017-MU

Cytotoxicity study of Triphala and *Ficus botryocarpa* Miq

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Introduction: Liver cancer is mostly obstinate to chemotherapy as a result of tumor clever strategies, tumor heterogeneity, and the advance of multidrug resistance mechanism. The intensely evolution of these survival phenotypes of tumor cell makes them tend to be more aggressive and extremely defend against chemotherapy. The Triphala is a traditional herbal formulation consisting equal parts of three medicinal plants. Triphala has been shown to orchestrate the various biological activities such as anti-viral, anti-bacterial, and immudulatory property. An ethnopharmacological use of *Ficus species*, have been reported to have anti-activity of malignant disease and inflammation. However, role in anti liver cancer both of Triphala and *Ficus botryocarpa* Miq is poorly understood. Therefore, this study aims to evaluate cytotoxic of *Ficus botryocarpa* Miq and Triphala in human liver cancer HepG2 cell line potential use for and anti-liver cancer activity. **Material and methods**: Cytotoxic activities were screened by an *in vitro* assay system (MTT assay) of growth inhibition against human liver cancer cell line. This study was carried out to evaluate cytotoxic effects of the both extracts compared to doxorubicin in human liver cancer HepG2 cell line. The extracts subjected to cytotoxicity evaluation against HepG2 cancer cell lines and normal cell lines (Vero cells) by MTT assay. **Results:** After treatment for 48 h, *Ficus botryocarpa* Miq exhibited significant cytotoxicity against the HepG2 cell line and normal cell lines (Vero cells) with IC_{50} values ranging from 132.46±25.38 and 258.23±37.74 μg/mL, respectively whereas Triphala showed strong cytotoxicity against the HepG2 cell line and Vero cells with IC_{50} values ranging 67.93±3.87 and 338.63±40.77 μg/mL, respectively. While Doxorubicin gave an IC_{50} value of 0.99±0.20 μg/mL. Taken together these results the extracts of *Ficus botryocarpa* Miq and Triphala showed potent cytotoxic activity on HepG2 cells, but no cytotoxic activity on normal cells. **Conclusion**: Our preliminary data revealed that the extracts from *Ficus botryocarpa* Miq and Triphala formulation may have a great potential to be exploited in the search of anti liver cancer drug. It is further necessary for chemical characterization of the active principles and more extensive biological evaluations.

Keywords: Triphala, *Ficus botryocarpa Miq*, anti-liver cancer activity

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Effects of aqueous extracts from *Pleurotus sajor-caju* on the inhibition growth of breast cancer cell lines

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Introduction: Cancer is one of the major non-infection health problem affect worldwide including Thailand. Several anticancer drugs have been orginated from natural products. *Pleurotus sajor-caju*, an edible mushroom, commonly used for sources of nutritional foods in many countries including Thailand, belongs to the Pleurotaceae family and also has commercial cultivation with low cost of production. It has been reported that the Pleurotaceae family have some bio-active effects, such as anti-oxidative, antiatherosclerotic, immunomodulatory and anticancer activities. Few studies have been explored in *P. sajor-caju* as anticancer pharmaceutical source. In this study, we primarily investigate the effects of an aqueous extracts from *P. sajor-caju* on the growth of human breast cancer cell line (MCF-7), human liver carcinoma cell lines (HepG2) compared to those of normal cells line (Vero cell). **Material and methods**: Aqueous extract of *P. sajor-caju* was lyophilized to dryness. Human breast cancer cell line (MCF-7), human liver carcinoma cell lines (HepG2), and Vero cell (normal cell) were used. The cytotoxic activities of the compounds were assessed using the (3-(4,5-Dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay. The comparison between cytotoxic effects of the extract and doxorubicin in the corresponding cell lines were also investigated. **Results:** The results demonstrated that an aqueous extract of *P. sajor-caju* had cytotoxic effects with 50% cell growth inhibition (IC_{50}) against MCF-7, HepG2 and Vero cell at 200.96±15.42, 438.76±67.12 and 364.96±70.6 μg/mL, respectively, whereas the cytotoxic effects of doxorubicin against MCF-7 and HepG2 showed an IC_{50} at 3.50±0.60, and 0.99±0.20 μg/mL, respectively. The extract had significantly cytotoxic activity on MCF-7 compared to those of normal cell line at a concentration of 250 and 500 μg/mL (p<0.005). **Conclusion**: The results demonstrated that an aqueous extract of P. sajor-caju exerts anti-proliferative action on breast cancer cell line MCF-7, suggesting its anticancer properties. Therefore, the further study on the characterization of active compounds and the mechanisms underlying of the anticancer properties induced by *P. sajor-caju* would be extensively investigated. This finding presented could provide interesting path for further investigation of a novel anticancer agent.

Keywords: *Pleurotus sajor-caju* , aqueous extract, anticancer properties, breast cancer cell line

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