Reviewer's report

Title: Antidiarrhoeal activity of Matricaria chamomilla is mediated predominantly through K+-channel activation

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Reviewer: G.L. Viswanatha

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The manuscript looks to be interesting however it largely fails in terms of novelty. It does not deliver enough scientific message to the science community.

The methodology followed in the present study is not up to the standards of current scenario, example. Castor oil-induced diarrhea is non-specific model for diarrhea, as per standard references Loparamide is reference drug used by most of authors, the evaluation parameters such as Number of fecal droplets, Rating of based on the fecal consistency and presence or absence of mucose, Cumulative wet fecal mass, are commonly used parameters to conclude the antidiarrheal potential of a drug.

Fasting state mentioned is not given consistently across the manuscript, in one place 12-16h and other place 24hours mentioned. which is correct?

In performing in vitro experiments authors have used 10% DMSO which is not at all acceptable as per the references 10% DMSO is toxic and itself will interfere in the tissue structure and response. How it was managed? how authors have negotiated the solvent effect?

In plant extraction procedure 'plant material weighing 400 g was used for extraction and mixed in 70% methanol for three days' is mentioned, however in reporting percentage yield it is mentioned 'water extract', which is highly confusing and misleading.

What is the basis for dose selection? On what basis 150 and 300 mg/kg doses were selected?

Was acute toxicity study performed for the extracts? In yes report the LD50 value. Acute toxicity study is important and compulsory to be performed before the efficacy study.

Intestinal accumulation/enteropooling is best studied with models such as PG-E2 induced enteropooling in rats/mice. However, authors have mentioned Castor-induced model as separate methods. Which is one at the same.

Authors have used '5' animals per group in castor oil induced diaphragm model. for statistical comparison and interpretation at least 6 samples with minimum SEM is required. Which is one of the major drawback of the method.
Was phytochemical analysis performed on the extract? What is the nature of actives present in the extract?

Which is active responsible for the claimed activity?

Detailed LC-MS/MS analysis or at least HPLC or UPLC should be submitted inorder to identify the actives responsible for the activity.

Language of the manuscript needs to be improved as per the journal standards.

Schild plot analysis of the invitro experiments would give perfect nature or type of antagonism.

EC50 is not a standard value, it seems to be old method of reporting.

**Level of interest:** An article of limited interest

**Quality of written English:** Not suitable for publication unless extensively edited

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