

UNIVERSITI TEKNOLOGI MARA

**CYTOTOXIC ACTIVITIES OF *Arundina*  
*Graminifolia* sp. EXTRACTS ON HEPG2 LIVER  
CANCER CELL**

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## ABSTRACT

Orchids scientifically known as Orchidaceous is a unique plant that have a lot of uses especially in developing modern drug nowadays including one of its species, *Arundina Graminifolia*. It is easily found and most distributed in southern China, India, from Himalaya to Burma and Indonesia. A new research found that the main component of this plant has higher potency and can be used in developing cytotoxic drug. Therefore, this research is conducted to discover the cytotoxic activity of *A. graminifolia* with its side effect and their reliability with scientific medicine. Thus, the amount of concentration that produced cytotoxic activity can be identified. In evaluating the cytotoxic activity of this plant, the extract compounds from different parts of *A. graminifolia* are tested on cancer and normal liver cell and compared their IC50 value with scientific drug which is Doxorubicin.

Through the research, two types of extracts which are natural and *in vitro* *A. graminifolia* sp. are prepared in investigating the cytotoxic effect against HEPG2 liver cancer cell and WRL68 normal liver cell. Each plant are divided into three parts which are leaves, stem and root with variety of concentration range from 1 to 0.0001 mg/ml. the evaluation of the cytotoxicity is based on the IC50 value which is compared to the US NCI value. Based on the result collected, the root part of natural plant shows strong cytotoxic effect with gives IC50 value 27.54  $\mu$ g/ml. further studies are recommended for detailed and extensive biological compound involve in cytotoxicity of this plant.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of study

Orchids or also scientifically known as Orchidaceous is one of the largest group of plant that can be found all over the world including Malaysia except for coldest and driest places. This is because Malaysia is in the tropical region that has high annual rainfall without too much seasonal variation (Seidenfaden and Wood, 1992).

The usage of orchid plant as herbal remedies has been used since the ancient history in China, India and some part of Europe for several properties such as curative and aphrodisiac properties (Hossain, 2011). *Arundina Graminifolia* which is one of the Orchidaceae families also is a natural resource for medicinal properties. It is proved by the ancient history; Akha ethnic, that was inhabited the forested mountains of Southeast Asia and southern China for centuries were using the plant in treating whooping cough by using its leaves to make tea as the route of administration (Inta et al., 2008). Besides, *A. Graminifolia* also is widely used for the treatment of stomach ache from the extracted juice of the swollen stem (Ong & Nordiana, 1999). Impressively, the new modern technology nowadays has approved that this plant actually can go further in medicinal properties as it has the naturally occurring compound which is phenanthrene compounds that shown the ability for