

UNIVERSITI TEKNOLOGI MARA

**ANTI CANCER ACTIVITY OF METHANOL EXTRACT
OF *DICRANOPTERIS LINEARIS***

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ABSTRACT

The *in vitro* antiproliferative and methanol extracts *Dicranopteris linearis*, its partitions and fractions leaves were determined in the present study assessed using the 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay. Interestingly, the methanol extract of *D. linearis* (DLME), its partitions (DLMEMp, DLMEHp and DLMECp) and fraction 4 exhibit cytotoxic effect against HL-60. Their respective IC_{50} were 25.5 $\mu\text{g/ml}$ (DLME), 16.5 $\mu\text{g/mL}$ (DLMEMp), 38.5 $\mu\text{g/mL}$ (DLMECp) and 37.5 $\mu\text{g/mL}$ (DLMEHp) and F4 (19 $\mu\text{g/mL}$). In addition, they also do not show cytotoxic effect against 3T3 normal cell line, which indicates their safety. DLME, all partitions except DLMEHp ($IC_{50} = 36 \mu\text{g/mL}$) and all fractions did not exhibit cytotoxic activity against A-549 cell line. Besides, all fractions except F5 ($IC_{50} = 19 \mu\text{g/mL}$) show no cytotoxic activity against 3T3 normal cell line. In conclusion, methanol extracts *D. linearis*, its partition and fraction 4 possess potential anticancer properties against HL-60 (human acute promyelocytic leukemia) and DLMEHp show potential anticancer activity against A-549 (carcinomic human alveolar basal epithelial cells). Thus, further thorough studies in terms of phytochemical screening are important.

Keywords: *Dicranopteris linearis*; *in vitro* antiproliferative; anticancer; IC_{50}

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The term cancer, from the Latin word for crab, refers to malignant tumors. Specifically, cancer is a class of disease of any malignant neoplasm that arises from the abnormal and uncontrolled division of cells that can invade and destroy surrounding tissue. WHO (2003) define cancer as rapid creation of abnormal cells that grow beyond their usual boundaries, and which can then invade adjoining parts of the body and spread to other organs. There are different types of cancers includes cancer of breast, colon, rectum, leukemia, prostate, liver, lung, bladder, kidney (renal cells), bone and soft tissue, Hodgkin lymphoma, non- Hodgkin lymphoma, melanoma of the skin, urinary tract, male genital tract, brain, cancer of the esophagus, thyroid and other endocrine gland, cervix uteri and vagina.