MOSQUITO IDENTIFICATION AND PROCESSING

Vu Duc Chinh, PhD.
Head Dept of Entomology,
National Institute of Malariology,
Parasitology and Entomology (NIMPE),
Hanoi, Vietnam.
Email: chinh_vu99@yahoo.com
THE NEED OF IDENTIFICATION

Collected mosquitoes should be identify to species in order to evaluate:

- Anopheles species are presenting in a location
- Where a species distributed (ecological setting: village/farm/forest)
- When a species developed (seasonal: rainy/dry)
- Night time activity of a species (peak activity)
- Host seaking (human/cattle)
- Suscetibility status to insecticides (bio-assays)
- Insecticide treatment effect (residual killing, repellence)
- Malaria transmission role (infected parasites, population longevity, EIR)

To build vector control strategy
THE IDENTIFICATION METHODS

- **Morphology:** Mosquito identification keys (adult, pupae, larvae)
- **PCR:** (Random Fragment Length Polymorphic-Polymerase Chain Reaction- **RFLP-PCR**)
  - Primer: *ITS2A & ITS2B*
  - *An.minimus*: 200bp & 100bp
  - *An.harrisoni*: 300bp & 200bp
- **Enzyme electrophoresis**
  - 9 enzyme
    - (ODH,MDH,G6PD,GPI,HAD,LDH,PGM,IDH,AAT)
IDENTIFICATION KEYS

63 species in Vietnam
IDENTIFICATION KEYS

Key to the four stage Anopheles larvae of Vietnam

1 Bases of inner clypeal hairs much closer to one another than to the outer clypeals; antennal shaft hair branched (fig.1a,b)....................(subgenus Anopheles)........................2

   Bases of inner clypeal hairs wider apart and closer to the bases of the outer clypeals than to one another; antennal shaft hair small or minute and nearly always simple (fig.1c,d) .................................................................(subgenus Cellia).................................................................3

2(1) Bases of inner clypeal hairs wider apart and closer to the bases of the outer clypeals than to one another(fig.2a) .................................................................3

   Bases of inner clypeal hairs much closer to one another than to the outer clypeals (fig.2b) .................................................................4
IDENTIFICATION KEYS

**Keys to the Anopheline female mosquitoes**

1. Costa divided by pale sports not more than 3 dark marks involving both costa and vein 1, or costa all dark (fig.1a,b) ................................................................................................................................. 2
   Costa always divided by pale sports into 4 or more dark marks involving both costa and vein 1 (fig.1c) ........................................................................................................................................ 3
   a
   b
   c

   Fig. 1

2. (1) Costa all dark (fig.2a) ............................................................................................................................................................................. 3
   Costa divided by pale sports (fig.2b) ............................................................................................................................................................. 9
   a
   b

   Fig. 2

3. (2) Erect head scales narrow (only slightly expanded apically) (fig.3a) ........................................................................................................ 4
   Erect head scales widely expanded apically (fig.3b) ........................................................................................................................................ 7
50(49) Tibio-tarsal joint of hindleg with large white bands; proboscis without yellow scales on apical half (Fig. 50a,b).................................................................51
Tibio-tarsal joint of hindleg without large white bands; proboscis with yellow scales on apical half (Fig. 50c,d).................................................................52

51(50) Presector dark mark on vein 1 usually reaching back at least to the middle of presector pale mark on costa (fig. 51a) ...........................................................................................................An.dirus
Presector dark mark on vein 1 usually not reaching back, it often as long as presector dark mark on costa (fig. 51b) ...........................................................................................................An.takasagoensis
CHARACTERS OF SOME SPECIES

An.jeyporiensis

An.minimus

An.aconitus
TRAINING IN HANOI
TRAINING IN HANOI
Main malaria vectors distribution
• THANK YOU FOR YOUR ATTENTION: