

## Publication

## Antiprotozoal, antitubercular and cytotoxic potential of cyanobacterial (blue-green algal) extracts from Ireland

**JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 1022830**Author(s)** Broniatowska, Barbara; Allmendinger, Andrea; Kaiser, Marcel; Montamat-Sicotte, Damien; Hingley-Wilson, Suzie; Lalvani, Ajit; Guiry, Michael; Blunden, Gerald; Tasdemir, Deniz**Author(s) at UniBasel** [Kaiser, Marcel](#) ;**Year** 2011**Title** Antiprotozoal, antitubercular and cytotoxic potential of cyanobacterial (blue-green algal) extracts from Ireland**Journal** Natural product communications**Volume** 6**Number** 5**Pages / Article-Number** 689-94**Keywords** Cyanobacteria, Nostoc commune, Rivularia biasolettiana, Plasmodium, Trypanosoma, Leishmania, Mycobacterium

Cyanobacteria (= blue-green algae) are prolific producers of structurally distinct and biologically active metabolites. In the continuation of our search for new sources of anti-infective natural products, we have assessed the in vitro antiprotozoal (*Plasmodium falciparum*, *Trypanosoma brucei rhodesiense*, *T. cruzi*, *Leishmania donovani*) and antitubercular (*Mycobacterium tuberculosis*) potential of samples of two terrestrial cyanobacteria, *Nostoc commune* (collected when desiccated and wet) and *Rivularia biasolettiana*. The cytotoxic potential of the extracts was also evaluated against primary L6 cells. Except for *T. cruzi* and *M. tuberculosis*, the crude extracts were active against all the organisms tested and showed no toxicity. The crude extracts were then partitioned between n-hexane, chloroform and aqueous methanol and retested against the same panel of pathogens. The chloroform sub-extracts of both *N. commune* samples showed significant activity against *T. b. rhodesiense* (IC<sub>50</sub> values 2.0 and 3.5 microg/mL) and *P. falciparum* (IC<sub>50</sub>s 7.4 and 5.8 microg/mL), with low toxicity. This trend was also true for *R. biasolettiana* extracts, and its chloroform sub-extract showed notable activity against all parasitic protozoa. There were differences in the biological activity profiles of extracts derived from desiccated and hydrated forms of *N. commune*. To our knowledge, this is the first study assessing the anti-infective activity of desiccated and hydrated forms of *N. commune*, as well as *R. biasolettiana*. Furthermore, the present work reports such biological activity in terrestrial cyanobacteria from Ireland for the first time. These results warrant the further study of Irish terrestrial cyanobacteria as a valuable source of new natural product leads for the treatment of parasitic protozoal infections

**Publisher** NPC**edoc-URL** <http://edoc.unibas.ch/dok/A6002116>**Full Text on edoc** No;**PubMed ID** <http://www.ncbi.nlm.nih.gov/pubmed/21615033>**ISI-Number** WOS:000290506200027**Document type (ISI)** Journal Article