

## **Cytotoxicity and polyphenol diversity in selected parts of *Mangifera pajang* and *Artocarpus odoratissimus* fruits.**

### **ABSTRACT**

**Purpose** Research on cancer chemopreventive properties of fruits has increased in recent years. Polyphenols have been suggested to exert such effects. The purpose of this paper is to determine the cytotoxic activity of *Mangifera pajang* (bambangan) and *Artocarpus odoratissimus* (tarap) crude extracts against selected cancer cell lines (i.e. ovarian, liver and colon cancer) and to compare the amount of selected polyphenols (phenolic acids, flavanones, flavonols and flavones) in the kernel, peel and flesh of *M. pajang*; and the seed and flesh of *A. odoratissimus*. **Design/methodology/approach** Cytotoxicity activity of the extracts are investigated using MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) assay while polyphenols are determined using high performance liquid chromatography. **Findings** The results show that only the kernel and peel extracts from *M. pajang* display cytotoxic activity in liver and ovarian cancer cell lines with IC<sub>50</sub> values ranging from 34.5 to 92.0 µg/ml. The proliferation of colon cancer cell line is inhibited only by the kernel of *M. pajang* with IC<sub>50</sub> value of 63.0 µg/ml. The kernel and peel from *M. pajang* contains a broad range of polyphenol phytochemicals which might be responsible for the cytotoxicity activity against selected cancer cell lines. **Originality/value** Previous reports have indicated that both *M. pajang* and *A. odoratissimus* contain high antioxidant properties. This study further determines the phytochemicals profiling in both fruits, which might contribute to the antioxidant activity. Besides that, the result from this study shows that the waste of the fruits (i.e. kernel and peel) contain superior phenolic phytochemicals and display better anticancer potential compared to the flesh; suggests the use of them in health-industry application. Utilization of all parts of the fruits (i.e. flesh, seed, kernel and peel) for the development of nutraceutical and functional food application is suggested.

**Keyword:** *Mangifera*; Fruits; Cancer; Personal health.