Reviewer's report

Title: Supplementation of a western diet with golden kiwifruits (Actinidia chinensis var. 'Hort 16A':) effects on biomarkers of oxidation damage and antioxidant protection

Version: 1 Date: 10 February 2011

Reviewer: Patrizia Riso

Reviewer's report:

• Major Compulsory Revisions

1- Briefly, in this manuscript the authors have reported the results obtained in an intervention study with two different portions of gold kiwi fruit (1 or 2 fruits) with the aim to verify whether supplementation for 4 weeks with this fruit could affect several markers of oxidative damage and antioxidant protection.

On the whole the study is very interesting and add some new results on the protective role of fruit intake. However, despite the experimental design involving a cross over intervention is appropriate, it lacks of a control treatment and this should be mentioned as a possible limit of the study (see later in the discussion).

2- Statistical analysis

The Student t-test used is appropriate to test differences before and after a given treatment. However ANOVA for repeated measure design, with the treatment (1 and 2 kiwifruits) and the time (before and after treatments) as factors can allow the authors to ascertain whether the amount of fruit added to the diet is a significant factor in the modulation of the effects observed.

3 - Statistical analysis

Please add to this paragraph that simple regression analysis was performed to evaluate correlation between plasma vitamin C and strandbreaks and report such data in the result section.

4 - Discussion

4.1 - I suggest to revise the first statement by underlying only significant results and eventually stating trends.

4.2 - The low increase observed in vitamin C levels following the intake of one kiwi fruit is presumably the effect of the good initial vitamin status of the group of subjects considered (vitamin C concentration increase more in deprived subjects even when low amounts of vitamin are introduced). The fact that higher vitamin levels can be found following acute intakes is not essential for this “long term” study. On the contrary it is interesting that 2 kiwifruits can significantly increase plasma vitamin C levels (even if, as previously reported, it would be useful to know the amount of vitamin introduced through the fruits)
4.3 - As regard the statement on the better effect of yellow with respect to green kiwifruit in improving resistance towards H2O2 oxidation, it should be added: “even if a direct comparison cannot be performed”

4.4 - I do not completely agree with the discussion on “active ingredients in kiwi fruit” and the concept of “saturation effect”, in fact as the authors also mentioned, in the case of whole foods, many different compounds can act in synergy and this may also explain the lack of a dose response. It may be the authors can add it as a possible explanation.

4.5 - As regard correlation between biomarker of DNA damage and plasma vitamin C. Again you cannot be sure that the correlation with just one active compound is sufficient to describe a phenomenon and declare that the effect is not dependent on antioxidant action ...in other terms, you cannot exclude that there is a concerted action of many compounds. For example what about phenolic compounds or folates, do the authors know whether golden kiwifruit is a good source?

4.6 - While the choice of a cross over design for this study is optimal and I trust most of the results obtained, one possible limitation is the absence of a control treatment (i.e. a treatment without kiwifruit) only in this way it would have been possible to exclude that results have been obtained by chance. This limit need to be included in the last part of the discussion.

• Minor Essential Revisions

1- Measurement of plasma vitamin C
The description provided does not allow to understand how the authors analyze both reduced and total ascorbic acid concentration in plasma. Please add a short description of the procedure used (as reported in the cited article).

2 - Measurement of plasma carotenoids
It is not stated the amount of plasma extracted for such an analysis. Please add it.

3- Measurement of MDA
Please, complete the characteristics of column and add the volume of injection.

4- Results
The authors wrote: “No differences in the expression……before the kiwifruit consumption period and the period without kiwifruit”. This statement seems not correct. You did not report a control period, it may be you should write before and after the kiwifruit consumption.

5- Tables
In general it is suggested to avoid two decimals for variables considered such as vitamin C and FRAP values. Moreover the term “diff” is not clear you should state what you mean (e.g. % changes …..) and SEM should be also reported. It should
be also calculated as (after the treatment – before the treatment/ before the treatment *100) in this way you have for example that vitamin C increase by 4% no decrease as now reported.

• Discretionary Revisions

1 - Abstract

I suggest to modify the conclusion as follow: Golden kiwifruit consumption strengthen (or improve) resistance towards endogenous and exogenous oxidative damage.

2- Introduction

The last paragraph reports a brief statement on results obtained and consideration on green and gold kiwifruit. I suggest to move it in the discussion

3- No specific mention is present on the vitamin C concentration in the kiwifruits. Although it is clear that a certain variability is obvious in fresh fruits, at least a mean value should be provided in order to estimate the amount of vitamin C regularly added to the diet. This also allows a better discussion of results obtained at plasma level. I think it should not be difficult to find such data.

4 - The lack of effect of dietary intervention on DNA repair and expression of related genes is not unusual. We also found similar results in a study with broccoli intervention (please add to references)

5 - In the conclusion I would speak about “effect of regular intake of golden kiwifruit” instead of “supplementation”.

Level of interest: An article of outstanding merit and interest in its field

Quality of written English: Acceptable

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