Reviewer’s report

Title: Essential oil of pinus koraiensis leaves inhibits cell proliferation and migration via inhibition of p21-activated kinase 1 pathway in HCT116 colorectal cancer cells.

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Reviewer: R. BEKLEM BOSTANCIOGLU

Reviewer’s report:

The manuscript entitled, “Essential oil of pinus koraiensis leaves inhibits cell proliferation and migration via inhibition of p21-activated kinase 1 pathway in HCT116 colorectal cancer cells” is focused on the investigation of anti-carcinogenic mechanism on colorectal cells. The approach chosen by the authors is correct and the experiments have in general been carried out competently. Results of the experiments seem to be coherent. The reported anti-proliferative and apoptotic capacity of EOPK seems to be "significant", the work gives a relevant contribute to the toxicology and pharmacology field and it is acceptable for publication in the BMC Complementary and Alternative Medicine as a research article after a careful minor revision.

Comments:

1. In background section, authors should add some details about the study on genotoxicity and biological activity of EOPK with applied doses and cell lines for the comparison purposes (On the page 6, last paragraph).

2. According to in my opinion all data should be able to repeated. On light of this point authors should be explain content of EOPK and collected time of Pinus koraiensis leaves on the material and methods section (page 7-preparation of EOPK). Because season always effect to content of the essential oils. Changing in the content also effects biological activity of essential oils.

3. The cells used in each experiment should be specified in the material and methods section (siRNA transfection, wound healing, cell growth assay). Why did the authors choose the HCT116 cells specifically for cell cycle assay and proliferation assay?

4. It can be used a positive control which drugs is used to treatment of colorectal cancer for all experiment to improvement of discussion. Or author should report the literature reference to which is referred the capacity of the drug in inhibiting cell proliferation and apoptosis on colorectal cancer.

5. Additionally, a successful anticancer drug should kill or incapacitate cancer cells without causing excessive damage to normal cells. As the main aim of chemotherapy is the destruction of tumour cells without any undue influence on proper cells. It should be applied all of concentrations of EOPK on healthy cells.

6. Recent results which is published papers in should be mentioned and
commented in discussion.

In conclusion, for appropriate determination of anticancer capacity, the extraction technique, its conditions, solvent used, and particular assay methodology are important. The anticancer properties of medicinal plants depend on the plant, its variety, environmental conditions, climatic and seasonal variations, geographical regions of growth, and many other factors such as postharvest treatment and processing. So, the approach chosen by the authors is correct and the experiments have in general been carried out competently. Also, the study is very interesting as a first positive report using EOPK on colorectal cancer and it is supportive for earlier studies. The manuscript presents an important issue of investigation. The manuscript should be acceptable for publication in BMC Complementary and Alternative Medicine after major essential revision.

With best regards

Level of interest: An exceptional article

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.