Reviewer's report

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

Version: 1 Date: 20 January 2014

Reviewer: Heonyong Park

Reviewer's report:

In this manuscript, authors extracted four different medicinal plants used as folk medicine in Nigeria and then analyzed if they had anti-tumor activity. The cancer cell line they used in this manuscript was breast cancer cell, MCF-7. Authors determined various effects of four different extracts of plants (Picralima nitida, Pyrenacantha staudtii, Jatropha gossypifolia L, and Jatropha curcas L); cell proliferation, apoptosis, cell detachment and integrin beta 1 expression, and MTS assay. Authors concluded that those extracts had anti-tumor activities by unknown mechanisms.

Major comments;

A weak point of this manuscript is that four extracts have similar (sometimes higher) toxicity over a normal breast cancer cell line, MCF-10A, comparing to toxic effect over MCF-7. IC50 values of JCP1 and JCP2 for MCF-10A appeared much lower than those for MCF-5 based on Fig. 5. These data indicate that extracts may have (more) toxic to normal tissues, rather than anti-tumor activity. Accordingly, mechanistic understanding should be essential in this manuscript. If not, it is hard to scientifically explain traditional applications or usages of the extracts with only these in vitro results.

Minor points

1. Fig. 1 & Fig.2 should be combined in one figure, because they are identical; Fig.1 is raw data and Fig. 2 is statistical.

2. In Figure 2, authors have to execute additional experiments regarding cell proliferation (e.g., thymidine incorporation) and apoptosis (e.g., DNA laddering, caspases activation or annexin V flip-flop or etc) to clearly show or prove cell proliferative & apoptotic activities of extracts. For instance, when cells were progressive in apoptosis, nuclear fragmentation usually occurs. However it is shown that no nuclear fragmentation was appeared in Hoechst staining (Fig 3). Accordingly, it would be better to show additional apoptotic data in addition to their FACS data.

3. From Fig 4 and based on 'Materials and Methods' section, it is not clear cellular locations of integrin beta1; either in the cell surface or in whole cell. Authors have to show integrin beta1 by using Western blotting to know if extracts control gene expressions of integrin beta1 or alter its surface expression.

4. In Fig 3& 4, authors have to show quantification of cellular detachment and
compare these quantification and expression level of integrin beta1. These comparisons may reveal the correlation between cellular detachment and expression of beta 1.

5. In Fig 4A, y-axis may represent ‘% increase of control’, instead of ‘% of control’.

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

**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