



**AIM COST Action CA17108: *Aedes* Invasive Mosquitoes  
and  
European Commission MediLabSecure Project**

**Training Course:  
Field assessment of Quality in Control Measures Against *Aedes* Invasive  
Mosquitoes (including SIT)**

**HOST INSTITUTIONS**

**City Council of Valencia, University of Valencia and Lokímica, Valencia, Spain  
13-24 September 2021**

**TRAINERS**

**Romeo Bellini, Ruben Bueno, Andrea Drago, Eleonora Flacio, Gregory Lambert, Antonios Michaelakis, Dušan Petrić, Vincent Robert and Francis Schaffner**

**HOST PERSON**

Rubén BUENO, PhD., Medical Entomologist, Technical Director, Laboratorios Lokímica  
Associate Professor of the University of Valencia

President of the European Mosquito Control Association (EMCA)

Email: [rbueno@lokimica.es](mailto:rbueno@lokimica.es), Tel: +34 637467495

**Concept:** Adults and larvae will be sampled three days before and three (seven) days after the treatments (including SIT and MRR). Valencia's four areas/sampling plots, with similar AIM density, of similar size (30 ha) and equal distance to the home base (SIT walking distance, others 15 min), are chosen by the host.

**Sampling density per plot:**

5 BG traps (1 trap/6ha); 2 edges (exposed to ULV and hidden), 3 middle (2 exposed, 1 hidden); 20 traps in total; each trainee has one

5 EVS traps (1 trap/6ha); 2 border zone (exposed to ULV and hidden), 3 middle (2 exposed, 1 hidden); 20 traps in total; each trainee has one

50 HLC (1 HLC station/0,6ha); 20 border zone and 30 middle; 5 min each, targeting 2 hours window in the peak of the females/males daily activity; rotation; 200 stations in total; each trainee doing 10

25 ovitraps (1 ovitrap/1,2ha); 10 border zone and 15 middle; 100 ovitraps in total; each trainee handling 5

**Evaluation of the efficacy** of larvicide, ground ULV adulticide treatments, and SIT (MRR) will be performed on four experimental plots:

**Plot 1** – ground ULV adulticide treatment only (pyrethroid)

**Plot 2** – larvicide and ground ULV adulticide treatment – emergency response (Aquatain or Vectomax + same parathyroid adulticide as used at Plot1) – target 0 adults

**Plot 3** – SIT + door to door (education + same larvicide as used at Plot1 and Plot2),

**Plot 4** – untreated

## DRAFT PROGRAMME

### Week zero for trainers only

#### Friday, 10 September 2021

Time	Activity
whole day	The arrival of the trainers

#### Saturday, 11 September 2021

Time	Activity
09:00-17:00	Inspection of experimental plots, provisional design of sampling station to be discussed with trainees on Monday
17:00-20:00	Release of SIT males; alternative time Sunday afternoon

#### Sunday, 12 September 2021

Time	Activity
17:00-20:00	Release of SIT males; alternative time Saturday afternoon

### Week one for trainees and trainers

#### Monday, 13 September 2021

Time	Activity
09:00-09:15	Introduction and welcome
09:15-09:45	Project representatives: AIM COST, MediLabSecure, IAEA RER 2026 - outlines of the projects and reasons for collaboration

Time	Activity
09:45-10:00	Course content –schedule
10:00-10:30	Control and QC methods - larvae (general and AIM)
<b>10:30-11:00</b>	<b>Coffee break</b>
11:00-11:30	Control and QC methods -adults (general and AIM)
11:30-12:00	Control and QC methods -SIT
12:00-13:00	How we do AIM control (Lokimica)
<b>13:00-14:00</b>	<b>Lunch break</b>
14:00-14:30	Sampling for quality assessment of AIM control measures - eggs
14:30-15:00	Sampling for quality assessment of AIM control measures - larvae
15:00-15:30	Sampling for quality assessment of AIM control measures - adults
15:30-16:00	MRR for SIT
16:00-16:30	Door to door
16:30-17:00	Discussion and experimental design, the grouping of the trainees (4 groups of 5 trainees for 4 plots <b>(all trainers, Lokimica, trainees)</b>
17:00-17:30	AIMSurv 2022
17:30-18:00	Vec Map
18:00-18:30	Preparation of the equipment for the field sampling; commenting maps and sampling strategy already developed before the training <b>(All trainers)</b>

