In vivo anti-plasmodial activity and toxicity of selected crude plant extracts of from regions of Kenya, against Plasmodium berghei in BALB/c mice.

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ABSTRACT
Alternative medicines are used by many communities in developing world to treat various infectious diseases as malaria. Unfortunately, scientific analysis to confirm antimalarial potential of most of the phytomedicines is not documented. The study was conducted to evaluate anti-plasmodial activity and toxicity of Rubia cordifolia, Harrizonia abyssinica, Leucas Calistochys Olive and Sanchus schwein furthii commonly used antimalarials by selected communities in Kenya. The study assessed parasitaemia suppression, behavior change and mortality of Plasmodium berghei infected BALB/c mice treated with herbal extracts. Approximately 1x10^5-1x10^6 of parasitized erythrocytes with Plasmodium berghei, were inoculated into seven week old naive BALB/c mice. On the fourth day, the mice were treated with four plant extracts dispensed in three concentrations; 25mg/kg, 50mg/kg, and 100mg/kg twice daily for 4 days. Four-day suppressive test, a standard test was used for anti-malarial screening and for determination of percent inhibition of parasitaemia and mortality. In this standard test, four infected mice in the cages were each treated with different concentrations of extract, 25mg extract/kg/day, 50mg extract/kg/day and 100mg extract/kg/day dosages respectively of four plant extracts. The negative control group received equal dosage of normal saline.

Results showed that Rubia cordifolia and Sanchus schwein furthii had higher anti-plasmodial activity against P. berghei parasites with values of 82.4 % (P = 0.001) and 78.6 % (p = 0.003). All the mice treated with the above extracts survived up to day 15 just as the controls. The percentage parasitaemia reduction in mice treated with extracts of H. abyssinica and L. Calistochys also showed values of 65.1% (P = 0.011) and 59.1% (P = 0.04) respectively. This implied that aqueous extracts of R. cordifolia, and S. schwein furthii had higher parasite suppressive effects on P. berghei LD50 doses of <10mg/kg were observed. H. abyssinica and L. Calistochys Olive had moderate parasite suppressive effects with LD50 doses ranging between 10mg/kg and 100mg/kg. The aqueous extracts of R. cordifolia, and S. schwein furthii were more efficacious with highest parasitaemia suppression on P. berghei infected BALB/c mice in low LD50 doses of <10mg/kg/day.

Key Words: Toxicity, in vivo, herbal extracts, Plasmodium berghei, Balb/c mice, Lethal Dose50