## ABSTRACT

### In Vitro and *In Vivo Antimalarial* Activity of Nigella Sativa L. Extracts

**Job Oyweri , Awadh Mohammed , Rahma Udu , Jeremiah Gathirwa , Edwin Too , Protus Omondi , Francis Kimani , Suhaila Hashim and Laila Abubakar**

The Arabs, Asians and, Traditional Health Practitioners in Mombasa county found in Kenya have been using Nigella sativa L. seeds to traditionally manage malaria associated symptoms that is, headache, fever, chills, loss of appetite among others. The present study investigated in vitro antiplasmodial, in vivo antimalarial activities and safety of different extracts of N. sativa. Five extracts obtained via aqueous extraction and sequential extraction using hexane, dichloromethane, ethyl acetate and methanol were tested against in vitro cultures of Plasmodium falciparum. The most active extracts (methanolic and ethyl acetate) were assessed for cytotoxicity and toxicity. The two active extracts were evaluated in vivo against Plasmodium berghei ANKA strain at 500, 250 and 125 mg/kg/day. On in vitro assay, methanolic and ethyl acetate extracts showed good activity with IC50 of 80.48±12.29 and 69.81±5.24 µg/ml against W2 strain and 31.93±4.31 and 53.79±6.02 µg/ml against D6 strain, respectively. The extracts exhibited weak cytotoxicity on Vero cells and high parasitemia suppression of 75.52 and 75.30% at 500 mg/kg dose of methanolic and ethyl acetate extracts respectively. Notably, there was significant decrease ($p<0.001$) in activity with lower doses of the extracts. The results explain thetraditional use of this plant in the Middle East and Mombasa County.



**Key words:** Nigella sativa L. seeds extracts, Plasmodium, antimalarial activity.