Sir,

Breast cancer, as a chronic disease, is a commonly identified cancer in female in both economically developed and developing countries.[1] There are various treatments approaches that have been aimed toward treatment of this disease, but the success rate of the chemotherapeutic drugs are reported to be low; with high rate of recurrence and various side effects. Natural compounds or dietary agents have been used as an important tool to treat cancer because of its low cytotoxicity and less adverse effects. Breast cancer can metastasize to lymph nodes and distant organs from the primary site which is usually the cause of death. Plants and natural products play an important role in medicine and provide important prototypes for the development of novel drugs.[2] They offer a valuable source of compounds with a wide variety of biological activities and chemical structures. Many anticancer agents have been derived from natural sources; directly as pure native compounds, or as semi-synthetic analogs.[3-5] Since the dawn of civilization, herbal drugs have been used in the ancient civilizations and their use in the treatment of cancer is on a rise, especially in the developing and underdeveloped countries primarily due to its easy affordability, nontoxic nature, easy acceptability, less toxic or no toxic effects, and easy availability. Among the several plants reported to possess anticancer activity, Eugenia jambolana is one among the many plants, which has not been investigated for anticancer activity. The present study proves the traditional claims of the plant against cancer.[6] The berries have been reported to possess anticancer activity against breast cancer.[7] This paper will possibly help to bridge between traditional claims and modern therapy on E. jambolana. This paper reports the isolation, structure determination and biological activities of a steroidal saponin, glaucoside J. Spectral data led to the structure of the compound as 5,6-dihydroxy-3-[(4-hydroxy-6-(hydroxymethyl)-3,5-di[3,4,5-trihydroxy-6-(hydroxymethyl)tetrahydro-2H-2-pyranoyl]oxytetrahydro-2H-2-pyranoyl]oxy]-2-methoxy-10,13-dimethyl-perhydro cyclopenta[c]phenanthren-17-yl (phenyl) methylacetate from E. jambolana seeds.

Saponins are natural glycosides which possess a wide range of pharmacological properties. The MTT assay was performed according to the method set out by Mosmann. Jambosine, gallic acid, ellagic acid, corilagin, 3,6-hexahydroxydiphenoylgucose, 1-galloylgucose, 3-galloylgucose, quercetin, β-sitosterol, and 4,6 hexahydroxydiphenoylgucose are a few bioactive compounds isolated and identified from E. jambolana. In this work, glaucoside (compound) isolated from E. jambolana not only inhibited cancer cell proliferation but also in addition induced cancer cell apoptosis. The isolated new saponin, glaucoside, was found to demonstrate remarkable apoptotic property on MCF-7 cells. The effect was also found to be concentration dependent.

The compound was tested against MCF-7 cell lines at five different concentrations as 300, 150, 75, 37.5, and 18.75 μg/mL for 24 h. The antiproliferative bioassay showed that both the extract and compound inhibited the growth of the MCF-7 breast cancer cells in both dose- and time-dependent manner. The concentrations required to inhibit the growth of 50% of the cells, i.e., IC50 values were calculated for both the samples against MCF-7 cell lines. The IC50 values were 253.6 μg/mL for the methanol extract and 176.2 μg/mL for the compound. It is noteworthy that the crude methanol extract was less effective at reducing the proliferation of the MCF-7 cells when compared to the compound. Nevertheless, our results provide preliminary data as to the ability of the extract and compound to inhibit the growth and induce apoptosis of human breast cancer cell lines in vitro. The results of this study warrant further investigation into the potential of E. jambolana berries and its derived food products, as chemopreventive agents against breast cancer. In addition, our future studies will investigate the possible mechanism of action against the proliferation and survival of breast cancer cell lines. This compound may provide clues for designing a range of novel semi-synthetic and synthetic compounds as medicinal anticancer agents in the near future. Further studies on the mode of action and the role of compound on pro-apoptotic factors are under progress. This report is the first of its kind to report the anticancer activity of the new glaucoside isolated. In conclusion, the plant and its compound examined in this study possess varying levels of anticancer activity in vitro. This is evident by the concentration-dependent manner reduction in the final number of cancer cells as a consequence to treatment. On the other hand, despite its possible toxicity, E. jambolana is frequently used orally as a medication in many conditions by traditional medicine.

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Conflicts of Interest
There are no conflicts of interest.
Letter to the Editor

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