Antiprotozoal activity and cytotoxicity of Lycopodium clavatum and Lycopodium complanatum subsp. chamaecyparissus extracts

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Objective: We assessed in vitro antiprotozoal activity of the petroleum ether (PE), chloroform (CHCl3), methanol (MeOH) and alkaloid (ALK) extracts of the ferns Lycopodium clavatum L. (LC) and L. complanatum L. subsp. chamaecyparissus (A. Br.) Doll. (LCC).Methods: Antiprotozoal activity of the extracts was assessed against Trypanosoma brucei rhodesiense, T. cruzi, Leishmania donovani, and Plasmodium falciparum and their cytotoxicity was tested on rat skeletal myoblast (L6) cells.Results: All extracts inhibited the growth of T. brucei rhodesiense with IC50 values of 9.3 to 47.0 mu g/ml. The LC-CHCl3 extract had the best trypanocidal activity against T. cruzi (IC50 15.3 mu g/ml), whereas the LCC-PE extract displayed the highest antileishmanial activity (IC50 4.5 mu g/ml). The most potent activity against P. falciparum was exhibited by LCC-ALK (IC50 2.7 mu g/ml) and LCC-PE (IC50 2.8 mu g/ml) extracts. No cytotoxicity for any of the extracts was detected at the highest concentration tested (IC50 > 90 mu g/ml).Conclusion: Both fern species possibly contain antiprotozoal compounds with no cytotoxicity.
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