World Academy of Science, Engineering and Technology
International Journal of Biomedical and Biological Engineering
Vol:10, No:06, 2016

The Potential of Ursolic Acid Acetate as an Agent for Malarial Chemotherapy

Authors : Mthokozisi B. C. Simelane

Abstract : Despite the various efforts by governmental and non-governmental organizations aimed at eradicating the disease, malaria is said to kill a child every 30 seconds. Traditional healers use different concoctions prepared from medicinal plants to treat malaria. In the quest to bio-prospect plant-derived triterpenes for anti-malaria activity, we report here the in vivo antiplasmodial activity of ursolic acid acetate (ursolic acid isolated from dichloromethane extract of Mimusops caffra was chemically modified to its acetate derivative). The transdermal administration of ursolic acid acetate (UAA) dose dependently showed complete inhibition of the parasites' growth at the highest concentration of 400 mg/kg after 15 days of Plasmodium berghei infection. UAA prevented the in vitro aggregation of MDH but did not prevent the expression of PfHsp 70 in E. coli XL1 blue cells. It, however, enhanced PfHsp70 ATPase activity with the specific activity of 65 units (amount of phosphate released 73.83 nmolPi/min.mg). Ursolic acid acetate prevented the formation of hemozoin (60 ± 0.02% at 6 mg/ml). The results suggest that Ursolic acid acetate possesses potential anti-malaria properties.

Keywords : Mimusops caffra, ursolic acid acetate, hemozoin, Malaria
Conference Title : ICMPNP 2016 : International Conference on Medicinal Plants and Natural Products
Conference Location : San Francisco, United States
Conference Dates : June 09-10, 2016