

# Chapter 13

## Turmeric: Biological Operations and Medicinal Applications

**Mazia Ahmed**

 <https://orcid.org/0000-0002-7006-3192>

*Center of Food Technology, University of Allahabad, India*

**Urvashi Srivastava**

 <https://orcid.org/0000-0002-0779-155X>

*Center of Food Technology, University of Allahabad, India*

**Chitra Gupta**

*Center of Food Technology, University of Allahabad, India*

### ABSTRACT

*Turmeric (Curcuma longa) is a rhizomatous crop found in tropical regions and belongs to the family Zingiberaceae. It was used in the form of a spice, flavoring substance, coloring agent, and as a therapeutic agent for the treatment of several human ailments for centuries. Turmeric, along with its extracts, has a very broad and diverse field of application. It is an exclusive and versatile naturally occurring plant product having properties of not only a spice but also food colorant, medicine or drug, and cosmetics. In ethnic delicacies, turmeric is a commonly used flavoring ingredient. It is also a popularly used natural food color. It exhibits several biological activities such as having antioxidant, anti-inflammatory, anti-carcinogenic, antimutagenic, antimicrobial, antiviral, and antiparasitic properties. It is well known as a skincare product and a healthy food ingredient. It is found to have the capability to prevent or retard a wide range of ailments.*

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## INTRODUCTION

One amongst the most valuable and influential plants present on the surface of the earth is Turmeric, which was extensively used as a native conjecture by the ancient Indian population. It is a member of the Zingiberaceae family. The scientific name of turmeric is *Curcuma longa* Linn. It is cultivated expansively in Asia, mostly in the regions of India and China. It is a leafy-plant having huge, perennial, vertically rigid, and lily-like leaves ranging up to 1.2 meters in length. Its leaves are oblong and lanceolated, having tapered endings. It has yellow-colored flowers shaped like a funnel. The rhizome has been used to treat colds, coughs, diarrhea, diabetes, cancer, and inflammatory diseases in traditional and modern medicine system. The yellow colored powder is usually obtained by first boiling, cleaning, and then drying the rhizome. The dried form of *Curcuma longa* is used as the spice, which gives curry powder its distinguished yellow color. The rhizome possesses a distinct aroma like pepper and a bitter-warm taste. Turmeric is used in foods for its intense flavor and vibrant color throughout the world. Along with this, it also has an extended traditional use in the medicines of Chinese and Ayurveda systems. India has a rich history of utilizing this plant not only as a medicine but also as a dye, cosmetic, and an essential ingredient in religious ceremonies.

## BACKGROUND

The medicinal use of turmeric is known for a very long period, i.e. about 4000 years ago. Its use was reported in the Indian Vedic culture as a culinary spice and also showed some sacred and religious importance. Turmeric was reported to reach China most likely by 700 AD, East Africa by about 800 years AD, West Africa by 1200 AD, and Jamaica in the 18th century. Marco Polo, in the year 1280, described and compared turmeric with saffron. He said that it exhibited the same qualities as found in saffron. The treatises of Sanskrit medical systems, Ayurveda and Unani medicine, showed the long history of turmeric's medicinal utilization in Southern Asia. The essence of Susruta's Ayurveda, which dated back to 250 BC, showed evidence of recommendations of an ointment having turmeric as an ingredient used to relieve the ill-effects of poisoned or toxic foods.

In present time, turmeric is broadly cultivated in tropical regions and holds a variety of names in different cultures and nations. Turmeric is usually called “Haldi” in the northern part of India. The word “Haldi” is a derivative of the Sanskrit word *haridra*, which means ‘the one having a golden color. In South India, it is known by the name of “manjal,” a word that is used very frequently in ancient Tamil literature. The name turmeric is derived from the Latin word *terra merita*, which means meritorious earth. It refers to the color of ground turmeric, resembling a pigmented mineral. In French, It is called as *Terre merite* and merely as “yellow root” in several other languages. In various cultures, the name of turmeric is based on a modern Latin word *curcuma*. In Sanskrit language, turmeric has nearly fifty-three different names.

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