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ISSN: 2161-1459
Journal of Clinical & Experimental Pharmacology

Commentary

Usage of Plant Metabolites in Medicinal Treatment

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DESCRIPTION

A plant is said to be medicinal if it produces active compounds which are therapeutically effective. In addition to the use of plants as medicine by the Sumerians and Akkaidians (2600 BC), other ancient literature on the use of plants as medicine include the Egyptian Ebers Papyrus, dated 1500 BC upwards, with records of over 700 drugs and the Chinese Materia Medica dating 1100 BC, recording over 600 medicinal plants. The Indian Ayurvedic system dating 1000 BC and Greek about 100 BC are also other records on the ancient use of plants as medicine.

Traditionally, medicinal plants were used in the treatment of various diseases. Plant parts such as leaves, stems, roots, barks, twigs, tubers, bulbs, exudates, flowers and fruits were all used in the treatment of different ailments. These plant materials are used to prepare enemas, extracts, infusions, teas, snuffs and in many other forms which are administered in different ways.

Enemas are oily or aqueous suspensions introduced rectally. Extracts are preparations containing active principles of a crude drug, prepared by extracting the plant material with a suitable solvent such as water or alcohol. Infusions on the other hand are prepared by soaking of the plant material. Teas are prepared by soaking the plant material in hot water for a few minutes. Snuff constitutes finely powdered medicinal plant material which can be inhaled through the nostrils.

Epilepsy, malaria, dysentery, pneumonia, inflammations, ulcers, wounds, cancer and sexually transmitted diseases among others, are some of the conditions and diseases reported to have been treated traditionally with plants. The use of traditional medicine in primary health 7 care is common place, especially in developing countries. Estimated that up to 80% of the population in most developing countries may be using traditional medicine in primary health care. Developed countries have also developed interest in the use of plants as medicine due to their reduced toxicity, availability and affordability compared to manufactured drugs.

Natural products can either be primary or secondary plant or animal metabolites. Primary metabolites unlike secondary metabolites are essential for biochemical pathways necessary for the normal growth and development of plants or animals. Secondary metabolites are derived from primary metabolites through biosynthetic processes, and in most cases, they are restricted to certain taxonomic groups. Secondary metabolites have no role in the normal growth of the plant but, may play important ecological roles depending on the conditions under which they were produced, though some may be just mere waste products from physiological processes.

Ecological roles played by plant secondary metabolites include attracting pollinators, acting as chemical defense against disease-causing microorganisms and insects, as well as facilitating survival under environmental stresses. In addition, secondary metabolites are responsible for the characteristic smells, colors, flavors and medicinal properties of plants.

CONCLUSION

Generally, primary metabolites are produced in large amounts compared to secondary metabolites. Due to this, primary plant products constitute a large portion of raw materials in scientific, technological and commercial applications. An example of a scientific application of a metabolite is the study of the effects of a metabolite on the growth of organisms. Commercial applications on the other hand include the use of plant extracts as flavourants, fragrances and pesticides as well as in pharmaceuticals. Phytochemical studies and subsequently, Natural Product studies led to the discovery of enormous number of compounds with variety of chemical structures all of which are present in the chemical composition of living organisms.

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Received: 02-Jan-2023, Manuscript No.CPECR-23-19924; **Editor assigned:** 04-Jan-2023, Pre QC No. CPECR-23-19924 (PQ); **Reviewed:** 18-Jan-2023, QC No CPECR-23-19924; **Revised:** 23-Jan-2023, Manuscript No. CPECR-23-19924 (R); **Published:** 03-Feb-2023, DOI: 10.35248/2161-1459.23.13.346

Citation: Resouza M (2023) Usage of Plant Metabolites in Medicinal Treatment. J Clin Exp Pharmacol. 13:346.