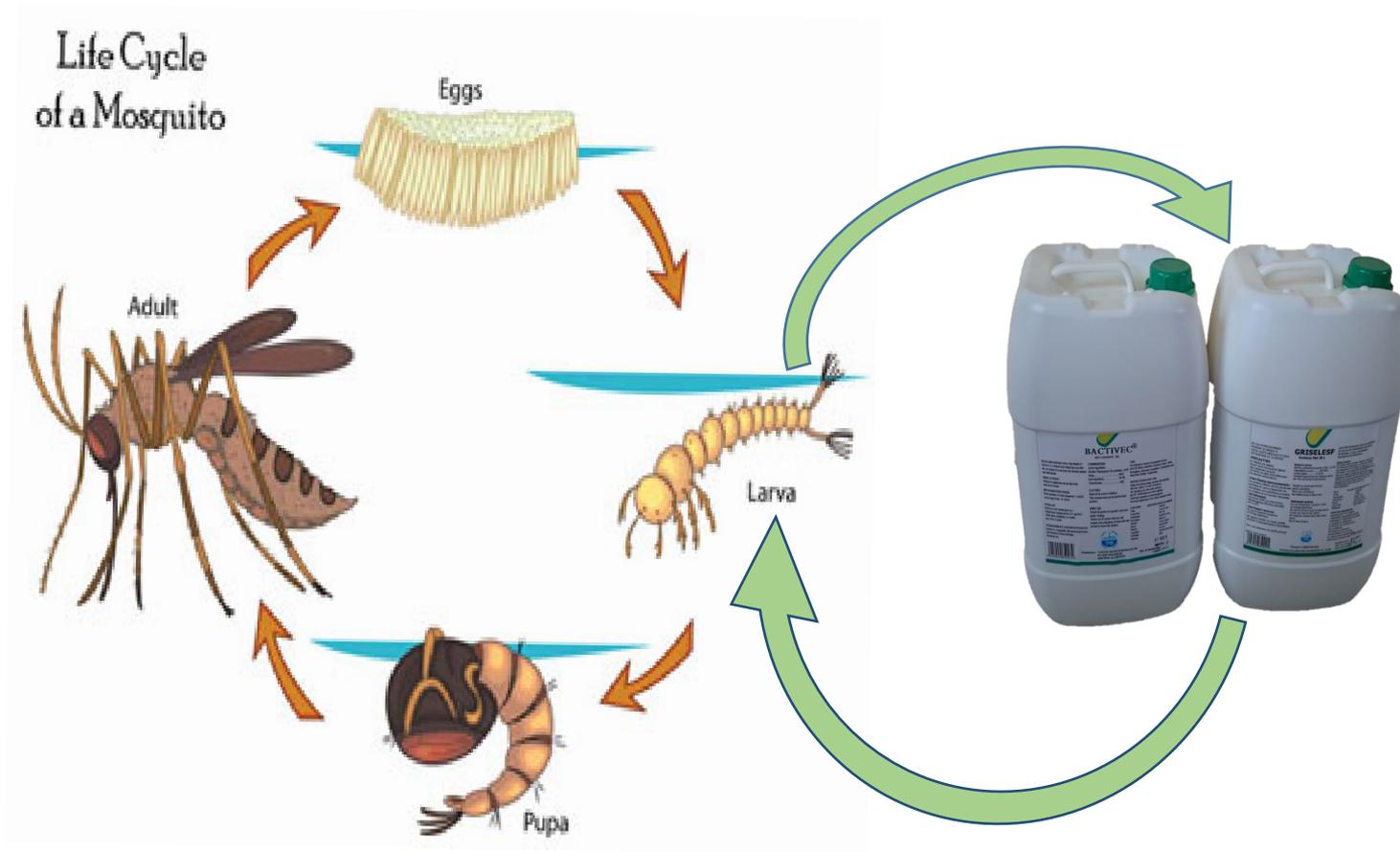


Other Measurements and Conversions



- 1 Litre = 1000mls
- 1 ha = 10,000 sqm = 2.2 acres
- 1 sqft = 0.105 sqm

How Biolarvicides work?

