ANTIPROMASTIGOTE ACTIVITIES AND TOXICITY OF Mormodica Foetida SCHUMACH AND THONN AGAINST Leishmania major PARASITES  


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Abstract: Infections due to protozoa of the genus Leishmania are responsible for a significant burden of disease, especially in the developing countries. Furthermore, the incidence of leishmaniasis continues to rise due to lack of a vaccine. Drugs commonly used for the treatment of the disease show varying level of effectiveness and also have associated side effects. There is therefore, a need to develop newer drug therapies. The aim of our study was to assess antiprotozoal activity of the aqueous and methanolic extracts of M. foetida against Leishmania major promastigotes. In this study, the in vitro leishmanicidal effects of M. foetida on L. major were evaluated. The aqueous and methanolic extracts were prepared by maceration method. The extracts were dried and re-dissolved in dimethyl sulfoxide (DMSO) 1% solvent. L. major cells were then tested with serial concentrations (1 to 200 µg/ml) of the extracts. The aqueous and methanolic extracts of aerial parts of M. foetida inhibited the parasite after 48 hrs incubation against L. major promastigotes, which gave MIC = 125±0.01 and 250 ± 0.03 mg/ ml and IC50 = 15.6 ± 0.05 and 23.4 ± 0.53mg/ml, respectively. Pentostam and Amphotericin B, positive controls inhibited the growth of L. major promastigotes with MIC of 62.5 ± 0.02 and 31.3 ± 0.01µg/ml and IC50 = 11.7 ± 0.054 and 7.8±0.053 mg/ml respectively. These data reveal that M. foetida aerial parts extracts contain active compounds, which could serve as an alternative agent in the control of cutaneous leishmaniasis. Further studies would therefore be needed to see its in vivo clinical response and associated toxicities.  

Key words: Leishmania major, Mormordica foetida, promastigotes, Leishmaniasis and In vitro.

INTRODUCTION

Leishmaniasis is a parasitic disease caused by the hemoflagellate protozoa species of the genus Leishmania. The reservoirs of the disease are rodents, dogs and other wild animals. The disease is transmitted by sand fly of the genera Lutzomyia or Phlebotomus. Leishmaniasis is a major public health problem especially in the developing countries. According to the World Health Organization (WHO), the population of 88 countries is threatened by leishmaniasis and about 350 million people are at risk for the disease and the prevalence of leishmaniasis is 12 million with a rate of 2 million cases annually. The clinical manifestations of leishmaniasis are recognized to three forms: visceral leishmaniasis or Kala-azar (VL), cutaneous leishmaniasis (CL) and mucocutaneous leishmaniasis (MCL). CL the commonest form of leishmaniasis is endemic in Kenya. More than 90% of the visceral...