

Reviewer's report

Title: Sparing effects of selenium and ascorbic acid on vitamin C and E in guinea pig tissues

Version: 1 **Date:** 14 January 2007

Reviewer: Raymond Burk

Reviewer's report:

General

1. The question posed is very important. It could impact human nutrition in important ways.
2. The methods are appropriate. However, the AA and DHAA measurements are a potential problem, as they do not agree with major literature results.
3. The data are potentially affected by comment #2. Also, the authors do not make it clear why they used different periods after dosing for their collection of data at the two time points.
4. Yes.
5. The discussion is superficial and does not include important points such as the mortality seen in one of the guinea pig groups.
6. Yes.
7. The writing is wordy with too much repetition and insertion of sentences with little value. The manuscript needs tightening.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. The 5 and 12 week groups have been combined for statistical purposes. That does not seem appropriate to this reviewer because not only were they at different times but the time of sampling was 24 h after AA dosing in one case and 48 h after it in the other. Thus, there were 2 differences between the groups and yet they were combined. Clear justification for this is needed.
2. This work represents a single experiment. The results in table 1 are at variance with work in the literature. These results show DHAA as most of the vit C in many tissues. The authors claim only that their data must be correct without supporting it experimentally. At the least they could carry some AA and DHAA through their procedures and show it does not change to the other form. Even better would be to confirm the experiment.
3. Some of the guinea pigs fed low selenium and minimal C became paralyzed and some died. Why? This is potentially very important in understanding the function of these nutrients. Why did some die and some survive? What were animal weights? More about this needs to be put into this manuscript.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1. The manuscript needs to be more concise. A great deal of space is taken up by presentation of results that "approach" significance. The authors should refrain from such characterization. Those results are "not" significant.
Too much space is devoted to description of results at the expense of the meaning of those results. For example, on page 15 it is asserted that a sparing effect of AA on Se-GSHPx activity suggests that AA intake influences Se status. Se-GSHPx activity can be affected by other metabolic and stress factors than just Se status. It seems more likely that such effects would be active here rather than an effect on Se status.

Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

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

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.