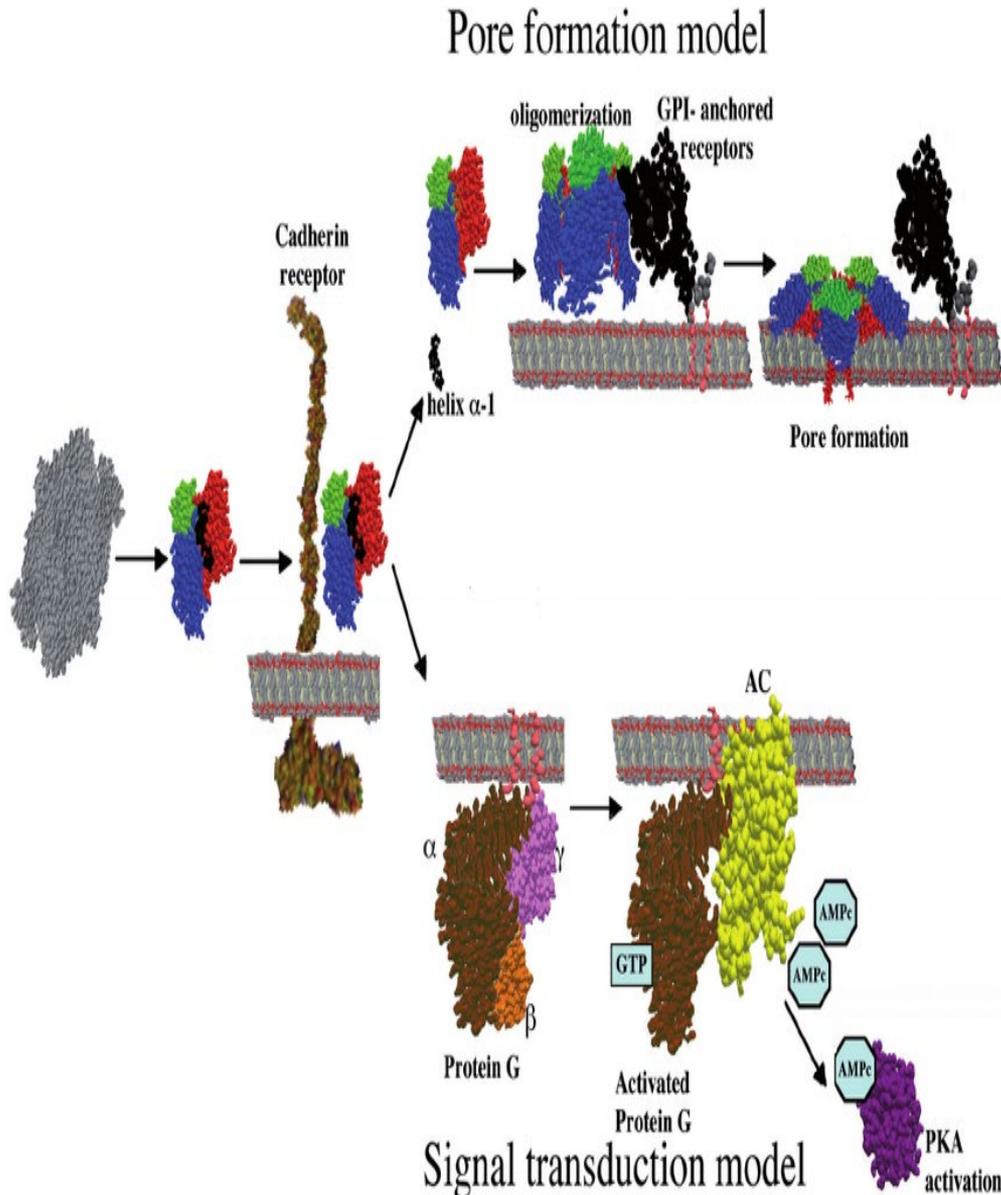


How Biolarvicides Work?



