

## Immunomodulator Activity Of An Isolate From *Artocarpus Champeden* Spreng. On Cytotoxicity Function Of Cd8<sup>+</sup> Of Mice

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### Abstract

Research of traditional medicine is important to maximize the utilization of natural resources. *Artocarpus champeden* Spreng. is one of medicinal plants that must be studied because a lot of diseases have been treated traditionally with this plant, such as cancer. Phenolic compounds such as flavonoid, tannin, phenilpropane derivative and simple phenol contained in medicinal plant have been proved for their immunomodulator activity. This study was conducted to explore whether flavonoid of *Artocarpus champeden* could also increase the activity of immunocompetent cell that play an important role in immunity against cancer especially to Cytotoxic T Lymphocyte (CD8<sup>+</sup>). Assay of cytotoxicity of CD8<sup>+</sup> by MLR (Mixed Lymphocyte Response) showed that DE. 6.4 fraction (contain flavonoids) could not stimulate the activation of CD8<sup>+</sup> significantly ( $p < 0.05$ ) at all concentrations compared to the control.

**Keywords :** *Artocarpus champeden*, flavonoid, CD8<sup>+</sup>, cytotoxicity, immunomodulator

### Introduction

Cancer is a disease caused by progressive expansion of single progenitor cell that may break away from the normal regulatory control mechanisms of cell division and homeostasis. Cancer is the second cause of death after cardiovascular disease, so nowadays some research have been conducted to develop bioactive ingredients from plants that have potential and selective anticancer properties (Baratawidjaja, 2004).

One of the Indonesian plants that deserve to be studied is *Artocarpus champeden* (Moraceae) or Cempedak. Although empirically this plant is often used for malaria, dysentery and skin diseases (Heyne, 1987), but it has been demonstrated that the prenylated flavones from *Artocarpus sp.* have shown to be a source of interesting biological activities including cytotoxic (Liou et al., 1993; Cidade et al., 2001), anticomplementary (Nascimento

et al., 1997), anti-platelets (Lin et al., 1993) and antimicrobial activities (Sato et al., 1996). Therefore, it needs to be further investigated whether the species *Artocarpus champeden* also effective as anticancer.

From the immunological aspect, there are three groups of cells involved in the response to cancer, namely: Cytotoxic T Lymphocyte/CTL/CD8<sup>+</sup>, NK cells and macrophages. In the immune system, the main function of CD8<sup>+</sup> is to remove virus-infected cells, destroying malignant cells and histoincompatibel cells (Baratawidjaja, 2004).

This study was conducted to determine whether flavonoids from *Artocarpus champeden* can increase the activity of immunocompetent cells that play a role in immunity against cancer, especially of CD8<sup>+</sup>. It is necessary to obtain the scientific base of the use of *Artocarpus champeden* as immunotherapy for cancer.