

2.1 INTRODUCTION

An assortment of foods plays a vital role in maintaining the normal function of the human body by providing adequate and necessary nutrients. With the advancement in recent years in the medical and nutrition sciences, natural products and health-promoting foods have received widespread interest from both health professionals and the general population. The new concept of functional foods raises apprehension in relevance to issues of food security and diet design, beyond the conventional benefit of providing adequate energy, essential fats, protein, vitamins and minerals. In recent times, it has been recognized that foods not only provide basic nutrition, but also help in preventing diseases, assuring good health and longevity. Almost every nation has traditional folk medicines or folk remediation with medicinal plants. Plants used as natural medicines to benefit humans have a long history, particularly in countries such as China, India, Egypt and Greece. The idea in these concepts goes back three thousand years ago. Hippocrates, well-known as the father of modern medicine, stated 'Let food be thy medicine and medicine be thy food' (Lucock 2004, p. 214), signifying the pivotal relationship between appropriate foods for health and their therapeutic benefits. The truth in this saying is widely recognized today. Thousands of years of using plants have accumulated abundant information worldwide about use of medicinal plants and their functions or toxicities. The secondary metabolites from plant origin provide humans with numerous biologically active products, which have been used extensively as food additives, preservatives, flavours, colours, insecticides, drugs, fragrances and other fine chemicals. These plant secondary metabolites include several classes like terpenoids, flavonoids and alkaloids, which have a diverse chemical structures and biological activities, and also exist widely in different crops such as rice, wheat, maize and soybeans. Therefore, these natural compounds consumed as dietary components have a considerable impact on human health. Plant foods rich in dietary fibre provide well-addressed benefits to humans, such as improving digestive system health. New concepts like nutraceuticals, nutritional therapy, phytonutrients and phytotherapy have appeared with this trend. These phytonutrients (functional foods) or phytomedicines (medicinal foods) play positive roles in maintaining well-being, enhancing health and modulating immune response to avert specific diseases. They also hold great promise in clinical therapy due to their potential in reducing side effects associated with chemotherapy or radiotherapy and significant advantages in reducing healthcare cost.

Ever since the establishment of the industrial era, the lifestyles of human beings have dramatically changed. The increasing pace of life and work, with longer working schedules and the amalgamation of various psychological cultures, has resulted in an increased intake of instant and tasty meals, but with decreased quantity and quality in nutrients. At the same time, industrialisation has caused air and water pollution, which has contaminated food and soil, because of the extensive use of various chemicals, heavy metals, electromagnetic waves and other potentially harmful man-made products. These issues have eventually led to an increased occurrence of diabetes, obesity, physiological problems, various cancers and vascular diseases, as well as other degenerative diseases. The raised demands for healthcare have dramatically augmented the medical care expense. Now, people have realized that a healthy