Research Methodology in Chemistry

Edited by
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CHAPTER – 1

INTRODUCTION

Deny Susanti

Natural product or phytochemical is an enormously large and diverse range of chemical compounds that produced by nature not by artificial or man-made. Natural products includes from plant, animal, microorganism and marine sources. Strategies for research in the area of natural products have developed quite extensively over the last few decades. Sarker, Latif and Gray (2008) divided these researches into two categories:

a. Old Strategies

1. Focus on chemistry of compounds from natural sources only
2. Basic isolation and identification of compounds from natural sources followed by biological activity testing (mainly in vivo)
3. Chemotaxonomic investigation
4. Selection of organisms primarily based on ethnopharmacological information, folkloric reputations, or traditional uses

b. Modern strategies:

1. Bioassay-guided (mainly in vitro) isolation and identification of active "lead" compounds from natural sources
2. Production of natural products libraries
3. Production of active compounds in cell or tissue culture, genetic manipulation, natural combinatorial chemistry, and so on
4. More focused on bioactivity
5. Introduction of the concepts of chemical fingerprinting and metabolomics
6. Selection of organisms based on ethnopharmacological information, folkloric reputations, or traditional uses, and also those randomly selected