

Insecticide resistance pyrethroid and DDT resistance in Cambodia *Anopheles* species

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Introduction

After finish MALVECASIA we decide to continue every two year in each of network country..

- Paper we still concentrate to DDT4% and Pyrethrum at 0.75%
- In year 2008 in the North east of Country
- Rattanakiry.



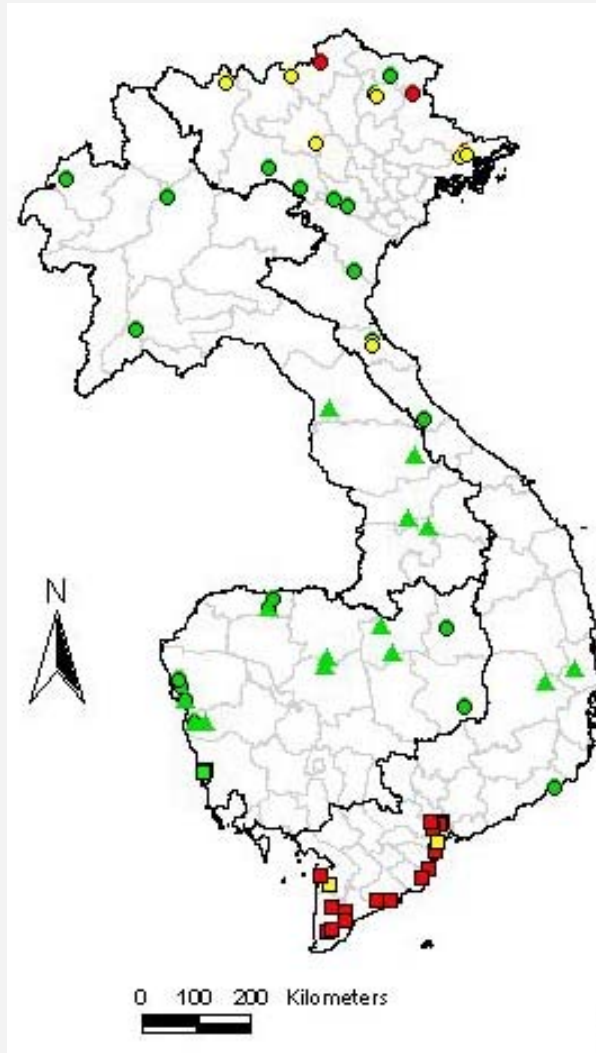
Results main malaria vectors

Main malaria vectors

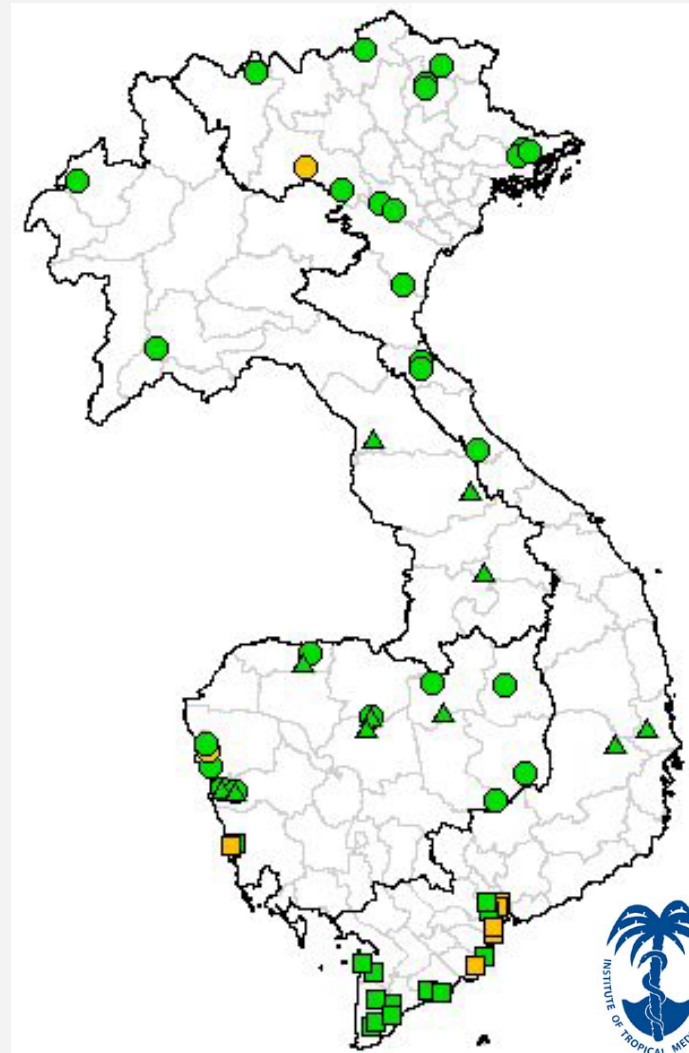
- △ *An. dirus s.s.*
- *An. minimus s.l.*
- *An. epiroticus*