- *Bacillus thuringiensis israelensis* SH 14 (Bti) and *Bacillus sphaericus* 2362 produce Insecticidal Crystal Protein (ICP) during sporulation.
- Spore when ingested by the mosquito larva it dissolves in the larva mid gut, releasing ICP which is protoxin that proteolytically converted into smaller toxic polypeptides in the larva mid gut.
- The activated toxin interacts with the midgut epithellium cells of larva

How Biolarvicides Work?



- The toxins generate pores in the cell membrane, thus disturbing the osmotic balance, consequently the cells swells and lyse.
- The larva stops feeding and eventually die

How Biolarvicides work?

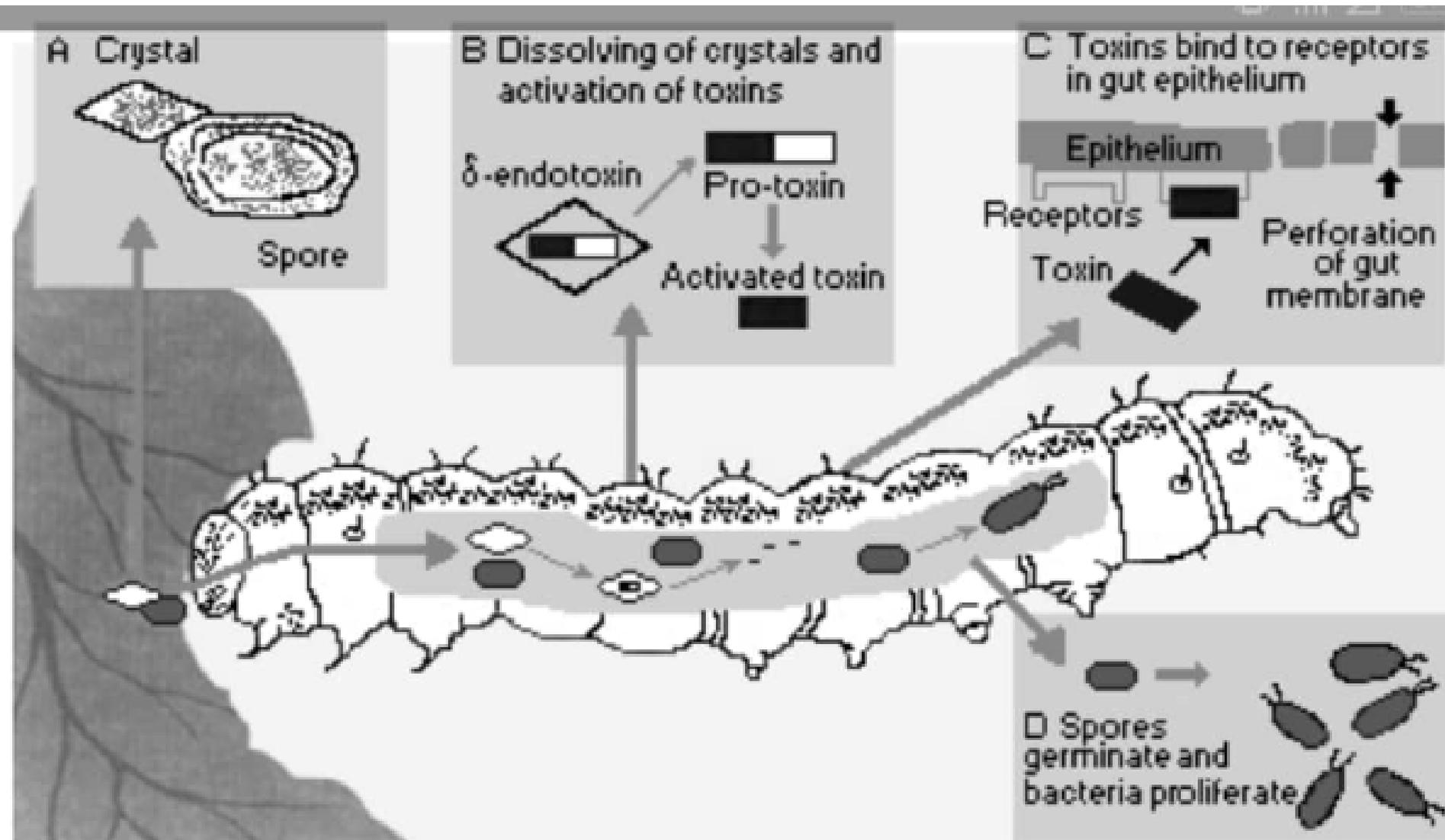
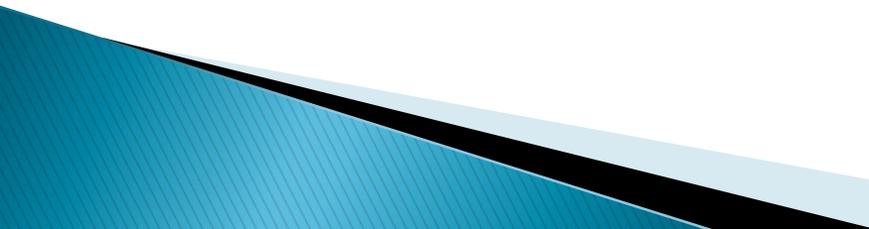


