



Evaluation of *in vitro* anticancer potential in *Punica granatum*, *Psidium guajava*, and *Vitis vinifera* seed extracts

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ABSTRACT

The anticancer potentials of the seed extracts of edible fruits pomegranate (*Punica granatum* L.), guava (*Psidium guajava* L.) and grapes (*Vitis vinifera* L.) were evaluated. Doxorubicin was used as a reference drug. MTT assay was used to determine the anticancer potential of the selected seed extracts. Among the selected edible fruit seeds and their different organic solvent extracts, the ethyl acetate extract of *Punica granatum* possessed a higher inhibitory effect against lung cancer cell line, compared to other solvent extracts of *Psidium guajava* and *Vitis vinifera* fruit seeds, and the IC₅₀ value was 51.25 ± 1.25 µg/ml, 60.21 ± 1.35 µg/ml and 61.21 ± 1.45 µg/ml, respectively. The IC₅₀ of doxorubicin was 49.25 ± 1.85 µg/ml. The inhibitory effects of fruit seeds against lung cancer cell line (A549) could be ranked as *P. granatum* > *P. guajava*. > *V. Vinifera*. In the overall observations of the study, the *P. granatum* seed extract showed the highest inhibitory effect on lung cancer cell line among the other seeds.

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INTRODUCTION

Cancer is a major public health problem worldwide and is the second leading cause of death in the United States. Each year, the American Cancer Society estimates the number of new cancer cases and deaths that will occur in the United States, and has compiled the most recent data on cancer incidence, mortality, and survival (Rebecca et al., 2018). Reports of newer cancer cases and cancer death rates will increase in future in the USA. The prevalence of lung cancer was higher than any

other form of cancer. In India, lung cancer constitutes 6.9% of all new cancer cases and 9.3 of all cancer-related deaths in both men and women (2018, WHO).

According to the latest reports, cancer will be over 13.1 million in 2030 worldwide. (Wisastra et al., 2014). Expensive facilities and drugs are required in the treatment of cancer. It is a known fact that growing cancer cells may harm healthy cells and cause side effects too such as autoimmune reactions, damage to the heart, thyroid gland, liver and kidney, slow wound healing, increased risks of infections and blood clotting problems throughout the body. According to the latest discoveries, finding efficient, non-toxic anticancer agents with less side effects has become imperative to give effective therapeutic regime that provides safe and reliable treatment (Ashraf et al., 2015). The therapeutic humanity arsenal, have been considered from the plants (Santos et al., 2017). Over the years they have come as a major source of bioactive molecules, providing more phytoconstituents to the pharmaceutical industry. Secondary metabolites