

Introduction

CHAPTER 1

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A neoplasm is a relatively autonomous growth of tissue (Ewing, 1940). In general, it is also called cancer or tumour which indicate any abnormal mass or growth of tissue. Tumour can be classified into two major groups : benign and malignant (La Fond, 1978). Benign tumours grow slowly, never spread, are enclosed within a fibrous capsule, and contain cells that resemble their normal precursors. Prompt diagnosis and treatment of benign tumours generally lead to cure. Malignant tumours tend to grow rapidly, invade other tissues, are rarely encapsulated and contain many abnormal cells of different sizes and shapes.

There are several approaches to the treatment of cancer. Chemoprevention is the most effective strategy in cancer control (Koshimizu *et al.*, 1988). In this way, the occurrence of cancer is prevented by the administration of one or several chemical compounds. However, effective chemotherapy is not available for many common occurring solid tumours. Therefore, rational approaches have been developed to increase the probabilities of discovery of new lead compounds in drug development. Much of the discussion for this purpose is related to anti-cancer drug discovery focused on screening assays for natural products. Several currently used anti-cancer agents originate from natural products, including vincristine and vinblastine both alkaloids extracted from the

plant *Catharanthus roseus* (Simpson and Ogorzaly, 1986), and more recently taxol which is derived from the bark and needles of various species of the yew tree (Wani *et al.*, 1971).

Natural products continue to provide a unique, renewable, structurally and biologically diverse source of active compounds typically not found in synthetic chemical libraries. Natural sources of drugs include higher and lower plants, marine organism, animals and arthropods. They may themselves represent commercially significant agents, or they may provide lead structures of the development of modified derivatives possessing enhanced activity and/or reduced toxicity.

There are insufficient detailed studies of plants from the Ebenaceae family found in Malaysia in relation to their anti-tumour promoter activity. Thus it would desirable to screen some of these plants before detailed studies could be carried out. Therefore, the aim of this research were :

- 1) to screen three taxonomically identified Ebenaceae species namely *Diospyros graciliflora*, *Diospyros discolor* and *Diospyros lanceifolia* for their anti-tumour promoter activity,
- 2) to carry out phytochemical analysis on active constituent(s) from the plant with anti-tumour promote activity and
- 3) to extract natural phorbol esters of five plants from the Euphorbiaceae family (i.e *Euphorbia hirta*, *Euphorbia tirucalli*, *Euphorbia splendens*, *Jatropha podagrica* and

Pedilanthus tithymaloides) and used the extracts in place of TPA as tumour promoter agents.

Literature Review