

Bioactive constituents of *Zanthoxylum rhetsa* bark and its cytotoxic potential against B16-F10 melanoma cancer and normal human dermal fibroblast (HDF) cell lines

ABSTRACT

Zanthoxylum rhetsa is an aromatic tree, known vernacularly as "Indian Prickly Ash". It has been predominantly used by Indian tribes for the treatment of many infirmities like diabetes, inflammation, rheumatism, toothache and diarrhea. In this study, we identified major volatile constituents present in different solvent fractions of *Z. rhetsa* bark using GC-MS analysis and isolated two tetrahydrofuran lignans (yangambin and kobusin), a berberine alkaloid (columbamine) and a triterpenoid (lupeol) from the bioactive chloroform fraction. The solvent fractions and purified compounds were tested for their cytotoxic potential against human dermal fibroblasts (HDF) and mouse melanoma (B16-F10) cells, using the MTT assay. All the solvent fractions and purified compounds were found to be non-cytotoxic to HDF cells. However, the chloroform fraction and kobusin exhibited cytotoxic effect against B16-F10 melanoma cells. The presence of bioactive lignans and alkaloids were suggested to be responsible for the cytotoxic property of *Z. rhetsa* bark against B16-F10 cells.

Keyword: GC-MS; NMR spectroscopy; *Zanthoxylum rhetsa*; Alkaloids; Cytotoxicity; Lignans; Triterpenes