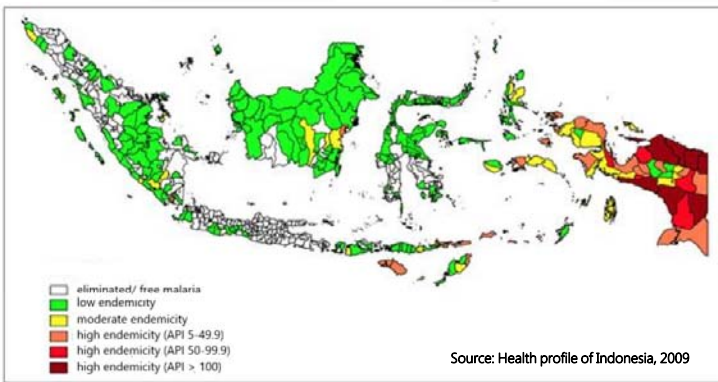


EXPRESSION OF GENE ENCODING MEROZOITE SURFACE PROTEIN 1 *Plasmodium falciparum* (PfMSP1-19kDa) IN *Escherichia coli* BL21 (DE3) STRAIN

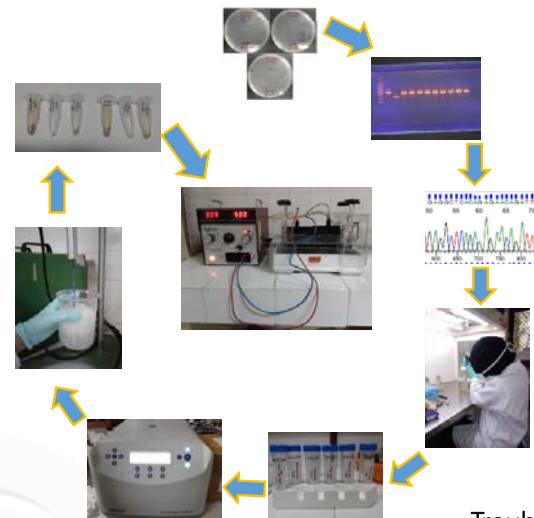


Background

- Indonesia is still combat in malaria
- Indonesia targeted total elimination of malaria in 2030
- Challenges in malaria elimination in different endemicity area.
- PfMSP-1 19 kDa, the C-terminal region which is potential to trigger an immune response and referred as a vaccine candidate against the erythrocyte stage.



Methods



Result

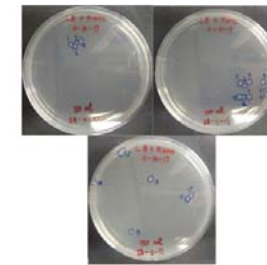


Figure 1. Transformation result, Mach1 Competen cell colonies in selective media Luria Bertani agar containing 50µg/ml Kanamycin.

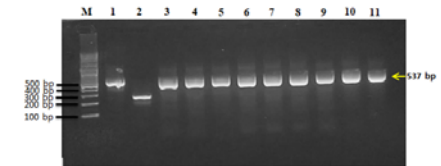


Figure 2. Screening of positive colonies which insert by recombinant plasmid pET SUMO-Pfmsp1-19 with SUMO forward and reverse T7 primer 1.5% agarose gel electrophoresis; M = Marker 100bp.

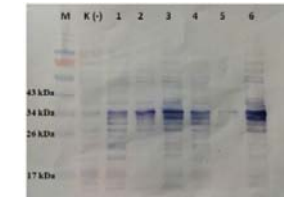


Figure 3. Western blotting analysis of recombinant protein with antiHis tag antibody. M= protein ladder 250 kDa, K(-) = negative control, 1 and 4 (uninduced), 2 and 5 (early induced), 3 and 6 (induced after OD600 reach 0,6).

Discussion

Troubleshooting of protein expression can be caused by many factors;

- *missfolding* process in *E. coli* cell,
- Inclusion body production
- different codon usage between *E. coli* and *P. falciparum*.

(Rosano and Ceccarelli, 2014)

Conclusion

Recombinant protein PfMSP-1₁₉ was not optimally expressed in host cell *E. coli* BL21(DE3).

Solution

Codon optimization or using eukaryotic cell expression system.



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