Reviewer's report

Title: Cucurbitacin B inhibits human breast cancer cell proliferation through disruption of microtubule polymerization and nucleophosmin/B23 translocation

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Reviewer: Pratibha Nerurkar

Reviewer's report:

The authors investigate the anti-proliferative effects of cucurbitacin B (CuB) in MCF-7 and MDA-MB-231, human breast cancer cell lines. They specifically demonstrate that CuB inhibits cells proliferation in both cell lines specifically through cell cycle arrest at G2/M phase and inhibition of nucleophosmin.

Major Compulsory Revisions

1. Quality assurance criteria are critical for natural products, for reproducible results. Provide information about the method of authentication of the raw material and “voucher specimen” preparations for dried fruit fibers that verifies and confirms the identity and nature of the plant material used, including the stage of ripeness of the fruits and the drying conditions.

2. Define what is “dried fruit fibers”.

3. What is the stability of Cucurbitacin B?

4. What is NPM? Is it nucleophosmin? It is not mentioned anywhere, including abbreviations. Keep terminology consistent use one or the other.

5. Clarify the rationale for using 2.5 and 5 µM for studies other than MTT assay.

6. For Figure 5B, provide densitometry scans providing a ration for gene of interest : house keeping gene, GAPDH. Tubulin protein appears to have significantly increased in MDA-MB-231 cells at 5 µM. Provide a rationale and explanation for this observation.

7. Besides nucleophosmin/B23, table 1 shows differential regulation of chaperonin, prolyl 4-hydroxylase and HsP70 by CuB. However, they are not followed further either in the data or discussion. Either delete the Table 1 and the corresponding experiment or provide discussion for the observed effects.

8. CuB induces apoptosis in MCF-7 and MDA-MB-231 cells. Were any apoptotic proteins differentially regulated in the 2D gel analysis?

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

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a
statistician.

**Declaration of competing interests:**

I declare that I have no competing interests