Reviewer's report

Title: Brewers' rice induces apoptosis in azoxymethane-induced colon carcinogenesis in rats via suppression of cell proliferation and the Wnt signaling pathway

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Reviewer: Naveena Janakiram

Reviewer's report:

General comments:
Authors in the present study aimed to identify the chemopreventive potential of brewers’ rice with colonic tumor formation and to examine further the mechanistic action of brewers’ rice during colon carcinogenesis using AOM-induced colon tumors in Male Sprague Dawley rats. This is an important study reiterating the importance of fiber rich foods in eliminating tumor initiating /forming cells in colon. Though the authors mentioned that the mechanistic action of brewer’s rice is studied but it is not proved mechanistically that brewer’s rice is inhibiting colon tumor formation by COX-2, #-catenin, wnt signaling inhibition. It might be a correlative effect shown by use of brewer’s rice upon decreased colon tumor formation. Authors need to clarify below important points before it is accepted for publication.

Major Compulsory Revisions:
Tabulate the diet ingredients composition in control AIN-93G diet and treatments diet composition.
At what age of the rats carcinogen was injected?
A small figure showing the time line of experiments will help.
Can authors justify the use of 6 animals per group?
Did the authors terminate the experiments after 20 weeks of treatment? When the authors started feeding the rats with brewer’s rice, before the AOM injections or after AOM injections?
At what age the rats were necropsied?
To observe adenomas and adenocarcinomas at least 40 weeks of experimental time is suggested by most of the published reports. Authors were able to see adenocarcinomas when terminated after 20 weeks of treatment. That is as per the experimental design understood from the methods animals were sacrificed at ~ 25 weeks age. At this age after AOM injections probably, one should be able to observe ACFs and microadenomas and difficult to observe adenocarcinomas. Please clarify?

Is COX-2 expression observed in normal appearing mucosa, ACFs, adenoma or adenocarcinoma, please clarify?
Figure 4 and Figure 5, authors need to provide the better pictures showing the colon tumor histology. Most of the figures appear to be normal or near normal, with goblet cells, or else please provide the low magnification figures of colon tumors along with higher magnification in inlets for staining patterns. This will help in analyzing if the markers analyzed in the normal appearing like crypt or colon adenoma or adenocarcinoma.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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

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