S (>98%)
PR (80-97%)
R (<80%)

Permethrin



DDT



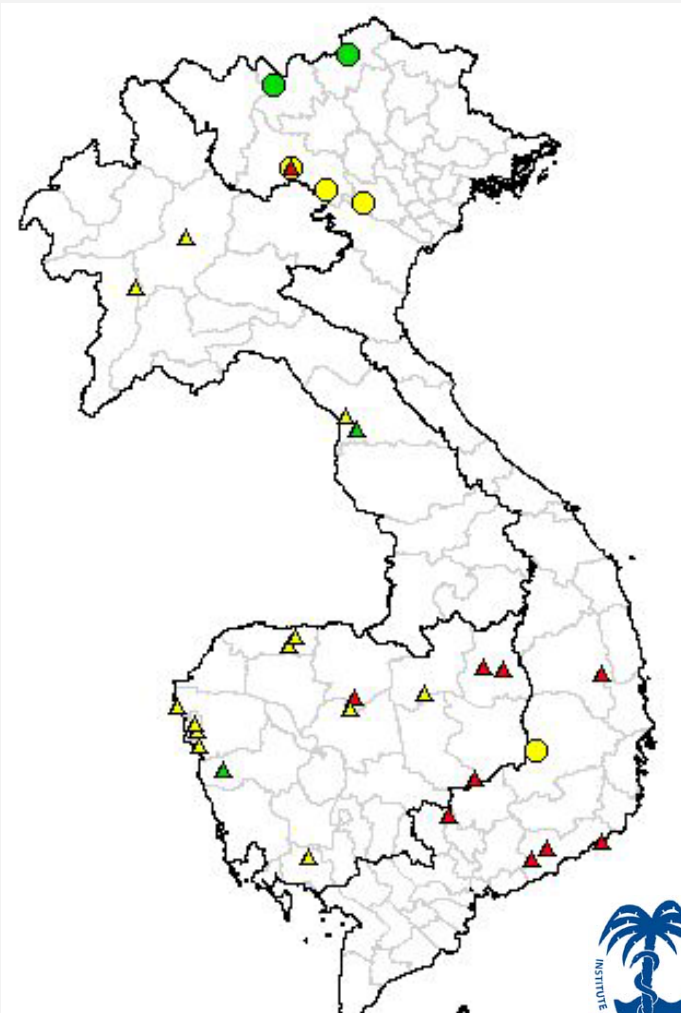
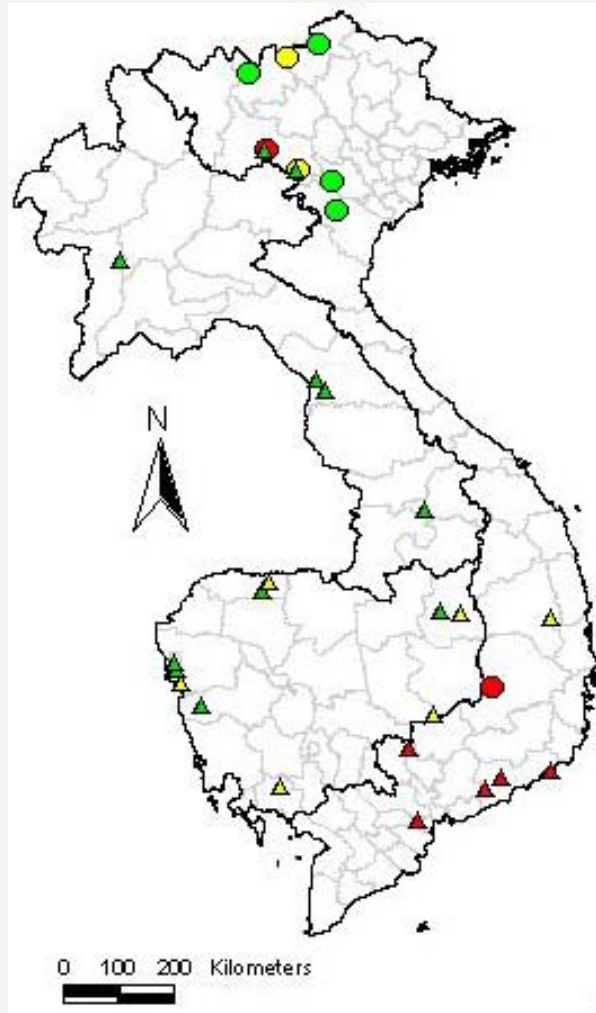
Results *An. vagus* & *An. sinensis*

