Reviewer’s report

Title: Effects of betanin-rich red pitaya juice supplementation on cardiovascular and hepatic changes in high-carbohydrate, high-fat diet-induced metabolic syndrome rats

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Reviewer: Anil Kumar

Reviewer’s report:

Reviewer’s comments on the ms entitled ‘Effects of betanin-rich red pitaya juice supplementation on cardiovascular and hepatic changes in high carbohydrate, high fat diet induced metabolic syndrome rats’

The authors investigated the changes in cardiac stiffness and hepatic function in high carbohydrate, high fat diet induced obese rats following supplementation of red pitaya juice and compared the effects with purified betanin supplementation (considering that effects with red pitaya juice are due to presence of betanin in it).

The authors reported that Red pitaya juice supplementation reduced alkaline phosphatase (ALP) and alanine transaminase (ALT) enzyme activities level in plasma whereas level of aspartate transaminase (AST) increased. Contrarily, betanin supplementation increased the activities of ALP and ALT and reduced activity of AST. The authors concluded that red pitaya juice may provide protection against liver damage while betanin reduces the stiffness of the heart.

Authors planned the experiments well, interpretation of results observed is good. Paper has also been written well.

However, results indicated that Red pitaya juice exhibited effects contrary to betanin. Authors did not explain whether effects with red pitaya are due to any other constituent(s) of red pitaya. Authors themselves mentioned that red pitaya is enriched in flavonoids, vitamin C, fiber etc known to confer health benefits.

Therefore, the present paper does not throw any insight on the constituent(s) of red pitaya responsible for altered ALP, ALT and AST.

Can authors perform experiments with purified other constituent(s) like flavonoids to explain the responsible constituent(s) for biochemical effects?

Obesity, cardiac problems and hepatic damage prevail both in male and female species. Was there any specific reason of selecting only male rats?

There are minor mistakes in writing References. Authors must check the style of the Journal for references.

Is the question posed by the authors well defined? Yes but has not been handled properly.
2. Are the methods appropriate and well described? Yes
3. Are the data sound? Not much
4. Does the manuscript adhere to the relevant standards for reporting and data deposition? Yes
5. Are the discussion and conclusions well balanced and adequately supported by the data? Yes
6. Are limitations of the work clearly stated? No.
7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished? Yes
8. Do the title and abstract accurately convey what has been found? No
9. Is the writing acceptable? Not in the present form