



## PERSPECTIVES

# Overview for Various Aspects of the Health Benefits of *Piper Longum* Linn. Fruit

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### Abstract

Herbal remedies have become popular, due in part to the lower risk of adverse reactions. Thousands of plants have been used traditionally to treat various diseases. Among them, species of the genus *Piper* are important medicinal plants used in various systems of medicine. The *Piper longum* fruit has been used in traditional medicine, including the Ayurvedic system of medicine. Although there are numerous indications for its use, controlled trials are needed to determine its efficacy. The primary constituents isolated from various parts of *P. longum* are piperine, piperlongumine, sylvatin, sesamin, diaeudesmin piperlonguminine, pipermonaline, and piperundecalidine. It is most commonly used to treat chronic bronchitis, asthma, constipation, gonorrhoea, paralysis of the tongue, diarrhoea, cholera, chronic malaria, viral hepatitis, respiratory infections, stomachache, bronchitis, diseases of the spleen, cough, and tumors. This study provides detailed information about the *P. longum* fruit, including phytochemistry, pharmacological profile and safety profile. In view of the commercial, economic, and medicinal importance of the *P. longum* plant, it is useful for researchers to study the plant in detail.

## 1. Introduction

The word pepper is derived from the Sanskrit word for long pepper (pippali). Long pepper (*Piper longum*), sometimes called Javanese, Indian, or Indonesian long pepper, is a flowering vine in the family Piperaceae cultivated for its fruit, which is usually dried and used as a spice. Long pepper is a close relative of *P. nigrum*, which gives black, green, and white pepper and has a similar but generally hotter flavor. The fruits contain the alkaloid piperine, which contributes to their pungency. Another species of long pepper, *P. retrofractum*, is native to

Java, Indonesia. When applied topically, it soothes and relieves muscular pains and inflammation. In Ayurvedic medicine, it is said to be a good rejuvenator. *P. longum* stimulates the appetite and dispels gas from the intestines. An infusion of *P. longum* root is used after birth to induce expulsion of the placenta [1].

The whole plant as well as plant parts such as the fruit are used traditionally, but detailed information regarding its use have not been compiled. This plant is inexpensive, readily available, and effective for many diseases, including cancer, inflammation, depression, diabetes, obesity, and hepatotoxicity.

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The aim of this article is to highlight recent advances in pharmacology and pharmacognosy research on *P. longum* plant, and to inform researchers about this plant to encourage its study [2].

This literature review included journals from the library and on-line, internet databases, search engines, websites [3–6], and books.

## 2. Background

*P. longum* was first written about by Hippocrates, who described it as a medicament rather than a spice. Long pepper reached Greece in the 6th or 5th century BCE, and long pepper was an important and well-known spice before European discovery of the New World. The history of black pepper is linked to (and often confused with) that of long pepper, although Theophrastus distinguished the two in the first work of botany. The Romans knew of both and often referred to either as just piper; Pliny erroneously believed that dried black pepper and long pepper came from the same plant. Round or black pepper began to compete with long pepper in Europe beginning in the 12th century and had replaced it by the 14th century. Today long pepper is a rarity in general commerce [7].

## 3. Geographical Distribution

The plant grows in evergreen forests of India and is cultivated in Assam, Tamil Nadu, and Andhra Pradesh. Long pepper is cultivated on a large scale in limestone soil and in heavy rainfall areas where relative humidity is high [1–2].

## 4. Plant Description

*P. longum* is a small shrub with a large woody root and numerous creeping, jointed stems that are thickened at the nodes (Figure 1). The leaves are alternate, spreading, without stipules and with blades varying greatly in size. The lowest leaves are 5–7 cm



Figure 1 (A) The *Piper longum* plant and (B) fruit.

long, whereas, the uppermost are 2–3 cm long. Flowers grow in solitary spikes. The fruits, which grow in fleshy spikes 2.5–3.5 cm long and 5 mm thick, are oblong, blunt, and blackish-green. The mature spikes are collected and dried as the commercial form of pippali, and the root radix is known as pippalimula. There are three grades of pippalul: grade I with thick roots and underground stems fetch a higher price than grade II or III, which consist of thin roots, stems, or broken fragments. The commercial drug consists almost entirely of transversely cut pieces (length, 5–25 mm; diameter 2–7 mm), which are cylindrical, straight, or slightly curved; some have distinct, swollen internodes exhibiting a number of leaf and rootlet scars. The surface is a dirty light brown. The drug has a peculiar odor and a pungent bitter taste that produces numbness on the tongue [2,7–8].

### 4.1. Scientific classification [1]

Kingdom:	Plantae
Division:	Magnoliophyta
Class:	Magnoliopsida
Order:	Piperales
Family:	Piperaceae
Genus:	<i>Piper</i>
Species:	<i>longum</i>
Botanical name:	<i>Piper longum</i>

### 4.2. Synonyms [8]

Arabic:	دار فلفل Dâr fulful
Bengali:	Piplamor
Chinese:	華撥 Bi bo, 華菱根 Bi ba gen
Dutch:	Langwerpige peper
English:	Indian long pepper, jaborandi pepper, long pepper
French:	Poivre long
German:	Bengalischer Pfeffer, Jaborandi-Pfeffer, Langer Pfeffer,
Gujarati:	Pipli
Hindi:	Pipar, pipulamul
Hungarian:	Bengáli bors
Italian:	Pepe lungo
Kannada:	Hippali, Lippali, Thippili
Malaya:	Magadhi, Pippali, Thippili, Tippili
Marathi:	Pimpli
Nepalese:	गज पिप्लु Gaj pipla, सानो पिप्लु Saano pipla
Portuguese:	Pimenta-longa
Swedish:	Långpeppar
Tamil:	Kandan lippilli, pippili, sirumulam, tippili, thippili
Telugu :	Pippallu
Turkish:	Dar biberi
Urdu:	Pippal

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