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ANTIPROLIFERATIVE PROPERTIES OF CHLOROFORM EXTRACT OF *DICRANOPTERIS LINEARIS* LEAVES AGAINST SELECTED CANCER CELL LINES

MOHAMAD YAZID BIN MOHAMAD NOH

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ABSTRACT

The *in vitro* antiproliferative and chloroform extract *Dicranopteris linearis* and its fractions leaves were determined in the present study by using the 3,(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) (MTT) assay. The chloroform extract of *D.linearis* exhibited inhibition of cell proliferation of HL-60 at concentration of 31.5 µg/ml but no anti-proliferative activity detected when tested on A549 cells. Only DLF5was shown to be cytotoxic against HL-60 with IC_{50} value of 39.5 µg/ml while no fraction of *D.linearis* leaves seemed able to inhibite the proliferation of A549 cells. Interestingly, the extract and all fractions except DLF6 (IC_{50} = 4ug/mL) did not exhibit cytotoxic effects on 3T3 normal cells. In conclusion, the *D.linearis* leaves possessed potential anti-proliferative that could be attributed to its bioactive compounds within the leaves, thus, further study is needed to explore the lead compound liable for anti-proliferative activity from this plant.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Cancer is one of the most dreaded diseases of the 20th century and spreading further with continuance and increasing incidence in 21st century (Premalatha & Rajgopal, 2004). In Malaysia, it is the fourth leading cause of death among medically certified deaths (Gerard, 2001). For decades, tumor initiation and development have been regarded as a multi-step process, reflected by the multiple genetic and epigenetic alterations that drive the transformation of normal cells into highly malignant derivatives and endow neoplastic cells with the capability of unlimited proliferation (Trosko & Chang, 1985).

Natural products play a relevant role in cancer therapy today with substantial numbers of anticancer agents used in the clinic being either natural or derived from natural products from various sources such as plants, animals and microorganisms (Nobili et al., 2009). The use of botanicals such as plants, herbs, fungi, seeds as medicines represent the most significant direct antecedent to modern medicine (Nobili et al., 2009). According to Cragg et al (1997), the role of plants in traditional medicine dates back many thousands of years and even primates have been known to