ANTIPARASITIC ACTIVITY OF Vernonia fulta and V. nudiflora (Asteraceae) AGAINST Trypanosoma cruzi AND Leishmania amazonensis

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INTRODUCTION

Chagas disease and leishmaniasis are relevant neglected tropical diseases. Current available treatments for these diseases have shown partial effectiveness and severe side effects. Therefore, there is an urgent need for the development of new drugs. The present work aims to evaluate the antiparasitic potential of Vernonia fulta and Vernonia nudiflora (Asteraceae) against Trypanosoma cruzi and Leishmania amazonensis.

MATERIAL AND METHODS

Fresh leaves of V. fulta and V. nudiflora were separately extracted by soaking each leaf in water (60-65°C) for 30 seconds with a continuous and gentle swinging motion. The aqueous extracts were filtered and partitioned with CH₂Cl₂ to afford an organic (CH₂Cl₂-FrF) and an aqueous fraction (Aq-FrF) for V. fulta and an organic (CH₂Cl₂-FrN) and an aqueous fraction (Aq-FrN) for V. nudiflora. The marc of the first extractions were air-dried and extracted successively with CH₂Cl₂ and MeOH to afford the corresponding extracts for each plant (CH₂Cl₂-ExF, CH₂Cl₂-ExN, MeOH-ExF and MeOH-ExN). In vitro antiparasitic activity of the different extracts and fractions was evaluated on T. cruzi epimastigotes and L. amazonensis promastigotes. Parasites were treated at 10 and 100 µg/ml for each sample. The number of parasites was counted on a Neubauer chamber. Activity was expressed as growth inhibition percentage and referred to control parasites treated with DMSO alone. Phytochemical analysis of the most active extracts was performed by TLC.

RESULTS

The anti-T. cruzi activity of the different extracts ranged between 5-70% at 10 µg/ml and 28-97% at 100 µg/ml. CH₂Cl₂-FrF and CH₂Cl₂-ExF extracts were the most active ones with 96.6% and 87.4% of growth inhibition at 100 µg/ml, respectively. Antileishmanial activity showed growth inhibition of 4-99% at 10 µg/ml and 50-100% at 100 µg/ml where CH₂Cl₂-FrN of V. nudiflora showed the highest activity (>98% at both concentrations tested). Preliminary chromatographic analysis of the most active extracts revealed mainly the presence of terpenoid compounds, presumably sesquiterpene lactones.

CONCLUSIONS

Both V. fulta and V. nudiflora showed antiparasitic activity. V. fulta inhibited the growth of both T. cruzi and L. amazonensis while the effect of V. nudiflora was higher on L. amazonensis. The active extracts are being submitted to bioassay-guided fractionations in order to isolate the compound/s responsible for the antiparasitic activities.

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