Reviewer's report

Title: Anti-proliferative and anti-adhesive effects of four plant extracts on the breast cancer cell line MCF-7

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Reviewer: Fang-Rong Chang

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The authors described the results for in vitro anticancer assays of the ethanol extracts from African folkloric medicines, Jatropha curcas (JCP1), Pyrenacantha staudtii (PS), Picralima nitida (ZI) and Jatropha gossypifolia (JCP2) against human epithelial MCF-7 breast cancer cells in a dose-dependent manner (1 - 50 µg/ml) by using cell cycle analysis, vitality (MTS) and Live/Dead assay. The study also investigated in adhesion processes by monitoring #1-integrin expression and formation of the actin cytoskeleton. As described by authors, cancer cell growth inhibition and apoptosis induction was observed (IC50: 23 - 38 µg/ml). At a lower concentration of 10 µg/ml, all four plant extracts caused cell detachment accompanied by decreased #1-integrin expression except for that of ZI treatment.

In the bioassay part, it is clear in the initial stage for the anticancer agent discovery. However, I think the paper should be rejected or have a major revision.

1. Does the used part all the plants is the bark only?

2. Why these four plants were selected? The authors state some reasons, it should be a long plant name list, and then, four of them are reported. I suggest the authors can provide the list for assay.

3. The extraction rate 40% and 51% for ZI and JCP2, respectively. It seems not reasonable. It means every two gram bark of Jatropha gossypifolia can provide ca. 1 gram of JCP2. It is a very high extraction rate, and almost impossible.

4. In Table 1 legend,…a final concentration of 50 % µg/ml in percent of control… However, in the column of Table 1, Proliferation for 50 µg/ml (% of control). The text in the Table 1 legend should be wrong. Moreover, what is the meaning of “Proliferation for 50 µg/ml (% of control)”? I can’t understand the data. If the control is 100%, under 50 µg/ml Jatropha curcas (JCP1), Pyrenacantha staudtii (PS), and Jatropha gossypifolia (JCP2) treatments, the data will approach 0 %, e.g. +9.. -7, -7... Except for the IC50 value of Picralima nitida (ZI) is 22.76; however, under 50 µg/ml ZI treatment, only 9 % cancer cells died (-91.14 ± 5.2, is that correct?). It is real unusual.

5. The crude material tests are not enough to tell the chemical compositions of four plant materials in the modern research. If the authors can’t determine the chemical profiles of the subjects, at least, the authors should describe the possible active components reported in the literature.
Level of interest: An article of importance in its field

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.