Reviewer's report

Title: Effects of olive oil and its minor phenolic constituents on obesity-induced cardiac disease

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Reviewer: Marí­a Isabel Covas

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In this work, the effect of olive oil and its minor components on cardiac metabolism in obesity-induced rats was examined. Although the work is well done from a methodological point of view, there are several flaws in the hypothesis and results interpretation.

Major comments

The authors did not evaluate cardiac disease as an end point in the rats. They examined the effects of olive oil and some phenolic compounds on several parameters related with cardiac metabolism. Thus, this issue must be changed in the title, objective, hypothesis, and conclusions. The Discussion is too long and highly speculative in a lot of statements: ie. “Caffeic acid significantly reduced myocardial SOD. This fact was associated with SOD consumption to maintain the myocardial LH level in C-caffeic animals. (Page 10)”. The authors do not provide either data or references supporting this statement. The English language is poor, particularly in the Introduction and Discussion, leading to misinterpretations (i.e the term “lipid oxidation” instead of “fat oxidation” in the last paragraph of page 9).

Minor Comments.

Abstract: Provide the number of days in which the rats were provided with olive oil and phenolic supplementation. The sentence concerning the application of polyphenols in food systems is too speculative and it is not a conclusion from the data of the study. The same occur in the item Conclusions at the end of the Discussion.

Introduction. First paragraph. The sentence: “but whether the effects really occur….”. The fact that olive oil minor constituents have beneficial risk factors for cardiovascular disease in humans is well established (Visioli F, Eur J Nutr, 2005; Covas MI et al. Ann Int Med, 2006).

Methods. Morphometric and biochemical determinations. First line. 44 or 42 days?. Results. The term “Cardiac determinations” must be substituted by “Morphometric and biochemical determinations in the heart”.

Discussion. As has been referred to before it is too long and speculative. (i.e. The carbohydrate intake was enhanced in the Ob group, and this represented an important increase in glycogen stores...??).

Table 1. The fact that the data are from after 21 days of standard or...
hyppercaloric diet must be referred to in the title.

Tables 2 and 3. Why are there no data in measurements of carbohydrate oxidation? How could authors obtain a significance without data?

Table 5. Can be substituted by a Figure representing changes in OHADH. The lack of differences in the other evaluated parameters can be referred to in the text.

Figures 1 and 2. They are not necessary. The lack of differences in the evaluated parameters can be referred to in the text.

A flow chart of the sequence of interventions in the study will help the reader.