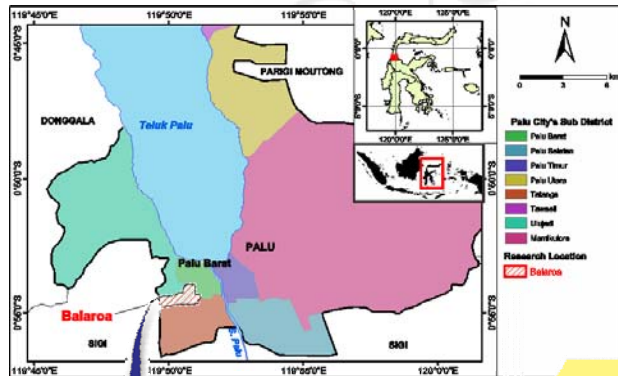


Susceptible Status and Resistance Mechanism of *Aedes aegypti* to Malathion and Cypermethrin in Dengue Endemic Area at Palu City, Central Sulawesi, Indonesia

Purwaningsih¹, Sitti Rahmah Umniyati², Budi Mulyaningsih²

¹Post Graduate Student of Tropical of Medicine Program, Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada

²Department of Parasitology, Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada



The geographic map of research location

Mosquito eggs colonization

The biochemical assay of nonspecific esterase activities

PCR assay for IIS6 and IIS6 VGSC gen amplification of *Ae. aegypti* at band target 619 bp and 748 bp

120 ovitraps were installed in Balaroa, Palu

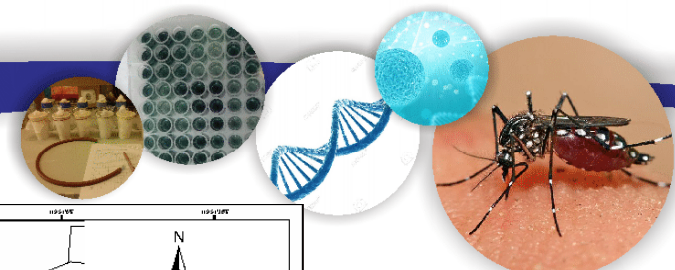
Mosquito eggs sampling

The CDC bottle bioassay method

reading of nonspecific esterase activities in spectrophotometer

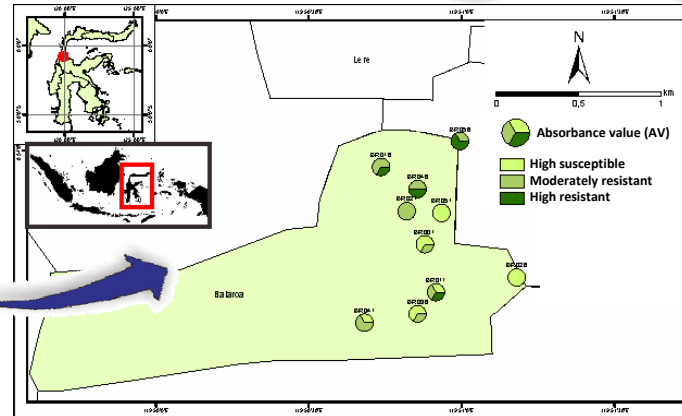
Sequencing analysis

Result & Discussion



Data & Analysis

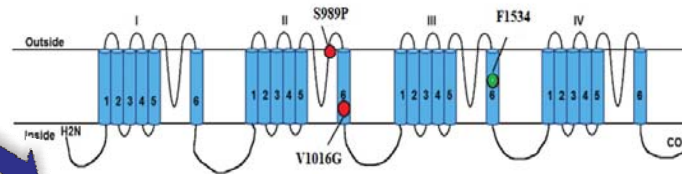
Insecticides	Generation	Mortality (%)			Category
		30 minutes	2 hours	Holding 24 hours	
Malathion (50 µg/bottle)					
Average (Repeat 1,2&3)	F1	80,33	100	100	moderate resistant
Control bottle	F1	0	0	0	
Laboratory Strain	F1057	100	100	100	susceptible
Cypermethrin (10 µg/bottle)					
Average (Repeat 1,2&3)	F1	63,33	99	73	resistant
Control bottle	F1	0	0	0	
Laboratory Strain	F1057	99	100	100	susceptible



Positive cut off:
 $0.429 + 3(0.048) = 0.574$
 Average of resistant control (+) = 0.739

Conclusion

Ae. aegypti was resistant to malathion and cypermethrin, the non-specific esterase activities increased and the two alleles (S989P and V1016G) have a role in the occurrence of cypermethrin resistance



S989P

V1016G

Species/Abbrv	Gr	Sequence alignment (A, C, G, T, -)																																																																																																			
1. IIS6VGSC of Ae. aegypti Normal	A	[Sequence alignment]																																																																																																			
2. IIS6VGSC of Ae. aegypti Mutant	A	[Sequence alignment]																																																																																																			
3. Balaroa_1F	A	[Sequence alignment]																																																																																																			
4. Balaroa_1R	A	[Sequence alignment]																																																																																																			
5. Balaroa_2F	A	[Sequence alignment]																																																																																																			
6. Balaroa_2R	A	[Sequence alignment]																																																																																																			
7. Balaroa_3F	A	[Sequence alignment]																																																																																																			
8. Balaroa_3R	A	[Sequence alignment]																																																																																																			
9. Balaroa_4F	A	[Sequence alignment]																																																																																																			
10. Balaroa_4R	A	[Sequence alignment]																																																																																																			