Fig. 1. Mechanism of toxicity of Bt

Rationale for using Biolarvicides

- Unlike adult mosquitoes, larvae cannot change their behaviour to avoid a control intervention targeted at larval habitats
 - Chemical larvicides have significant adverse effects on other non target species while biolarvicides selectively kill mosquito larvae with negligible effect on non target organisms.
 - The efficacy of insecticides based vector control is currently threatened by mosquito
- 

Rationale for using Biolarvicides

resistance particularly to pyrethroid insecticides (WHO 2015a), and this has drastically affected mosquito control programmes like insecticides treated nets in Africa, indoor residual spray in Asia and fogging sprays in Caribbean (Bonnet et al.,2009)

Quality of Biolarvicides in Tanzania

- ▶ Our products have quality certificates from Tropical Pesticides Research Institute (TPRI) of Tanzania
 - ▶ As a way of monitoring quality of the products in the market, National Institute for Medical Research (NIMR) has recently issue a report which affirm the quality robustness of biolarvicides
 - ▶ As a way towards global marketing, we have started preliminary stages for WHOPES prequalification
- 

Markets

Local

- Ministry of Health
- PORALG
- Private institutions
- Ordinary people

International

- Niger
 - Angola
 - Mozambique
- 

Prospect Markets

- EAC countries
- SADC countries
- Srilanka

Where do mosquitoes breed?

- Mosquitoes breed only in water! The larvae cannot survive anywhere else, they DO NOT breed in grass or bushes.
- Mosquitoes can breed in any kind of water and therefore ALL kinds of water bodies have to be checked for mosquito larvae in a larval survey.
- Mosquitoes do not breed in fast running water of rivers, but can breed at the edges where the water is not moving fast, in cattle hoof prints along a river and in slow flowing drains.

Mosquitoes breeding habitats

Normally mosquitoes develop in water bodies from the egg stage until they are adult. These water bodies may be man-made or natural forces made, which are in the form of ;

1. Open habitat
2. Closed habitats

Open habitats

Are water bodies that are exposed to the open air and light. Means that light can reach the water surface, also plants can grow inside.

Examples:

Drains and Ditches , man-made holes , swampy areas, rice field, Ponds , Stream and River beds , Water storage tanks, livestock feeding trays, clay pots, Construction pits, Puddles



Mosquitoes breeding habitats

Close habitats

Are defined as water breeding site that can be found in closed and dark environments. Mosquitoes lay eggs through small openings. So are difficult and more complicated to reach the water surface especially when it is necessary to identify the types of species on that area.

