Reviewer's report

Title: Polyphenolic compounds appear to limit the nutritional benefit of biofortified high iron black bean (Phaseolus vulgaris L.)

Version: 1 Date: 6 January 2014

Reviewer: Maria Kapsokefalou

Reviewer's report:

This is a well designed study, conducted by a research group that has shown leadership in the field.

Answers to the questions posed by the journal to reviewers
Is the question posed by the authors new and well defined? Yes
Are the methods appropriate and well described, and are sufficient details provided to replicate the work? Yes
Are the data sound and well controlled? Yes
Does the manuscript adhere to the relevant standards for reporting and data deposition? Yes
Are the discussion and conclusions well balanced and adequately supported by the data? Yes, some comments are provided below.
Do the title and abstract accurately convey what has been found? Yes
Is the writing acceptable? Yes.

The following comment is considered “Minor Essential Revisions”.

Discussion and Conclusion: The authors measured selected phenolic compounds to further explain their results and showed that the high iron variety was high in some of the measured phenolics.
Total phenolic content was not measured.
Thus statements such as:
“the high Fe beans were also higher in polyphenolic content than the low Fe beans. Thus it appears that the potential nutritional benefit from the higher Fe content was offset by the increased levels of polyphenolics.” (discussion pg 14)
or
“Evidence suggests that the nutritional benefit of the biofortified beans is reduced by the presence of polyphenols”
are not fully supported by the experimental design and data.

The reviewer suggests that the statements on phenolics should be carefully revised or omitted.
The following comment is considered “Discretionary Revision”
As the question on phenolics was not part of the objectives of the study and therefore not supported by the experimental design, the discussion section should not treat the subject in such detail. For example, authors may omit first paragraph, pg 15, and most of pg 15 and 16.

**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