

## News &amp; Comments

## ***Phlogacanthus pulcherrimus* (PP) Extract Exhibits Anticancer Properties**

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The fourth most prevalent malignancy in women worldwide is cervical cancer. In 2018, more than half of the women with cervical cancer received fatal diagnoses. The Acanthaceae family includes *Phlogacanthus pulcherrimus* (T. Anderson). The *P. pulcherrimus* (PP) leaves are primarily consumed fresh in Thailand's northern and northeastern provinces. The cytotoxicity of the dichloromethane extract of PP leaves against breast cancer (MCF-7), cervical cancer (HeLa), colon cancer (HT29), liver cancer (HepG2), and oral cancer (KB) cell lines have been studied. It has not been previously investigated whether the ethanolic leaf extract of PP can reduce the viability of cervical HeLa cells. The study's goal was to determine how harmful PP ethanolic leaf extract was to HeLa cervical cancer lines.

The study was carried out at the Laboratory of Pharmaceutical Technology, School of Pharmaceutical Sciences. The following ingredients were purchased from Union Science Co. Ltd.: corn starch, croscarmellose sodium (Ac-Di-Sol<sup>®</sup>), sodium starch glycolate (Explotab<sup>®</sup>), lactose, magnesium stearate, microcrystalline cellulose, and talc (Chiang Mai, Thailand). The maceration technique was used to create an ethanolic PP extract. Using the sulforhodamine B (SRB) assay, the effects of PP on HeLa cell viability were evaluated. Utilizing flow cytometry, it was discovered how PP affected cell apoptosis. The cells were incubated for 24 hrs before being twice rinsed in PBS and then collected in 0.25% trypsin-EDTA.s: In the current investigation, direct compression was used to create the FDTs. Version 3.5 of the Sigma Stat program was used for all studies.

The outcomes showed that at 24, 48, and 72 hrs, the PP extract reduced the viability of HeLa cells. Following an increase in the treatment dose of the PP extract after 24 hours of incubation, HeLa cell mortality increased. Additionally, as the incubation period was extended, the rate of cell death rose. Following treatment with the highest concentration of extract, the results were expressed as a maximum influence on HeLa cell viability. Cell cycle arrest or cell death results from excessive ROS production. The findings of the current investigation suggested that PP contains flavonoids. Eight FDT formulations were created, followed by their characterization. All FDT formulations were fully saturated and could dissolve in three minutes. Additionally, it has been noted that FDTs made with Ac-Di-Sol<sup>®</sup> have the longest disintegration times compared to FDTs made with starch and Kollidon CL<sup>®</sup> since they have the shortest wet ability times. The HeLa cervical cancer cell model is used in this study to provide the first report on the cell cytotoxicity, colony formation, migration, ROS generation, and cell death of the PP extract. The findings showed that depending on the treatment dose, PP showed substantial



cytotoxicity on HeLa cells. Additionally, the extract prevented HeLa cells from forming colonies and migrating.

**JOURNAL REFERENCE**

Boontha, S., B. Buranrat, P. Temkitthawon, P. Chomchalao and T. Pitaksuteepong 2022. Anticancer activities of *Phlogacanthus pulcherrimus* leaf extracts on HeLa cancer cells: *In vitro* study. *Int. J. Pharmacol.*, 18: 962-971.

**KEYWORDS**

Phlogacanthus pulcherrimus, apoptosis, colony formation, migration suppression, ROS formation

