

ABSTRACT

IDENTIFICATION OF CODON 1042 *Pfmdr1* GENE SINGLE NUCLEOTIDE POLYMORPHISM ON MALARIA PATIENTS IN PESAWARAN DISTRICT

By

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Background: *Plasmodium falciparum* caused malaria falciparum which is resistant to chloroquine antimalarial drugs due to genetic mutations. The presence of Single Nucleotide Polymorphism codon 1042 of *Plasmodium falciparum* Multidrug Resistance 1 (*Pfmdr1*) gene can be a genetic marker of drug resistance. Polymerase Chain Reaction (PCR) and sequencing are used to detect gene polymorphism spesifically and accurately.

Method: Research used a survey research design with descriptive method. There are 22 Archived Biological Materials (ABM) used as sample. The examination was carried out using the PCR method, followed by sequencing to detect polymorphism.

Result: 12 from 22 samples had been successfully *Nested* PCR and sequenced. The characteristic of codon 1042 *Pfmdr1* gene are proved wild-type in all sample.

Conclusion: There are no Single Nucleotide Polymorphism codon 1042 *Plasmodium falciparum* Multidrug Resistance 1 (*Pfmdr1*).

Keyword: Codon, *Plasmodium falciparum* Multidrug Resistance 1 (*Pfmdr1*), Polymerase Chain Reaction (PCR).

ABSTRAK

IDENTIFIKASI SINGLE NUCLEOTIDE POLYMORPHISM KODON 1042 GEN *Pfmdr1* PADA PENDERITA *Malaria falciparum* DI KABUPATEN PESAWARAN

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Latar Belakang: *Plasmodium falciparum* merupakan penyebab penyakit malaria *falciparum* yang resisten terhadap obat antimalaria klorokuin disebabkan adanya mutasi genetik. Adanya *Single Nucleotide Polymorphism* kodon 1042 gen *Plasmodium falciparum Multidrug Resistance 1* (*Pfmdr1*) dapat menjadi penanda genetik resistensi obat. Teknologi *Polymerase Chain Reaction (PCR)* dan sekuensing digunakan untuk mendeteksi polimorfisme gen secara spesifik dan akurat.

Metode: Jenis penelitian ini menggunakan rancangan penelitian survey dan bersifat deskriptif. Sampel penelitian diperoleh dari Bahan Biologi Tersimpan (BBT) sebanyak 22 sampel. Pemeriksaan dilakukan dengan menggunakan metode PCR yang dilanjutkan dengan sekuensing untuk mendeteksi polimorfisme.

Hasil: Sebanyak 12 dari 22 sampel telah berhasil dilakukan *Nested PCR* dan sekuensing dengan hasil kodon 1042 gen *Pfmdr1* pada sampel bersifat *wild-type*.

Kesimpulan: Tidak terdapat *Single Nucleotide Polymorphism* kodon 1042 gen *Plasmodium falciparum Multidrug Resistance 1* (*Pfmdr1*)

Kata Kunci: Kodon, *Plasmodium falciparum Multidrug Resistance 1* (*Pfmdr1*), *Polymerase Chain Reaction (PCR)*.