DRUG RESISTANCE OBSERVED IN NOVEL STRAIN OF PLASMODIUM FALCIPARUM

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Abstract: \textit{Plasmodium falciparum} is the single-celled eukaryotic parasite responsible for the most lethal form of human malaria. It is transmitted by the female \textit{Anopheles} mosquito. \textit{Plasmodium falciparum} is more prevalent in sub-Saharan Africa than in other regions of the world. Widespread drug resistance contributes to an annual mortality rate of 3 million. This project characterizes parent (W2) and mutant (I55S) resistant strains to determine factors contributing to differences in drug resistance. Cultures of \textit{P. falciparum}, W2 and I55S were grown in human erythrocytes and plated on eight 6-well plates in the presence of drug compounds: AQ-13, B4, Chloroquine, Quinine, and Mefloquine in varying concentrations, and a no drug control. Seven days later they were taken off the drug compounds and cultured for an additional two weeks or until 10\% parasitemia was observed. W2 showed resistance to Chloroquine, and I55S resistance to B4, as expected. Several other compounds were found to be more effective against I55S than W2.

Keywords: Malaria, drug resistance, Anopheles mosquito

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