Review of: "Effect of Supplementation with Moringa Oleifera on Antioxidant and Oxidative Stress Biomarkers of Infertile Women: A Pilot Open-Label Case-Control Randomized Clinical Study"

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Potential competing interests: No potential competing interests to declare.

The manuscript titled "Effect of Supplementation with *Moringa oleifera* on Antioxidant and Oxidative Stress Biomarkers of Infertile Women: A Pilot Open-Label Case-Control Randomized Clinical Study" is interesting. Nevertheless, revisions are necessary before publication. Below are my suggested revisions aimed at strengthening your manuscript.

The scientific name of *Moringa oleifera* (*M. oleifera*) should be written in italics throughout the manuscript.

1-Abstract

The authors presented their research on the impact of *Moringa oleifera* supplementation on antioxidant and oxidative stress biomarkers potentially linked to infertility in women. Nevertheless, the methodology section in the abstract lacks coherence and is challenging to comprehend. I recommend a revision, specifically suggesting that the full names of hormones be used in the abstract to enhance clarity and understanding.

2-Introduction

The introduction should be concise and direct to the point. The information regarding the potential fertility-enhancing properties of *Moringa oleifera* is insufficient. The bioactive compounds in *Moringa oleifera* should be mentioned in this part and linked to the *Moringa oleifera* supplement used in this study.

Additionally, the reference dated back to 1997 is outdated and needs updating.

3-Methodology

- The study population lacks clarity, and the authors did not provide a rationale for selecting women aged 35-50. Considering the complexity of infertility, the criteria for diagnosing infertility should be specified. The use of a coin toss as a method for achieving an equal number of subjects in the two groups may not be suitable and warrants reconsideration. Additionally, details about the positive control group of 30 fertile women, including age and fertility descriptors such as pregnancy outcomes, were not mentioned. It is recommended to include this positive control group in Figure 1 for better clarity.

- Comparing the blood profiles of the infertility group before and after the intervention can be used as an alternative method for assessing the efficacy of the *Moringa oleifera* supplement.

- The study timeline is crucial, and it is essential to specify when the blood samples from the subjects were collected.

- The details regarding the *Moringa oleifera* supplement are lacking, particularly information on the specific part used, whether it is an extract or dried herb, and whether any phytochemicals serve as standardized active compounds in the product. These details are crucial for the research, considering the variations in phytochemical compositions across different parts of medicinal plants. The statement "2 g of *Moringa oleifera* supplement" lacks specificity and requires more detailed information. It is essential to establish how this particular dosage of *Moringa oleifera* supplement was determined as the therapeutic dose for infertility.

- Data Analysis: Student t-test might not suit this study.

3-Result

The results are recommended to be presented in a graphical format as it allows for trend visualization and makes it easier to understand.

Additionally, in Table 1, if data were collected from all infertile women before obtaining the supplement, the sample size should be specified as n = 60.

Considering the high standard deviations observed for each parameter in the results, indicating inconsistency, a larger sample size may be worth considering for greater reliability.

Due to the non-statistically significant results in Table 2, the authors should not conclude that the *Moringa oleifera* supplement could help in reducing the effects of oxidative stress in infertile women in the conclusion part.

The authors should address the issue of compliance in their manuscript, as it holds significance for the success of the research.

4-Discussion

The discussion and conclusion sections need revision in light of the non-statistically significant results. Based on the findings, it could be concluded that oxidative stress might be a contributing factor to infertility.

The authors discussed the impact of flavonoids from *Moringa oleifera* leaves in a different study, highlighting their ability to increase antioxidant enzyme activities and reduce MDA activity and ROS levels. However, this information does not seem directly relevant to the *Moringa oleifera* supplement used in the current study.

Another avenue for discussion is the appropriateness of the *Moringa oleifera* supplement dose given to the subjects, along with considerations for compliance and the duration of supplementation.

5- Recommendations and further study

In addition to a larger population size, the authors should consider the quality control of the herbal supplements and examine the doses of the supplements, especially if there is a dose-dependent relationship.