

Introduction

1. INTRODUCTION

“There is nothing in this universe, which is non-medicinal, which cannot be made use of for many purposes and by many modes.”

Natural products have served as a major cause of drugs for centuries and about half of the pharmaceuticals in use today are derived from natural products. The use of natural substances, particularly plants to control diseases is a centuries old practice that has led to the discovery of more than half of all modern pharmaceuticals. A growing world-wide interest in the use of phytopharmaceutical as complementary or alternative medicine either to prevent or ameliorate many diseases has been noted in recent years (Thirupathi *et al.*, 2008).

WHO estimated that 80 per cent of the people of the world living in developing countries rely on medicinal plants for primary health care needs. The high cost of acquiring synthetic drugs, their inadequate supplies, the side effects associated with their uses and the belief that plants hold cure to many disease conditions have led to a reawakening of interest in the utilization of plants and plant products in recent years (Magaji *et al.*, 2008).

India has a rich tradition in the case of medicinal plants for the development of therapeutic materials, which can be practised currently. Many plant products are used as important therapeutic agents (Prabhu *et al.*, 2008). Medicinal herbs are an indispensable part of the traditional medicine practised all over the world due to low costs, easy access and ancestral experience (Chopde *et al.*, 2008). The origin of many effective drugs is found in the traditional medicinal practices and in view of this it is important to undertake studies pertaining to screening of the folklore medicinal plants for their proclaimed biological efficacy (Mali *et al.*, 2008).

Recognition and development of the medicinal and economic benefits of these plants are on the increase in both developing and industrialized nations. In addition, herbal medicines are more acceptable in these countries from their cultural and spiritual point of view. Medicinal plants used in local health traditions are gradually becoming extinct due to over utilization, population explosion and for other anthropogenic reasons. In order to reverse this trend, domestication of wild medicinal plants is of utmost importance. This would augment the income of rural people and in turn help in the conservation of species (Koduru *et al.*, 2007).

In response to the increased popularity and greater demand for medicinal plants, a number of conservation groups are recommending that wild medicinal plants can be brought into cultivation. A large number of medicinal plants and their purified constituents have shown beneficial therapeutic potentials. Spices and herbs are recognized as sources of natural antioxidants and thus play an important role in the chemoprevention of diseases and aging (Khalaf *et al.*, 2007). Many herbal-based remedies are believed to have a range of biomedical efficacies including treatment of inflammation, hyperlipemia, atherosclerosis, osteoporosis and bone resorption and some are reported to have beneficial effect in cardiovascular diseases, immune deficiency, central nervous system disorders and cancer (Talhouk *et al.*, 2008). The modulation of immune response by using medicinal plant products as a possible therapeutic measure has become a subject of active scientific investigations (Selvi *et al.*, 2007).

Many plant extracts and plant products have been shown to have significant antioxidant activity, which may be an important property of plant medicine associated with the treatment of severe ill fated diseases including diabetes. Thus, herbal plants are considered useful means to prevent and/or ameliorate certain disorders (Sathishsekar and Subramanian, 2005). Plants, which are the major source of drugs in Indian system of medicine, have

the advantage of little or no side effect. Most of the medicinal plants are scientifically validated for their therapeutic efficacy and safety. There are several species of medicinal plant popularly used in the treatment of Diabetes mellitus (Tenpe *et al.*, 2007).

The use of higher plants and preparations made from them to treat infections is a longstanding practice in a large part of the world population, especially in developing countries, where there is dependence on traditional medicine for a variety of ailments. The antimicrobial compound from plants may inhibit microbial growth by different mechanisms and may have significant clinical value in treatment of resistant microbe. Interest in plants with antimicrobial properties has revived as a consequence of current problems associated with the use of antibiotics (Zakaria *et al.*, 2007).

Natural products, either as pure compounds or as standardized plant extracts, provide unlimited opportunities for new drug leads because of the unmatched availability of chemical diversity. The potential for developing antimicrobials, from higher plants appears rewarding, as it will lead to the development of a phytomedicine to act against microbes. Plant-based antimicrobials have enormous therapeutic potential as they can serve the purpose with lesser side effects that are often associated with synthetic antimicrobials (Parekh and Chanda, 2007).

Medicinal plants might represent an alternative treatment in non-severe cases of infectious diseases. They can also be a possible source for new plant antibiotics to which pathogen strains are not resistant. The millenarian's use of these plants in folk medicine suggests that they represent an economic and safe alternative to treat infectious diseases (Rojas *et al.*, 2006). Literature reports and ethno-botanical records suggest that plants are the sleeping giants of pharmaceutical industry. They may provide natural source of antimicrobial drugs that will provide novel or lead compounds that may be employed in controlling some infections globally (Akinpelu and Onakoya, 2006).

The extracts of higher plants can be very good source of antibiotics against various fungal and bacterial pathogens. Plant based antimicrobial compounds have enormous therapeutic potential (Shariff *et al.*, 2006).

The major hindrance in the amalgamation of herbal medicines into modern medical practices is the lack of scientific and clinical data, and better understanding of efficacy and safety of the herbal products (Seth and Sharma, 2004).

The demand for medicinal plants in health care is about 70-80%. Growing recognition of medicinal plant is due to several factors like cultural acceptability, accessibility, affordability and ability to meet psychological needs. Medicinal plants are the local heritage with global importance. There are number of plants used for treating diseases which are not comprehensively documented due to a lack of communication and low frequency of their use. The traditional use of low profile and less known medicinal plants should be documented to disseminate the therapeutic efficacy to pave the way for preparation of acceptable medicine and to reduce the pressure on over exploited species (Latheef *et al.*, 2008).

With this background the present study has been selected with the following objectives:

1. To trace the role of herbal medicine in health care in general and diabetic control in particular
2. To determine the antioxidant potential of *Syzygium cumini* and *Momordic charantia*
3. To verify antibacterial activity of *Syzygium cumini* and *Momordica charantia* and
4. To establish antidiabetic effect of *Syzygium cumini* and *Momordica charantia* by a sample study.