Reviewer's report

Title: Antileishmanial evaluation and cytotoxic potential of a novel compound N-octacosan-7beta ol, isolated from Fumaria parviflora Lam.

Version: 1 Date: 8 December 2013

Reviewer: Denis ZOFOU

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REVIEW REPORT

Mohammad et al. carried out a series of in vitro biological screening aiming assessing the potential of the plant species Fumaria parviflora, as a potential source of antileishmanial, antibacterial and antifungal drug candidates. This exploratory research led to the identification and pharmacological characterization of n-octacosan-7β ol, isolated from the methanol extract of the whole plant, and presenting significant activity against L. donovani, S. epidermidis and C. albicans.

It was a real pleasure reviewing this manuscript of great interest in the field of drug discovery and development as well as for the valorization of traditional and folk medicine of India. The methods applied in assessing the various seem appropriate and fully described in the article. Similarly, the results section is well furnished, illustrative and self explanatory enough, to answer the questions posed at the beginning. But the absence of the tables seriously hampered the proper and complete evaluation of this work.

Some other important issues arise from the manuscript at its present state:

Major Compulsory Revisions

Abstract: Conclusion

The conclusion of the abstract seems to repeat the result paragraph of the same section. I may suggest that this be rewritten in order to present some possible applications as well as perspectives (if applicable) from the work done.

Background:

The background section is really impressive in justifying the importance and even the preponderance of traditional/folk medicine as inspiratory of modern pharmaceutical research and related fields.

The rational of the study gives the impression that it is a random screening process, since no major mention of the use of F. parviflora as antileishmanial is made. Could the authors confirm this hypothesis?

Also, it is necessary to summarize some background knowledge on bacterial and fungal infections and justify the screening of the selected plant against these
targets.

Materials and methods

Material: I suggest that this section be rewritten or deleted. It may be more advisable to provide specifications on each material as it appears in the methodology for the first time. This will avoid unnecessary repeats that are common in the material and methods section in the current manuscript.

Parasite culture

I do not understand the meaning of “L. donovani was a kind of gift…” Please, can the authors specify the initial source of this parasite strain and state clearly how they acquired the parasite sample?

Growth kinetics assay

How was the count done to determine the rates of viable parasites? What criteria of viability did the authors use?

Determination of GI50

How was the analysis of the raw data carried out to generate the inhibitory concentrations?

Cytotoxicity

Although somehow informative, rodent macrophages are do not seem suitable for toxicity testing of a drug candidate destined to humans. Cell lines like human kidney epithelial cells, or monkey kidney cells or human liver cells could be more convincing.

Moreover, the dilution range (different concentrations tested for cytotoxicity) is missing in this section.

Results

In vitro antileishmanial activity by growth kinetics assay

All the tables are missing!

Fig 4: What is the standard normal growth rate for L. donovani in vitro?

Alteration of cellular morphology

Minor essential revisions:

Title:

The title as it is presented does not reflect the work content. It does highlight only the antileishmanial activity of the compound despite the fact that the paper describes the antibacterial and antifungal effects of the molecule as well. The predominance of the antileishmanial activity is not justified throughout the manuscript. Could the authors explain the reasons why they opted for this title?

Level of interest: An article of importance in its field
Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests' below. If your reply is yes to any, please give details below.