### Tuesday, 14 September 2021

Time	Activity
09:00 - 09:30	<b>Two Morning lectures (Mosquito control in my country and efficacy assessment)</b>
09:00 - 13:00	Travel to the sampling sites; positioning of ovitraps larval sampling, identifying the productivity of different breeding sites, identifying the breeding sites rich in larvae to be followed 3 days before and 3 days after the treatment from which samples will not be taken to the lab for identification; selecting the places for HLC and setting up the BG and EVS <b>(all experts, 4 groups of trainees)</b>
<b>13:00-14:30</b>	<b>Lunch break</b>
14:30-17:00	Selecting the places and setting up the BG and EVS <b>(all experts, 4 groups of trainees)</b>
17:00-18:00	HLC collection 5 people per site, 10 sampling station per people, 50 HLC sampling station per site: rotation of people and sampling time. <b>(all experts, 4 groups of trainees)</b>
18:00-20:00	Travel back to the lab, sorting and identifying the adults' sampled by HLC, labelling, preserving the samples. <b>(all experts, 4 groups of trainees)</b>

### Wednesday, 15 September 2021

Time	Activity
09:00 - 09:30	<b>Two Morning lectures (Mosquito control in my country and efficacy assessment)</b>
09:30 - 13:00	Travel to the sampling sites; collecting the nets from BG and EVS, larval sampling <b>(all experts, 4 groups of trainees)</b>
<b>13:00-14:30</b>	<b>Lunch break</b>
14:30-17:00	Sorting and identifying samples from the BG and EVS; replacing the batteries. Setting up the BG and EVS at chosen places <b>(all experts, 4 groups of trainees)</b>
17:00-18:00	HLC collection 5 people per site, 10 sampling station per people, 50 HLC sampling station per site: rotation of people and sampling time. <b>(all experts, 4 groups of trainees)</b>
18:00-20:00	Travel back to the lab; sorting and identifying the adults' sampled by HLC, labelling, preserving the samples, charging the batteries <b>(all experts, 4 groups of trainees)</b>

#### Thursday, 16 September 2021

Time	Activity
09:00 - 09:30	<b>Two Morning lectures (Mosquito control in my country and efficacy assessment)</b>
09:30 - 13:00	Travel to the sampling sites; collecting the nets from BG and EVS, larval sampling, identifying the productivity of different breeding sites <b>(all experts, 4 groups of trainees)</b>
<b>13:00-14:30</b>	<b>Lunch break</b>
14:30-17:00	Sorting and identifying samples from the BG and EVS; replacing the batteries. Setting up the BG and EVS at chosen places <b>(all experts, 4 groups of trainees)</b>
17:00-18:00	HLC collection 5 people per site, 10 sampling station per people, 50 HLC sampling station per site <b>(all experts, 4 groups of trainees)</b>
18:00-20:00	Travel back to the lab; sorting and identifying the adults' sampled by HLC, labelling, preserving the samples, charging the batteries <b>(all experts, 4 groups of trainees)</b>

#### Friday, 17 September 2021

Time	Activity
09:00-09:30	<b>Two Morning lectures (Mosquito control in my country and efficacy assessment)</b>
09:30-10:30	Identification of larvae sampled during the three previous days.
<b>10:30-11:00</b>	<b>Coffee break</b>
11:00-13:00	Travel to the sampling sites; viewing the larvicide treatments at two different sites
<b>13:00-14:30</b>	<b>Lunch break</b>
14:30-16:00	Release of marked sterile males. Collecting the nets and sorting the samples from the BG and EVS.
16:00-18:00	Sampling the adults for WHO cages, setting up the cages. Then, setting up the Teflon plates.
18:00-19:00	Ground ULV adulticide treatment (or 17-18h)
20:00-21:00	One hour after treatment collecting the Teflon plates, registering adult mosquito mortality inside the cages, transferring mosquitoes to the clean vials. Travel back.
21:00-21:30	Registering the adults' mortality 2h after the treatment.

#### Saturday, 18 September 2021

Time	Activity
07:00-07:30	Registering the adults' mortality 12h after the treatment.
07:30 - 11:00	Travel to the sampling sites; larval samplings at already identified and sampled breeding sites <b>(all experts, 4 groups of trainees)</b>
<b>11:00-14:30</b>	<b>Lunch break</b>
14:30-17:00	Setting up the BG and EVS at the same places as before the treatment <b>(all experts, 4 groups of trainees)</b>
17:00-18:00	HLC collection: rotation of people and sampling time <b>(all experts, trainees)</b>
18:00-19:00	Travel back to the lab, identifying the adults sampled by HLC, UV light needed.
19:00-19:30	Registering the adults' mortality 24h after the treatment.

