Author's response to reviews

Title: Antimicrobial activity of two South African honeys produced from indigenous Leucospermum cordifolium and Erica species on selected micro-organisms

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Author's response to reviews: see over
Dear Editor,

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The literature indicates that only certain honeys have high enough antimicrobial activity to afford medical grade status. The antimicrobial activity of honeys produced from the unique floral biodiversity of South Africa is still unknown and needs to be investigated for possible medical grade honeys.

There is evidence that honey with a high antibacterial activity could be used to reduce dental plaque in the treatment of oral disease. However, little information is available with regards to effect of different honeys on the putative oral pathogens.

The aims of this study was to investigate the antimicrobial activity of two South African honeys produced from indigenous plants unique to South Africa and to investigate their activity towards oral bacteria involved in dental plaque formation.

All the comments given by the referees are addressed in the revised manuscript. Below is a point by point response to the comments made.

Referee 1
There is no new finding in this report.

The two indigenous honeys tested in this report have not been tested for their antimicrobial activity before. These honeys are unique to South Africa and are not produced anywhere else. Although they produced negative results, their antimicrobial status must still be made know to the scientific and medical community.

No MIC of standard antibacterial drugs against standard bacterial strains---ect.
I have included a phenol control in the methodology (page 6, paragraph 2) of which the results is included in Table 1

Data in tables 1-5 are not necessary.
All the data of tables 1-5 were combined and is given as one table (Table 1)

Referee 2
I feel that the results would be easy for readers to read if Tables 1-5 were combined into one table showing MIC.

All the data of tables 1-5 were combined and is given as one table showing MIC. (Table1)

Referee 3
General comments

Scientific names
Full scientific names of the floral sources of the honeys, with the common names of the honeys in brackets when used for the first time, are now used in the manuscript. Thereafter the abbreviated form or the common names of the honeys are used.

Referring to the test organisms as “oral” tends to infer------etc.
To avoid confusion “standard strains of oral micro-organisms” are being used.

Abstract

Inconsistent use of “species”
Now only “species” is used in the abstract

**Background**

*It would be worth including some information on the test organisms used*----
A paragraph was included giving some background on the importance of the organisms being tested.

*Paragraph one: Some more recent references on the medicinal use of honey*---etc.
The reference examples that were given were included

*Paragraph two: At present only honeys from Leptospermum species are sold with standardized levels of antibacterial activity* ------etc.
The paragraph was rephrased: “At present a number of honeys are sold with standardized levels of antibacterial activity. The best known of these is New Zealand Manuka honey produced from the Manuka bush, *Leptospermum scoparium*”.

**Methods**

*The definitions of the honeys used*---- etc
*It may be helpful to provide more information on the source of the manuka honey*----- etc
The paragraph describing the honeys was rewritten. (1st paragraph, materials and methods, page 5)

*Saying that the honeys was free from “artificial” additives*-----etc
The sentence was rephrased as suggested

*Had the honeys been heated during extraction or processing?*
No, “Only pure honey which had not been heated was used. (line 17, page 5)

*Were the honey solutions freshly prepared*-----etc?
Yes, “The honey solutions were prepared fresh for each assay” (line 12, page 7)

*The description of the assay used to determine the MICs could be clearer.*
The assay is now described in detail (page 6)

*How were the honeys tested for sterility?*
“each honey sample was tested for sterility beforehand by inoculating 100 ml sterile BHI with 5 ml of the 50% stock solution” (last paragraph page 6)

*Microscopic examination not the most reliable way to check for purity.*
I agree, but this was just an additional check. For example, if the inoculum is a streptococcus and one finds a rod growing in the test tube, it should be disregarded. Similarly, if one finds a coccus growing in a test tube with a gram negative rod as an inoculum, it is contaminated from an outside source.

*In the last paragraph listing the cultures used only the names of the organisms should be used, not (NTCT XXX).*
This was corrected.
It has previously been shown that the amount of hydrogen peroxide that accumulates in diluted honey varies -------etc.
This is now mentioned in the Discussion (paragraph 2, page 9)

Results
Tables 1-5 should be combined.
Only one table with the MICs are now given in Table 1.

Were the pHs of the different honeys averaged? If so, why?
The pHs of the honeys were very similar at the different dilutions. To show that the pHs of the different dilutions should not have an effect on growth, a table with the average pH of each dilutions were given to simplify the table. I don’t now what the problem are with this, however in the revised manuscript al the values are given instead.

The last line refers to Table 1 but -----etc.
Not applicable any more

Discussion
The discussion section is a little repetitive ----etc
The discussion and the conclusion was changed to solve this problem.

It has been shown that the antimicrobial activity of honey may range from concentrations -----etc.
The sentence was rephrased to correct this (last paragraph, page 8)