Abstract

Aims: To evaluate the Ovicidal and larvicidal effects of Ricinus communis (Euphorbiaceae) extracts on Phlebotomus duboscqi.

Study Design: A comparative experimental design using extracts obtained from the leaf and bark of Ricinus communis plant.

Study Site: Kenya Medical Research Institute, Centre for Biotechnology Research and Development (CBRD), Nairobi Kenya from January to July, 2015.

Methodology: Aqueous, methanol and ethyl acetate extracts were prepared from Ricinus communis plant. Freshly laid eggs were moistened with 1 ml of each extract separately during the incubation period. Larvae were also fed on larval food mixed with the powdered crude extract and a second group was fed on larval food sprinkled with 5 ml of each extract daily.

Results: No significant difference when bark and leaf extracts were compared (P=0.061). 250 µg/ml and 500 µg/ml of extract eroded all the chorionic membranes of the egg shell while egg hatchability was significantly inhibited with only 7%, 9% and 26% of eggs hatching at 500 µg/ml of aqueous, methanol and ethyl acetate extracts respectively (P<0.001). 100% larval mortality noted when at 500 µg/ml methanol extract. The larval period was prolonged to 87 days with the life cycle lasting for 101 days.

Conclusion: R. communis extracts have deleterious effects on hatching of eggs, larval and pupal development and adult emergence of P. duboscqi; hence R. communis should be used against sand flies and Leishmania in situ.