#### Sunday, 19 September 2021

Time	Activity
09:00 - 13:00	Travel to the sampling sites; collecting the nets from BG and EVS, larval sampling at already identified and sampled breeding sites. <b>(all experts, 4 groups of trainees)</b>
<b>13:00-14:30</b>	<b>Lunch break</b>

Time	Activity
14:30-17:00	Sorting and identifying samples from the BG and EVS; replacing the batteries. Setting up the BG and EVS at chosen places <b>(all experts, 4 groups of trainees)</b>
17:00-18:00	HLC collection <b>(all experts, 4 groups of trainees)</b>
18:00-19:00	Travel back to the lab; sorting and identifying the adults' sampled by HLC, labelling, preserving the samples, charging the batteries <b>(all experts, 4 groups of trainees)</b>

## Week two for trainees and trainers

### Monday, 20 September 2021

Time	Activity
09:00 - 09:30	<b>Two Morning lectures (Mosquito control in my country and efficacy assessment)</b>
09:30 - 13:00	Travel to the sampling sites; collecting the nets from BG and EVS, larval sampling at already identified and sampled breeding sites. <b>(all experts, 4 groups of trainees)</b>
<b>13:00-14:30</b>	<b>Lunch break</b>
14:30-17:00	Sorting and identifying samples from the BG and EVS; replacing the batteries. Setting up the BG and EVS at chosen places <b>(all experts, 4 groups of trainees)</b>
17:00-18:00	HLC collection <b>(all experts, 4 groups of trainees)</b>
18:00-20:00	Travel back to the lab, sorting and identifying the adults' sampled by HLC, labelling, preserving the samples, charging the batteries. <b>(all experts, 4 groups of trainees)</b>

### Tuesday, 21 September 2021

Time	Activity
09:00 - 09:30	<b>Two Morning lectures (Mosquito control in my country and efficacy assessment)</b>
09:30 - 13:00	Travel to the sampling sites, collecting the nets from BG and EVS. Identification of the samples, data quality control <b>(all experts, 4 groups of trainees)</b>
<b>13:00-14:30</b>	<b>Lunch break</b>
14:30-17:00	Sorting and identifying samples from the BG and EVS <b>(all experts, 4 groups of trainees)</b> .
17:00-18:00	HLC collection, rotation of people and sampling time. <b>(all experts, 4 groups of trainees)</b>
18:00-20:00	Travel back to the lab, sorting and identifying the adults' sampled by HLC, labelling, preserving the samples, charging the batteries. <b>(all experts, 4 groups of trainees)</b>

### Wednesday, 22 September 2021

Time	Activity
09:00 - 09:30	<b>Two Morning lectures (Mosquito control in my country and efficacy assessment)</b>
09:30 - 13:00	Data analysis, identification of the samples, data quality control, presenting the results.
<b>13:00-14:30</b>	<b>Lunch break</b>
14:30-17:00	Data analysis, identification of the samples, data quality control presenting the results, travel to the sampling sites.
17:00-18:00	HLC collection <b>(all experts, 4 groups of trainees)</b>
18:00-19:00	Travel back to the lab, identifying and sorting the adults' sample by HLC.

### Thursday, 23 September 2021

Time	Activity
09:00 - 09:30	<b>Two Morning lectures (Mosquito control in my country and efficacy assessment)</b>

Time	Activity
09:30 - 11:00	Presentation of group leaders, discussion with trainers and PCO representatives
11:00 - 13:00	Round table limitations and opportunities for improvement of AIM control
<b>13:00-14:30</b>	<b>Lunch break</b>
16:00-17:00	Travel to the sampling sites.
17:00-18:00	HLC collection ( <b>all experts, 4 groups of trainees</b> )
18:00-19:00	Travel back to the lab, identifying and sorting the adults' sample by HLC.

### Friday, 24 September 2021

Time	Activity
<b>Open meeting with scientists, technicians, managers, decision-makers and politicians of the Region</b>	
09:00 - 11:00	Local experience in control of AIM (3-4 speeches, including some experiences with <i>Wolbachia</i> detection that we are currently implementing in the city, etc.)
<b>11:00-11:30</b>	<b>Coffee break</b>
11:30-13:00	Summary and the results of the training: (some of trainers explaining main results, promotion of Q&A, models of public tenders for PCO's, group presentation by trainees briefing the situation of mosquito control countries of origin and their experiences regarding to this TS; their point of view do we need capacity building in terms of mosquito control in Europe)
<b>13:00-14:30</b>	<b>Cocktail</b>
14:30-	Finally free afternoon