Reviewer's report

Title: Evaluation of antioxidant activity and cytotoxicity of extract and fractions of Nardostachys jatamansi DC in breast carcinoma

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Reviewer: Susana Fiorentino

Reviewer's report:

Mayor compulsory revision:

The authors examine the antioxidant activity of N. jatamansi, which has been previously studied by others. Although the methods used to evaluate the antioxidant activity are clear and well made, they are not sufficient to provide evidence of the antitumor activity of this plant and even less about the relationship between the oxidation and the antiproliferative effect they report.

It necessary to determine whether the cells do not proliferate because there are an cell cycle arrest, or because cells becomes quiescent or died, and in this case it is important to determine at least by the standard methods, whether apoptosis or other mechanisms participate, in order to present a clearest picture of the biological activity of the fraction. The gold standard of this anti-tumor activity is still the clonogenicity, so, it would be desirable to test the activity of the most active fractions, in the ability to inhibit long-term proliferation of tumor cells.

The culture conditions are important for these determinations and in fact, for breast cancer, 2D culture is not always the most appropriate method to determine the antitumor activity of a plant. Additionally, the use of only two cell lines ER + and ER is not enough for assuring that this plant acts on the more aggressive tumors. It is important to be more cautious with the conclusions given in the proliferation of tumor cells because many other mechanisms could be involved in control of tumor cells and the authors have not taken them into account for the discussion.

Moreover, although the different extraction methods allow them to have different fractions of the plant part, the chemical characterization is very preliminary. It is necessary; in case the authors want to deepen into the chemical nature of the fraction, improve the analytical evaluation of it.

Overall, the work is a good start but it is not deep enough to be published as this. It is important to define what is the main question they want to solve and what is the main message of the article. Need to strengthen even more chemical analyzes and biological tests on the lines. The single study of proliferation is not enough.

From the experimental point of view, there is a mishandling of the controls, which do not appear in the figures. The edition of the figures is not very professional, so
should seek an advisory on this issue. The legends of the figures are not clear enough. It is important also that the authors determine whether the proliferation analysis by other methods allows them to get the same results, since some compounds could interfere with MTT.

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

'I declare that I have no competing interests' below