Reviewer’s report

Title: Antimicrobial and antiproliferative activity of essential oil, aqueous and ethanolic extracts of Ocimum micranthum Willd leaves

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Reviewer: Cristiane Yumi Koga Ito

Reviewer's report:

The aim of the study was to evaluate the antimicrobial and antiproliferative activity essential oil, aqueous and ethanolic extracts of Ocimum micranthum Willd leaves.

General Comment:

It is an interesting study, since the antimicrobial activity of these extracts and essential oil has been scarcely explored in the literature. Promising results were obtained for antimicrobial activity.

The second aim was to evaluate the anti-proliferative capacity of human fibroblast (hFB) and Chinese hamster ovary (CHO-K1).

Considering that the manuscript intends to simultaneously evaluate two different biological effects, it would be interesting to separate more objectively the information about these two goals of the study. For instance, in conclusion section the authors stated that "The results obtained in the MIC study, MTT test and Trypan blue assay suggest that eukaryote cells, Candida albicans and mammalian cells are more susceptible to the extracts of Ocimum micranthum.". It is complicate to put together the information in terms of susceptibility if the application and impact of the results are completely different.

Introduction:

The rationale of the study is not clear. Please, consider revising the last paragraph of this section.

Methodology:

The nomenclature of the micro-organisms should be revised, i.e., Page 5, line 13 - Gram should be written with the first letter in capital (Gram). Pseudomonas should be revised.
Page 8, line 13 - Usually, the incubation period for C. albicans in antimicrobial testing is 24 h with an additional reading after 48 h of incubation (for instance in CLSI standard methodology). Why did the authors adopt 40-42 h of incubation for antimicrobial tests with C. albicans? Why incubation time for the other species was 20-21 h?

Do the authors believe that extracts also interfere on the iodonitrotetrazolium chloride assay, similarly to MTT?

Considering that the inhibition was 100% for all the species, the period in the methodology "The inhibition percentage was calculated in all cases where the growth of microorganisms in the petri dish took place. This percentage was calculated using the quantity of inoculated aliquot, the result of CFU/mL in the petri dish test and the initial concentration of the microorganism (1.5 x108 CFU/mL)." should be suppressed. Regarding this period, it seems that using the initial concentration as a basis for this calculation should be revised. After the incubation period, the number of cells will vary significantly. Maybe, using the number of cells of a positive control would be better.

Why were healthy human breast-derived fibroblasts (hFB) and CHO-K1 cells used, instead of cancer cell lines for antiproliferative assays?

The cytotoxicity evaluation of the concentrations that showed antimicrobial activity should be added to the manuscript.

Results and Discussion

The results obtained for positive controls such as amikacin (4 mg/L) and nystatin (2 mg/mL) should be cited.

Some parts of the texts are not clear and should be revised, i.e. "The ethanolic extract presented the least MIC (5 μL/mL) for Candida albicans, followed by aqueous extract (80 μL/mL)."

The inhibition of 100% of all the strains is an interesting, but at the same time intriguing result, mainly considering B. subtilis. Please, discuss deeper this point.

Conclusion:

The conclusion section is too long. Please revise pointing out objectively the main conclusions.

In the conclusion section, the information about the limitation of the use of MTT in the context of the study is interesting but should be moved to discussion section.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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