Researchers at the University of South Florida have developed a compound that has displayed potent anti-malarial activity as well as improved chemical resistance against multi-drug resistant (MDR) parasites. The invention described is a 4(1H)-quinolone structure that has shown anti-malarial activity at concentrations as low as 0.15nM against the MDR Plasmodium falciparum.

Malaria is a significant public health problem that causes about 250 million cases of fever and approximately one million deaths annually. It is a disease caused by the parasite Plasmodium and is transmitted by the bite of infected mosquitoes. While relatively uncommon in temperate climates, malaria is prevalent in tropical and subtropical countries and it remains a primary goal of world health officials to reduce the incidence of this infectious disease. This mission has become hampered by the emergence of insecticide-resistant mosquitoes. Furthermore, the development of curative agents is a challenge because of the various developmental stages of the parasite within the host.

This invention promises a great approach to treat those affected with malaria. The compound possesses a potent EC50 against multidrug resistant malarial strains W2 (chloroquine and pyrimethamine resistant) and TM90-C2B (chloroquine, mefloquine, pyrimethamine, and atovaquone resistant). This compound also exhibits signs of reduced chemical resistance.

ADVANTAGES:

- Potent anti-malarial activity
- Improved chemical resistance against multi-drug resistant (MDR) parasites
- Acts on both MDR parasites and drug susceptible anti-malarial strains equally well

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