The Cytotoxicity Effect of Nephelium lappaceum Leaf Extract on Human Cancer Cells

Rosli, Farhah

Cancer is the most common leading cause of death worldwide. Most current conventional cancer treatments have severe side effects as they kill cells indiscriminately. The main aim of this research is to promote green technology by providing a cheaper natural alternative for cancer treatments. The leaves of the local plant Nephelium lappaceum grows abundantly but are unwanted. Currently, no research has been done yet on the anticancer property of the leaves. The most abundant compound in the Nephelium lappaceum leaves extract is gallic acid, a phytochemical with antioxidant and anticancer properties. Pure gallic acid has been reported to inhibit cancer cells without damaging healthy cells. The extraction was done using the alcohol-based solvent, methanol. Results obtained from the HPLC machine shows that the crude extract contains 51.8418mg/g of gallic acid. To test the anticancer activity of the extract, human liver (HepG2) and lung (A549) cancer cell lines were cultured and tested with different concentrations of the extract. The results show that 90 µg/ml of extract inhibits 45% of the growth of HepG2 cell lines while 27% for A549 cell lines. Whereas 10 µg/ml of the extract results in growth inhibition of 11% of HepG2 cell lines and 6% of A549 cell lines. After conducting a test to determine the presence of harmful bacteria contained in the extract, it has been found that the extract is safe to be applied and consumed since few harmful microorganisms were detected indicating that the extract has antimicrobial property. Preliminary data shows encouraging results. However, further research is necessary by testing In-Vivo to study the side effects.

Awards Won: