Author's response to reviews

Title: Anti-Onchocerca activity and phytochemical analysis of an essential oil from Cyperus articulatus L.

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Author's response to reviews: see over
Response to BMC Reviewers Comments

The Editor, BMC

Sir, we are happy with the comments made by the reviewers of the paper we submitted to BMC Complementary and Alternative Medicine entitled: ‘Anti-Onchocerca Activity and Phytochemical Analysis of an Essential Oil from Cyperus articulatus’; MS No: 1280269964117045. We have addressed the issues raised by the editors appropriately in revising our manuscript. Here is our opinion:

Reviewer: Mohsen Naseri,

**On comment No.1:** Although traditional healers use the aqueous extract of the roots/rhizomes of *C. articulatus* for the treatment of onchocerciasis, in our study we used solvents of increasing polarity to prepare the extracts in a systematic study to fully explore the plant. One of our objectives was to search for new sources of potential filaricidal lead compounds, and so it was necessary to find out the extract(s) that could subsequently serve as a good starting point in a bio-assay guided fractionation process. This objective is now clearly stated in the revised manuscript, in the Abstract, Introduction and Discussion sections.

**On comment No. 2:** Low concentrations of DMSO (2% and below) are widely used in cell and parasite cultures. At concentrations of about 8% or higher, it becomes toxic. Previous studies in our laboratory had shown that 2% DMSO was non-toxic to *O. ochengi* worms (Reference No 26: Cho-Ngwa et al., 2010). Our present study also show that 2% DMSO used to prepare the extracts was ineffective on microfilariae and adult worms. Instead, the concentration of 2% DMSO may help in keeping the extracts in their dissolved state. Moreover, the weight of Balb/c mice dosed orally with 2% DMSO (as negative control) increased progressively throughout the 14 days of observation and none showed any physical abnormality.

**On comment No. 3:** In our study, we found that the hexane extract (an essential oil) was the most active fraction of the plant material despite the use of the aqueous decoctions by traditional healers. This indicates that the extraction procedure used by the latter group may be grossly inefficient, with only limited amounts of the oil being able to be extracted by the aqueous solvent. Most herbalists around the world rely heavily on use of the universally available and safe solvent, water in the preparation of medicinal decoctions. This is one important limitation of traditional medicine – irrationality, leading also to frequent failures in use of such medicines. Thus, it may not be surprising that despite the widespread use of traditional medicine in developing countries, Neglected Tropical Diseases like onchocerciasis continue to increase in prevalence and intensity in some areas. On the other hand, there exist many substances that show activity *in vivo* without being active *in vitro*. Such substances may be extractable using the aqueous solvent. We have now included this information in the Discussion section of the manuscript.

Reviewer: Boshra Azadi

The revised paper has now been edited by an English writer. We hope that it is now fit for publication.

Yours Sincerely

Fidelis Cho-Ngwa (Corresponding Author).