

**GENETIC PROFILE MUTATION *rpoB* IN CLINICAL ISOLATE OF  
RIFAMPICIN RESISTANT *Staphylococcus aureus***

**ABSTRACT**

**Background:** *Staphylococcus aureus* is one of the sources of nosocomial infection. MRSA eradication using combination antibiotics with rifampicin has shown good results with adjuvant rifampicin to improve the outcome of *Staphylococcus aureus* infections for a long time. Rifampicin-resistant *Staphylococcus aureus* affects the mutation of the *rpoB* gene in some codons. This research examines the mutation of the *rpoB* gene in *Staphylococcus aureus* that is resistant to rifampicin.

**Methods:** In this study, samples were obtained from blood, sputum, pus, and urine collected in the Microbiology Laboratory of DR. Sutomo Surabaya Hospital during May-September 2019. Then the dilution method was carried out to determine the minimum inhibition concentration for rifampicin resistant and dilution to determine the inhibition zone diameter. Then, DNA extraction was carried out from rifampicin-susceptible isolates as control and rifampicin-resistant isolates followed by identification of *rpoB* gene mutations by PCR and sequencing.

**Result:** There were nine isolates studied, four isolates rifampicin-resistant and five isolates rifampicin-susceptible. One of the rifampicin-susceptible isolates did not experience a genetic mutation. In four rifampicin-resistant isolates the most mutations occurred in His-481 codon (75%) followed by the Ile-527 codon (25%). Isolates that are susceptible to rifampicin mutations at codons Pro-475 and Asn-474. One rifampicin-resistant isolate had two mutations in codons Ile-527 and Asn-474.

**Conclusion:** The type of mutation that causes the most rifampicin resistance is a missense mutation. Isolates susceptible rifampicin experience silent mutations. That it can be associated with the type of missens mutation of *rpoB* gene with rifampin resistance.

**Keyword:** *rpoB*, Rifampicin, *Staphylococcus aureus*, mutation, codon