

Reviewer's report

Title: Effect of an oral supplementation of a proprietary melon juice concentrate rich in superoxide dismutase on stress and tiredness in healthy people : a pilot, double-blind, placebo-controlled clinical trial

Version: 1 **Date:** 24 February 2009

Reviewer: Manfred Lamprecht

Reviewer's report:

Reject as not sufficiently sound/Major Compulsory Revisions

1. Is the question posed by the authors new and well defined?

The question on relation between psychological perceived stress and the biochemical event oxidative stress is not absolutely new but there is a need for a lot of studies to evaluate this. Specifically if certain supplementation has an effect. The question is well defined by the authors

2. Are the methods appropriate and well described, and are sufficient details provided to replicate the work?

This study has 2 approaches: 1. The psychological approach and 2. A biochemical/physiological approach because of the fact that the influence of the supplement on a biochemical event (oxidative stress) is investigated. The 1. part provides appropriate description and methodology. This goes to the statistics as well. The 2. part does not exist. Parallel to the psychological estimations you need biochemical data. Provide markers from beginning, across 7d to the end (28d). I could not find any biochemical marker which was detected? Just a reference to that. That's not appropriate.

3. Are the data sound and well controlled?

Data for the psychological approach are appropriate. There are no biochemical data or clinical data provided what is needed for studies on free radical metabolism. To investigate oxidative stress e.g. a blood chemistry panel at the beginning has to be conducted as well to estimate possible differences between subjects (cholesterol, LDL, CK, liver enzymes etc).

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?

The data provided cope relevant standards. On figures 6 and 7 significance should be indicated. Clinical data and data of free radical metabolism missing.

5. Are the discussion and conclusions well balanced and adequately supported by the data?

The authors reason and state several times with the SOD content of the supplement. This guides the reader to believe that a change in SOD activity, expression etc. in erythrocytes (biochemical effects!) might have been

responsible for the beneficial effects on sleep troubles, concentration etc. Provide biochemical data and a physiological hypothesis/mechanism for this correlation. There are probably also other substances provided by the melon concentrate than SOD which affected body's biochemistry (with consequently less perceived stress). It is not acceptable for me to reason with correlation and even causality between antioxidant treatment and psychological outcome if no markers of oxidative stress, antioxidant systems (e.g. SOD activity, protein oxidation) were estimated. Correlation is given by data - that's probably enough but causality fills up the black box between treatment and outcome and has to be explained by hypotheses for mechanisms. How shall we believe that a single enzyme application for 4wk could improve perceived stress via affection of erythrocyte SOD activity(if so)? This is the crux of this manuscript/study. That's really a pity.

6. Do the title and abstract accurately convey what has been found?

Again, was SOD the affecting substance? If so, provide data of free radical metabolism, also in the abstract.

7. Is the writing acceptable?

Yes for the large part of the text.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

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