

REPORT OF THE TWELFTH
WHOPES
WORKING GROUP MEETING

WHO/HQ, GENEVA
8–11 DECEMBER 2008

Review of:

BIOFLASH® GR
PERMANET® 2.0
PERMANET® 3.0
PERMANET® 2.5
LAMBDA-CYHALOTHRIN LN



**World Health
Organization**

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**CONTROL OF NEGLECTED TROPICAL DISEASES
WHO PESTICIDE EVALUATION SCHEME**

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1. INTRODUCTION

The twelfth meeting of the WHOPES Working Group, an advisory group to the WHO Pesticide Evaluation Scheme (WHOPES), was convened at WHO headquarters in Geneva, Switzerland, from 8 to 11 December 2008. The objective of the meeting was to review the reports of testing and evaluation of BioFlash GR, a *Bacillus thuringiensis israelensis* product of Nature Biotechnology Company (Islamic Republic of Iran) for mosquito larviciding, as well as those of four long-lasting insecticidal mosquito nets (LNs) for prevention of malaria: PermaNet 2.0; PermaNet 2.5 (=PermaNet 2.0 Extra); PermaNet 3.0 (Vestergaard Frandsen, Switzerland); and Lambda-cyhalothrin LN (=ICON MAXX-Net) of Syngenta, Switzerland.

The meeting was attended by 14 scientists (see Annex I: List of participants). Professor Dr Marc Coosemans was appointed as Chairman and Dr Purushothaman Jambulingam as Rapporteur. The meeting was convened in plenary and group sessions, in which the reports of the WHOPES supervised trials and relevant published literature and unpublished reports were reviewed and discussed (see Annex II: References). Recommendations on the use of the above-mentioned products were made.

2. REVIEW OF BIOFLASH GR

BioFlash GR is a bacterial larvicide manufactured as a granular formulation by the Nature Biotechnology Company (Islamic Republic of Iran). The active ingredient (AI) is composed of viable endospores of *Bacillus thuringiensis* subspecies *israelensis* (*Bti*, serotype H-14) and delta-endotoxin crystals. The AI constitutes 10% of the formulated product, with a reported potency of 18 000 international toxic units (ITU)/mg. The manufacturer recommends a target dosage of 1.7 kg/hectare of the formulated product.

The human and environmental safety of Bt, including *Bti*, have been assessed by WHO (1999),¹ and no separate safety assessment has therefore been carried out on BioFlash GR. Application of any product formulated with *Bti* to potable water for the purposes of mosquito larviciding should be subject to a specific risk assessment, and should take into account microbial contaminants, formulants and impurities. Such an appraisal has not been part of the assessment provided hereunder.

2.1 Efficacy – WHOPES supervised trials

2.1.1 Laboratory studies

Montpellier, France

EID Méditerranée (2005) carried out bioassays with BioFlash GR (2005 batch) and VectoBac 12AS (Valent BioSciences, USA, 1200 ITU/mg) against late third-instar or early fourth-instar

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