Reviewer’s report

Title: Exposure to Nitro Musks in the Environment and the Characterization of Potential Effects in Animal and Human Cell-line Models: A Review

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Reviewer: Kurunthachalam Kannan

Reviewer’s report:

Kathryn M Taylor, Marc G Weisskopf and James P Shine

Accept after minor essential revisions (which the authors can be trusted to make)

This manuscript provides an overview of human exposure and toxic effects of nitromusks. The topic is rather an important one and timely one. The article is clearly written. However, there are a few issues. The title is rather misleading. This is not really a critical review. I do not see that the authors have critically analyzed the issue in-depth in drafting this article. It reads more like a superficial survey of some literature. This is rather an overview. I would suggest author change the title –instead of ‘review’ indicate this as an ‘overview’.

The second problem with the title is that this article is expected to provide information on environmental occurrence, but very little is discussed on environmental aspects; the emphasis has been on human exposures and toxicities. Thus, title should reflect the contents. I would suggest something like “Human exposure to nitromusks and their potential toxicity: an overview”.

The style of writing and subsections are bizarre. In the middle of the manuscript, page 6, there is a section on “Discussion”. What was then the sections before ‘discussion”? Are those all ‘introduction’? I think a careful planning and layout is needed to place the sections of the manuscript in a systematic format. For example, a page or two on introduction describing the background and need for this review; this can be followed by a section on environmental levels, sources, human exposures, toxicity. The research question posed by the authors is not well defined.

A table showing a summary of all toxicity presented in this study will benefit the reader. Compose a table showing literature reviewed here. The table can have: nitro musks tested for toxicity, animal model used, doses tested, effect level and the end point measured.

The review is rather cursory. Many specific details are missing throughout the manuscript. The authors have not conducted an in-depth analysis of literature. For example reviews on toxicity did not mention the doses tested and at what level the effects were observed. Page 7, first para, authors say that nitromusks
are less toxic than BPA or estradiol. They should be more specific – what fold less toxic? 100,000 fold? Provide all specific details throughout the manuscript.

Page 4, 5th line from the bottom and page 3, 6th line from bottom and page 5, 6th line from bottom. In addition to Peck and Hornbuckle, there is a report that actually measured nitromusks in fragrances and personal care products and I suggest providing such direct evidences as citations – see Lu, Y., Yuan, T., Wang, W. and Kannan, K. (2011). Concentrations and assessment of exposure to siloxanes and synthetic musks in personal care products from China. Environmental Pollution, 159, 3522-3528

Page 8 – middle of the page: what is “SOS”

Page 9, human exposure section has some discussion on dermal sources. There is a study that measured nitromusks in house dust and ingestion of house dust can be an important source of exposure and this information should be presented here. Please see Lu, Y., Yuan, T., Yun, S., Wang, W. and Kannan, K. (2011). Occurrence of synthetic musks in indoor dust from China and implications for human exposures. Archives of Environmental Contamination and Toxicology, 60, 182-189