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## *Botanical Drugs*

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A single rose can be my garden... a single friend, my world.

Leo Buscaglia

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### 10.1 Introduction

Drugs derived from plant sources are generally labeled as phytomedicines, botanical products, natural products, and so on. *Botanical products* are finished, labeled products that contain vegetable matter as ingredients. A botanical product may be a food (including a dietary supplement), a drug (including a biological drug), a medical device (e.g., gutta-percha), or a cosmetic. The term *botanical* includes plant materials, algae, macroscopic fungi, and combinations thereof.

The World Health Organization (WHO) estimates that four billion people—80% of the world population—use herbal medicine for some aspect of primary healthcare. Herbal medicine is a major component in all indigenous peoples' traditional medicine and is a common element in Ayurvedic, homeopathic, naturopathic, traditional oriental, and Native American Indian medicine. Opinions about the safety, efficacy, and appropriateness of medicinal herbs vary widely among medical and health professionals in countries where herbal remedies are used. Some countries' professionals accept historical, empirical evidence as the only necessary criterion for herbal medicine's efficacy. Others would ban all herbal remedies, considering them dangerous or of questionable value.

Early humans recognized their dependence on nature in both health and illness. Led by instinct, taste, and experience, primitive men and women treated illness by using plants, animal parts, and minerals that were not part of their usual diet. Physical evidence of use of herbal remedies goes back some 60,000 years to a burial site of a Neanderthal man uncovered in 1960. All cultures have long folk medicine histories that include the use of plants. The invention of writing was a focus around which herbal knowledge could accumulate and grow. The first written records detailing the use of herbs in the treatment of illness are the Mesopotamian clay tablet writings and the Egyptian papyrus, which contains 876 prescriptions made up of more than 500 different substances, including many herbs. The Middle Eastern era is followed by the Greco-Roman era, which saw the writing of the *De Materia Medica*, which contains 950 curative substances, of which 600 are plant products and the rest are of animal or mineral origin. The Arab medicine was built on Greco-Roman and the text of Jami of Ibn Baiar (died 1248 AD), which lists more than 2000 substances, including many plant products. India's Ayurvedic book on internal medicine, the *Charaka Samhita*, describes 582 herbs. In China, the *Classic of the Materia Medica*, compiled no earlier