Chapter 17
The Therapeutic Potential of Ethnobotanical Plants in the Treatment of Different Diseases

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ABSTRACT

This is an overview of plant use for medicinal applications, a practice from old civilizations still used around the world. According to WHO, nearly 80% of people use herbal medicine plant extracts as their primary health solution. Ethnobotany emerges as a research field to document and understand the traditional knowledge about plants and their roles in society. Diseases like diabetes, hypertension, hypercholesterolemia, and cancer are the predominant challenges to global health, chronic diseases accounting for two-thirds of deaths worldwide. This document discusses ethnobotanical studies on many medicinal plants affecting these diseases.

INTRODUCTION

Several studies have shown that a large amount of medicinal knowledge has remained among tribes around the world, a common practice in old civilizations still used today. *Traditional medicine* is defined as indigenous medicine used to maintain health and to prevent, diagnose, and treat physical and mental illnesses. The World Health Organization (WHO) considers natural and traditional medicine safe and effective as a first-line treatment, and nearly 80% of people use herbal medicine plant extracts

as primary health care (WHO, 2013). This practice comes from ancient knowledge and still prevails in modern society, as a local culture or traditions this interaction between medicinal plants and humanity.

The study of how humans use endemic plants in a culture is called *ethnobotany* (De Santayana, Pieroni, & Kuri, 2010). Ethnobotany emerges as a research field for documenting and understanding the knowledge of the people about plants and their role in society. It is supported by popular knowledge coming from communities of rural remotes areas. This information is usually passed verbally from one generation to the next through family members and has not been fully documented yet (Faruque et al., 2018). While the uses of endemic plants vary from ornaments to agriculture, one of their principal uses is medicinal. A *medicinal plant* refers to the stem, leaves, roots bark, etc. It causes fewer or no side effects compared to regular medications when ingested. Interest in medicinal plants has increased as a source of new natural medicines. Medicinal plants play an important role in the development of new drugs.

Phytochemicals from medicinal plants are secondary metabolites, mainly small molecules (<2000 Da), absorbed and metabolized very quickly. This process gives health benefits due to their bioactive potential (Govea-Salas, Morlett-Chávez, Rodriguez-Herrera, & Ascacio-Valdés, 2017). Medicinal plants contain different phytochemicals and are potentially a principal source of bioactive phytocompounds. However, the majority remain unexplored with respect to pharmacological and therapeutic studies. Herbs and medicinal plants are rich in phytochemicals like polyphenols, alkaloids, terpenes, carotenoids, etc.

The variety of medicinal plants around the world provides the possibility of further investigation for researchers, and in some cases, these studies might lead to discovering new drugs or new compounds useful in medicine and pharmacology (Mohamadi, Sharififar, Koohpayeh, & Daneshpajouh, 2015). Medicinal plants could be efficient against the most important diseases in the modern world. Chronic diseases like diabetes, hypertension, hypercholesterolemia, and cancer account for two-thirds of deaths worldwide. A basic search of scientific literature shows a variety of medicinal plants and herbs that report alleviating chronic or metabolic diseases and their symptoms. Therefore, this chapter focuses on the results of scientific studies of medicinal plants used to treat various human diseases around the world, specifically chronic diseases such as diabetes, hypertension, hypercholesterolemia, obesity, cancers, among others.

BACKGROUND

Impact of Demographic, Socioeconomic, and Management of Leading Global Burden Diseases

Chronic diseases are the predominant challenge to global health, accounting for two-thirds of deaths worldwide. High-burden chronic conditions such as diabetes, hypertension, hypercholesterolemia, obesity, cancers, among others, are leading diseases with direct and indirect impacts on healthcare costs, productivity losses, and disability-adjusted life years (Ding et al., 2016). Chronic diseases are the main cause of poor health disability and death, being highly related to the increases in the health care cost. For these reasons, there is widespread concern over managing these illnesses since their incidence in the world (high-income to low and middle-income countries) is currently high, and it is projected to dramatically increase in the next decade (James et al., 2018).

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