

# Trypanocidal and Cytotoxic Effects of 30 Ethiopian Medicinal Plants

Endalkachew Nibret<sup>a,b</sup> and Michael Wink<sup>a,\*</sup>

<sup>a</sup> 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

<sup>b</sup> College of Science, Bahir Dar University, 79 Bahir Dar, Ethiopia

\* Author for correspondence and reprint requests

Z. Naturforsch. **66c**, 541–546 (2011); received March 1/September 15, 2011

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<sub>2</sub>Cl<sub>2</sub> and MeOH. Effect upon cell proliferation by the extracts, for both bloodstream forms of *Trypanosoma brucei brucei* and human leukaemia HL-60 cells, was assessed using resazurin as vital stain. Of all CH<sub>2</sub>Cl<sub>2</sub> and MeOH extracts evaluated against the trypanosomes, the CH<sub>2</sub>Cl<sub>2</sub> extracts from five plants showed trypanocidal activity with an IC<sub>50</sub> value below 20 µg/mL: *Dovyalis abyssinica* (Flacourtiaceae), IC<sub>50</sub> = 1.4 µg/mL; *Albizia schimperiana* (Fabaceae), IC<sub>50</sub> = 7.2 µg/mL; *Ocimum urticifolium* (Lamiaceae), IC<sub>50</sub> = 14.0 µg/mL; *Acokanthera schimperi* (Apocynaceae), IC<sub>50</sub> = 16.6 µg/mL; and *Chenopodium ambrosioides* (Chenopodiaceae), IC<sub>50</sub> = 17.1 µg/mL. A pronounced and selective killing of trypanosomes with minimal toxic effect on human cells was exhibited by *Dovyalis abyssinica* (CH<sub>2</sub>Cl<sub>2</sub> extract, SI = 125.0; MeOH extract, SI = 57.7) followed by *Albizia schimperiana* (CH<sub>2</sub>Cl<sub>2</sub> extract, SI = 31.3) and *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. *Dovyalis abyssinica* might be a promising candidate for phytotherapy of trypanosomiasis.

**Key words:** *In vitro* Trypanocidal Activity, *Trypanosoma brucei brucei*, HL-60 Cells, Ethiopian Medicinal Plants