Examples;

Pit latrines, Soakage pits, Septic tanks, and Others



OBJECTIVES OF USING BIOLARVICIDES

General Objectives

Reduce the incidence of malaria and other mosquito borne diseases, through elimination of mosquitoes.

Specific Objectives

- To apply biolarvicides (Griselesf and Bactivec) in mosquitoes breeding sites.
- To lead a battle against malaria and other mosquito borne diseases towards elimination.
- To reduce costs of buying medicines, nets, treatments
- To have a health and prosperous community

SIGNIFICANCE AND BENEFITS OF BIOLARVICIDING

Economic

- To reduce expenditure in antimalarial drugs, primary health assistance and hospitalization of sick people.
- To reduce the costs of controlling other mosquito vector transmitted diseases eg dengue

Health

- To diminish significantly the morbi-mortality due to Malaria specially to children under five years and pregnant women .

Social

To improve welfare of population while reducing the number of malaria cases and deaths.

Environmental

- Is a modern technology to fight against malaria vector and an effective way of eliminating malaria, while preserving our ecosystem.

REGISTRATION AND RECOGNITION

JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA RAIS
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

MIKOA WA Pwani, S.P. 30080, KIBAHA.

Certificate of Recognition
Awarded to
Tanzania Biotech Products Limited
For
Biological efficacy of BACTIVEC – Batch: 0516004

The effectiveness of the Biological Larvicide - Bactivec produced by Tanzania Biotech Products Limited, which is located along TAMCO Industrial Estate at Kibaha - Pwani Region. The product was tested and evaluated under field conditions of Anopheles sp and Culex sp larvae. The test was done according to WHOPEP 2005 guidelines for the evaluation of Biological Larvicides.

The formula was applied by spraying method on the active surface of breeding sites depending on dose 5ml/m², as it is indicated in the label.

After 24 hours of application the product, 100 percent of mortality of anopheles sp and Culex sp larvae was observed.

The effectiveness of the Biological Larvicides BACTIVEC is successful to control Anopheles sp and Culex sp larvae as Intervention for fighting against Malaria Vector.

Dr. HAPPPINES NDOGI
District Medical Officer

Date: 15/12/2016

ME. MIHANDU MITVA
Regional Malaria Focal Person

KIBAHA TOWN COUNCIL

PHONE NO: +255 22 - 2402373
FAX NO: +255 22 - 2402373
E-Mail: info.kibaha@kibaha.tn.go.ke

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District Medical Officer

Date: 15/12/2016

ME. ALI BARARI SHAIHA
District Malaria Focal Person

REPUBLIQUE DU NIGER
PRESIDENCE DE LA REPUBLIQUE
DIRECTION DE CABINET
COMMISSARIAT AU PROGRAMME NIAMEY NYALA
Info@cnnyala.com - Tel : (00227)20 75 22 41 – 20 75 22 42
Adresse : 575, Bd de la Nation YN 34, Yantala Haut

Niamey, le 14 FEV 2018

La Commission
A
GROUPE LABIOFAM CUBA

Objet : Témoinage de satisfaction

Je soussigné **Mouctar MAMOUDOU**, Commissaire au Programme Niamey Nyala, Président de la Délégation Spéciale de la Ville de Niamey, déclare par la présente avoir été témoin de la bonne exécution du programme de lutte contre le paludisme avec l'utilisation de biolarvicides par le Groupe Labiofam, Cuba.

Cette opération s'est déroulée du mois de septembre au mois de décembre 2017 et a concerné tous les quartiers des cinq communes qui composent la capitale. Elle a été exécutée dans les règles de l'art au regard de la diminution considérable des cas de paludisme constatés pendant et après l'application des biolarvicides au grand soulagement des habitants.

