Reviewer's report

Title: Efficacy of Moringa oleifera leaf powder as a hand-washing product: a cross-over controlled study among healthy volunteers.

Version: 1 Date: 24 September 2013

Reviewer: Sue Evans

Reviewer's report:

This is an interesting paper which has the potential to introduce a valuable and cost effective strategy to a serious and ongoing health problem. If the concerns outlined above are addressed and clarifications made, it will be a useful addition to the literature and hopefully will encourage further investigation.

Minor revisions

1. Check that the conventions regarding botanical names are followed, with the botanical name being italicised and the genus name upper case, the species name lower case. There are a number of occasions where this is not adhered to, both in the methods and the discussion sections.

2. I was unable to find an in-text reference to citation no 4 – Aiello et al (2008)

Discretionary revisions

3. Does the method of handwashing discussed (application of a handful of powder, possibly wetted) seem to the authors as transferrable to a domestic setting? It would be useful to cover this in the discussion.

4. If the argument about the wet preparation being more effective because it has been extracted in water is being made, it would be useful to include discussion of the likelihood of water extraction of constituents with an antibacterial action (paragraph 2 of the discussion).

5. I suggest paragraphs 5 and 6 of the discussion be removed – not relevant to this paper.

Major revisions

There are a number of points of clarification required

Abstract

6. In the abstract, it is stated that the procedure was adapted from the protocol of the European Committee for Standardization EN 1500, but in the body of the work it is stated that the procedure is adapted from protocol EN 1499. Please clarify and correct.

Background
7. Last paragraph in this section states that ‘There is a lot of anecdotal evidence supporting the effect of this plant as an antimicrobial agent and its use as a hand washing product’ This statement requires citations, perhaps from ethnobotanical or anthropological literature.

Methods

8. Under the section titled Moringa oleifera preparations – there is a statement that the substance tested was ‘leaf powder 100% natural from LUTOR’. What procedures were carried out to confirm the authenticity of the plant powder?

9. Under the section Hygienic hand washing procedure – the procedure for wet Moringa is unclear – clarify when the water was added to the plant material - was it added while the dry powder was in the hands, or prior to this?

10. In the discussion, (paragraph 3) it is suggested that the reason the wet Moringa preparation was more effective was due to water extracting active constituents. However it is not clear whether the powder was extracted with water, or whether water was used as a wetting agent.

Discussion

11. Suggest that the discussion is revised, both for logic (see below) and editing (eg ensuring that the same word is not repeated within a sentence).

12. Paragraphs 7-9 of the discussion needs to be redrafted. The authors suggest that the results did not meet the standards of EN 1499 but did meet those of EN 1500. This requires discussion of the differences between the two EU standards, and the applicability of each.

The statement ‘it can be argued that this product could also meet other standards used in different parts of the world’ needs further discussion with examples, and citations.

13. In addition, the statement ‘At present, it remains unknown which requirement is the right one or what decrease in microbial release is needed to produce a meaningful reduction in hand borne spread of healthcare associated pathogens’ is confusing and requires clarification, as not only does it seem to contradict the earlier citation of Curtis and Cairncross’ systematic review but also recent arguments by Elaine Larson (ie post the 1995 citation given here) are that handwashing is an integral part of hygiene practices that reduce illness. Please clarify.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Not suitable for publication unless extensively edited
**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare I have no competing interests.