Trypanocidal and Cytotoxic Effects of 30 Ethiopian Medicinal Plants

Endalkachew Nibret\textsuperscript{a,b} and Michael Wink\textsuperscript{a,*}

\textsuperscript{a} Institut für Pharmazie und Molekulare Biotechnologie, Universität Heidelberg, Im Neuenheimer Feld 364, D-69120, Heidelberg, Germany. Fax: +49 6221 544884. E-mail: wink@uni-hd.de
\textsuperscript{b} College of Science, Bahir Dar University, 79 Bahir Dar, Ethiopia
* Author for correspondence and reprint requests

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Trypanocidal and cytotoxic effects of traditionally used medicinal plants of Ethiopia were evaluated. A total of 60 crude plant extracts were prepared from 30 plant species using CH\textsubscript{2}Cl\textsubscript{2} and MeOH. Effect upon cell proliferation by the extracts, for both bloodstream forms of \textit{Trypanosoma brucei brucei} and human leukaemia HL-60 cells, was assessed using resazurin as vital stain. Of all CH\textsubscript{2}Cl\textsubscript{2} and MeOH extracts evaluated against the trypanosomes, the CH\textsubscript{2}Cl\textsubscript{2} extracts from five plants showed trypanocidal activity with an IC\textsubscript{50} value below 20 \(\mu\)g/mL: \textit{Dovyalis abyssinica} (Flacourtiaceae), IC\textsubscript{50} = 1.4 \(\mu\)g/mL; \textit{Albizzia schimperi}ana (Fabaceae), IC\textsubscript{50} = 7.2 \(\mu\)g/mL; \textit{Ocimum urticifolium} (Lamiaceae), IC\textsubscript{50} = 14.0 \(\mu\)g/mL; \textit{Acokanthera schimperi} (Apocynaceae), IC\textsubscript{50} = 16.6 \(\mu\)g/mL; and \textit{Chenopodium ambrosioides} (Chenopodiaceae), IC\textsubscript{50} = 17.1 \(\mu\)g/mL. A pronounced and selective killing of trypanosomes with minimal toxic effect on human cells was exhibited by \textit{Dovyalis abyssinica} (CH\textsubscript{2}Cl\textsubscript{2} extract, SI = 125.0; MeOH extract, SI = 57.7) followed by \textit{Albizzia schimperi}ana (CH\textsubscript{2}Cl\textsubscript{2} extract, SI = 31.3) and \textit{Ocimum urticifolium} (MeOH extract, SI = 16.0). In conclusion, the screening of 30 Ethiopian medicinal plants identified three species with good antitrypanosomal activities and low toxicity towards human cells. \textit{Dovyalis abyssinica} might be a promising candidate for phytotherapy of trypanosomiasis.

Key words: \textit{In vitro} Trypanocidal Activity, \textit{Trypanosoma brucei brucei}, HL-60 Cells, Ethiopian Medicinal Plants