
Preface

In ancient times, people used the gifts of nature found in their surrounding environments to treat their illnesses. Medicinal plants were of great significance, and the utilization of various plants in folk medicine has a very long history. As far back as 3000 BCE, herbs such as poppy, rhubarb, ginseng, etc., were well known. Hippocrates listed around 200 different medicinal herbs. In the first century, Dioscorides described about 400 medicinal plants, and the *Avesta*, the holy book of the Zoroastrians, included a thousand plants. In the eleventh century, Al-Beruni and Avicenna, two great scholars of Central Asia, made important contributions to the science of medicinal plants. Al-Beruni conceived a new area of science concerning medicinal herbs, now called pharmacognosy, and classified and described numerous plant species. In the year 1025, Avicenna gave the world *The Canon of Medicine*, where he described the herbs that were most widely researched and used in medical practice of the time.

Today, many of those plants are still used in medicine in Central Asia. Many centuries of herbal use has proven that plants contain substances that have healing power. Folk medicine has also shown that different parts of each plant often have different effects and, therefore, are used for different diseases, for example, roots for one type of disease and the aboveground parts for another. Similarly, leaves, flowers, fruits, and seeds may have different medicinal uses. Active compounds usually accumulate in large amounts in only certain parts of a plant (Wink 1999). The amounts of active substances in a plant, and consequently their physiological effect when taken as a medicine, significantly fluctuate depending on the season of the year, habitat, altitude, yearly climatic conditions, soil composition, and other factors (Evans 2002).

There are more than 20,000 plant species in the former Soviet Union. Of these, 4,500 grow in Uzbekistan and 4,100 in Kyrgyzstan (Komarov 1934; Pratov 1998; Umralina and Lazkov 2008). There are about 35,000–70,000 plants used in folk and scientific medicine worldwide (Hamilton 2004). As of 2004, at least 200,000 phytochemicals (excluding DNA-encoded proteins and peptides) have been characterized, but this is still thought to represent only a small percentage of phytochemicals that exist in nature (Raskin and Ripoll 2004). This further indicates the importance of drugs of herbal origin for folk and modern medicine. Currently, more than 400 wild and cultivated medicinal plants in Uzbekistan have been studied and described and more than 200 in Kyrgyzstan as well (Nikitina 1962). However, many medicinal plants found in Uzbekistan and Kyrgyzstan have not been thoroughly scientifically evaluated for their potential value in modern medicine.

Due to the increased interest in medicinal plants from different countries, the issue of preservation of the natural environment becomes important and, in particular, the conservation of medicinal plants in their original habitat. Habitat destruction and environmental pollution are factors that strongly affect medicinal plants in the wild. This complex issue is the subject of international agreements, which are united under the general concept of environmental preservation. For adequate conservation, it is important to identify the plant species that are most threatened due to over-collection in the wild. These species must receive the highest prioritization for preservation. It is important to bring the most utilized plants in medicine and veterinary science into cultivation with the goals of increasing the content of basic active compounds in the plants and providing a sustainable source of plant material. With the implementation of

new agricultural practices, the industrial and medical sectors can be supplied with necessary amounts of high-quality product without depleting wild populations. Additional research is necessary to identify plants that have medicinal properties and to scientifically validate their pharmacological activities. It is important to conduct these efforts with the involvement of a wide circle of international researchers. Information exchange, job creation, and joint conferences will undoubtedly help researchers in their work and will also increase the conservation of the rich floras of Central Asian countries. A logical starting point for such systematic research would be the plants that were studied by our great ancestors and have traditionally been used in folk medicine in the different regions of Central Asia.

More than 200 of the most important medicinal plants of Central Asia are listed in this book, and it includes many whose medicinal uses and activities are being compiled for the first time. Most of the plants described grow wild in Central Asia, and some are endemic (e.g., *Vinca erecta* and *Ajuga turkestanica*). This book is aimed at scientists engaged in research on medicinal plants; physicians; as well as students of biology, pedagogy, agriculture, forestry, pharmacology, and medicine. This book is also a valuable reference for biodiversity conservation efforts and protection of rare and endangered species of the Central Asian flora.

We would like to warn our readers that conducting self-treatment with herbs and herbal preparations is dangerous. Medicinal plants can contain extremely strong physiologically active compounds and are often very poisonous. Without the proper recommendations of a medical doctor, no preparations of medicinal plants should be taken. The information in this book is not to be used to diagnose or treat any medical conditions.

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