Reviewer’s report

Title: The Hypocholesterolemic Activity of Thai Glutinous Rice (Oryza sativa L. var. Niaw San-pah-tawng) Fermented by Monascus purpureus in High-Fat Cholesterol Diet Fed Rats

Version: 4
Date: 19 November 2014
Reviewer: Srinivas Nammi

Reviewer’s report:

Major compulsory revisions:
• The authors should specify the problem addressed in the manuscript, i.e., familial hypercholesterolemia or diet-induced hypercholesterolemia as there seem to be some differences in disease progression in the two types and take the same to the introduction and discussion sections.
• Although most of the results are preliminary, the gene expression results are of significant importance of this manuscript. Nevertheless, the expression pattern of the genes of CYP7A1 and HMG-CoA reductase in HFC control when compared to SP-control are contrary to the existing literature. The authors need to pay focus on this important aspect and provide detailed explanation in the discussion with literature support.
• Title: The title conveys a message about the contents of the report. However, it has weaknesses in clarity, concision, and information. Thus, title change is recommended.
• Abstract: Although the abstract appropriately summarised the contents of the manuscript, the conclusions are weak and should contain the mechanisms what the authors attribute to the observed effects of RYR. Moreover, the authors wrote ‘hypocholesterolemic’ on a number of occasions – it should be ‘hypercholesterolemic’
• Introduction:
  o This section should be expanded. Give more details on the disease problem-severity, importance, current treatment strategies, relevance to the study parameters, etc.
  o Provide literature pertaining to any chemical and biological studies on RYR relevant to the problem addressed.
  o Expand RYR on its first occurrence
  o Paragraph 2, lines 8-10: not clear – needs rewriting
• Methodology:
  o Animals:
  # A rationale as to why Wistar rats were chosen for this study is missing and should be given in the opening paragraph of the discussion.
ad lib (should be ad libitum). Also combine this sentence with the previous sentence.

Acute toxicity study:

Why female rats were used? Any rationale for this section?

Lines 6 & 7: No adverse effects,… (should read as ‘Neither adverse effects nor mortality…)

‘adverse effects’ (need to write which specific adverse effects observed)

Diet and hypercholesterolemia induction:

The percentage of fat content used should be given in the text.

The reviewer is concerned on the duration (6.5 weeks) of HFC diet treatment to induce hypercholesterolemia. The referenced paper by Kitamori et al. has used a different rat model compared to the rats used in this study.

The writing in this section needs improvement to avoid ambiguity especially in the penultimate sentence – SP-diet without added cholesterol

Experimental design:

Provide the route of blood sampling.

Specify which ‘vital organs’ were collected and the details of immediate process for future experiments (processing for PCR experiments is missing)

Serum biochemical assay: No need to put formula for LDL to HDL as it is straight forward

Histopathological analysis: Details of fixing procedure followed should be given.

Results:

Consider changing the tense from past perfect to present perfect (had received to have received)

A more rigorous comparison of the observed effects of the included groups should be described.

Results and discussion:

A more in-depth critical evaluation of the results compared to previous literature is needed.

The authors should also discuss on the bioactive components of RYR deemed to be responsible for the observed activity.

Tables and Figures:

The superscripts used to denote statistical significance is confusing. It is not clear if the letter ‘a’ is compared to anything. A more conventional representation is recommended.

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

**Quality of written English**: Needs some language corrections before being published

**Statistical review**: Yes, and I have assessed the statistics in my report.

**Declaration of competing interests**: I declare that I have no competing interests