Le programme a été réalisé sous financement conjoint du Commissariat au Programme Niamey et de la Ville de Niamey avec l'appui technique d'experts cubains et du Ministère de la santé publique à travers le Programme National de Lutte contre le Paludisme (PNLP).

Mouctar MAMOUDOU

FORM PRC-6

TROPICAL PESTICIDES RESEARCH INSTITUTE
Pesticides Registration and Control Division P.O. Box 3024
ARUSHA, Tanzania

PESTICIDE REGISTRATION
CERTIFICATE NO: 1588

IN/0664

PESTICIDE REGISTRATION CERTIFICATE
Under Regulation 14

Category of Registration: FULL REGISTRATION
Common Name: BACILLUS THURINGIENSIS
Trade Name: BACTIVEC WP
Name and Address of Applicant: JOSE FRAGA - CUBA

This is to certify that the above mentioned pesticide has been approved and registered for sale or use in Tanzania under the conditions detailed below:
BIOLOGICAL CONTROL OF MOSQUITOES LARVAE

This Certificate is valid until 30th DECEMBER 2020

Signature: REGISTRAR
Date: 29/06/2015

RECEIPT NO : 00068 DATE : 18/02/2015
REGISTRAR OF PESTICIDES
TROPICAL PESTICIDES RESEARCH INSTITUTE
P.O. Box 3024, Telephone 3557/8

FORM PRC-6

TROPICAL PESTICIDES RESEARCH INSTITUTE
Pesticides Registration and Control Division P.O. Box 3024
ARUSHA, Tanzania

PESTICIDE REGISTRATION
CERTIFICATE NO: 1597

IN/0665

PESTICIDE REGISTRATION CERTIFICATE
Under Regulation 14

Category of Registration: FULL REGISTRATION
Common Name: BACILLUS SPHAERICUS
Trade Name: GRISELESF
Name and Address of Applicant: JOSE FRAGA - CUBA

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DEPARTMENT OF AGRICULTURE
Office of the Registrar of Pesticides
Sri Lanka
CERTIFICATE OF REGISTRATION

(This Certificate is issued under the Section 7 (1) Of the Control of Pesticides Act No. 33 of 1980 as amended by the Act No. 06 of 1994)

This is to certify that the pesticides of which the details are under mentioned has been registered by the Pesticides registration Authority of Sri Lanka with effect from 10/Sep/2017 and onwards / provisionally permitted for a period of 06 months / twelve months in accordance with the details given in the attachment.

This pesticide is classified as Restricted (Common-Domestic) under the Section 9(a) of the Act.

Registration No: M60000

Trade Name: Bactivec
Strength: 0.6 % (w/v)
Registrant: Omacx Healthcare (Pvt) Ltd.
46/48C, Robert Drive, Off Robert Gunawardena
Mawatha, Kirulapone, Colombo 06

Common Name: bacillus thuringiensis var israelensis serotype H-14
Type of Formulation: Any Other Liquid
Manufacturer/ Formulator: Tanzania Biotech Products Limited
Tamco, Industrial Estate, P.O.Box 30110,
Kibaha-Pwani
Tanzania

26 JAN 2018
Date: REGISTRAR OF PESTICIDES
Department of Agriculture
P.O.Box 49, Galamba,
Peradeniya

Larviciding in Tanzania

- Larval Source Management by applying biolarvicides (Bti and Bs) has been widely practised in different ecological settings in Tanzania since June 2017.

- Operational and Community Acceptability: This is a community based programme. In Tanzania

The identification and application in the breeding sites is done by Community Owned Resource Persons (CORPS)

Larviciding in Tanzania

- Results: Entomological data shows the population of both aquatic and adult stages of Culicine and Anopheline mosquitoes was significantly down scaled. There is as well subsequent substantial reduction in malaria transmission from 14% to 7% from 2015 to 2018 suggesting that larviciding have substantially contributed to malaria reduction
- Conclusion: Larviciding is an effective tool in reducing malaria transmission, especially when integrated with other methods. Larvicides as well circumvent vector resistance.