

Research Methodology in Chemistry

Edited by
Fiona N.-F. How, Ph.D



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RESEARCH METHODOLOGY IN CHEMISTRY

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CHAPTER – 4

BIOACTIVE PRINCIPLE FROM PLANTS

Deny Susanti

Introduction

Humans always rely on plants and have continuously explore the application of plants to improve various aspects of their lives. Thus, we have sought to use plants as spices, flavoring agents, perfumes, cosmetics, and dyes to control and overcome diseases. Some were recognized as poisons were used as insecticides and pesticides.

Most natural products chemists were more concerned with the isolation and structural elucidation of natural product (secondary metabolite) from plant that give affect on human. Modern advances in separation and spectroscopic techniques have provided tools for purification and structural analyses that have reached extraordinary levels of sensitivity and sophistication.

Isolation of Bioactive Principle

To search for a secondary metabolite, which elicits a specific bioactive response, an appropriate assay is required to screen the plant extract, to monitor the component in the extracts then followed by purification steps to get pure active compound.

The assays are varied, for example antimalarial, anticancer, seed germination, and mammalian toxicity activities. Ideally, the assay should be as simple, specific, and rapid as possible. An *in vitro* test is more desirable than a bioassay using small laboratory animals, because it is hard to obtain extract for larger domestic or laboratory animals. In addition, *in vivo* tests in mammals are often variable and are highly constrained by ethical considerations of animal welfare.