Potential malaria vectors

Permethrin

DDT

- △ *An. vagus*
- *An. sinensis*



S (>98%)
PR (80-97%)
R (<80%)

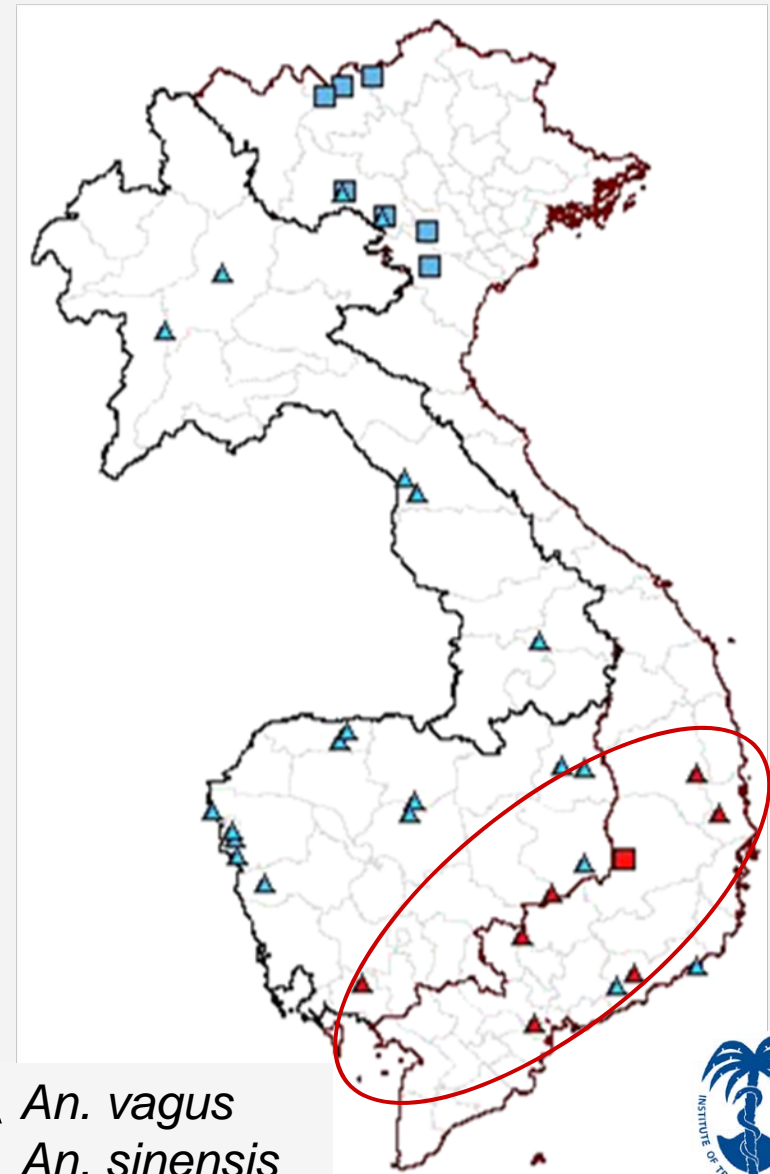
Results *An. vagus* & *An. sinensis*

- *Knockdown* resistance?

L1014S *kdr* mutation

Frequency *An. vagus* 0.5-15.7%
An. sinensis 2.3%

Geographical pattern



kdr
No *kdr*

△ *An. vagus*
□ *An. sinensis*

Insecticide Resistance 2008

Insecticides	Species	No. tested	24h mortality
DDT 4%	An.vagus	200	48%
	An. minimus	100	97.5%
	An.dirus	40	99%
Permethrin 0.75%	An. minimus	100	99%
	An.vagus	200	97%
	An.maculatus	100	98%
	An. dirus	20	?