



REVIEW ON “PIPAL TREE” – FICUS RELIGIOSA

Avishkar A. Bhusari\*

Research Scholar- Bachelor of Pharmacy, Ashvin College of Pharmacy, Manchi Hill Ashvi B.K.



\*Corresponding Author: Avishkar A. Bhusari

Research Scholar- Bachelor of Pharmacy, Ashvin College of Pharmacy, Manchi Hill Ashvi B.K.

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**ABSTRACT**

Herbs have always been the principal form of medicine in India. Medicinal plants have curative properties due to the presence of various complex chemical substances of different composition, which are found as secondary plant metabolites in one or more parts of these plants. *Ficus religiosa* (L.), commonly known as peepal belonging to the family Moraceae, is used traditionally as antiulcer, antibacterial, antidiabetic, in the treatment of gonorrhoea and skin diseases. *F. religiosa* is a Bo tree, which sheltered the Buddha as he divined the “Truths.” The present review aims to update information on its phytochemistry and pharmacological activities.

**INTRODUCTION**

*Ficus religiosa* (L.) is a large perennial tree, glabrous when young, found throughout the plains of India upto 170m altitude in the Himalayas, largely planted as an avenue and roadside tree especially near temples.<sup>[1]</sup>

The plants have been used in traditional Indian medicine for various range of ailments. Traditionally the bark is used as an antibacterial, antiprotozoal, antiviral, astringent, antidiarrhoeal, in the treatment of gonorrhoea, ulcers, and the leaves used for skin diseases. The leaves reported antivenom activity and regulates the menstrual cycle.<sup>[2,3]</sup>

In case of high fever, its tender branches are used as a toothbrush. Fruits are used as laxatives,<sup>[4]</sup> latex is used as a tonic, and fruit powder is used to treat asthma.<sup>[5,6]</sup>



**Synonyms**

Sanskrit: Pippala  
Assamese: Ahant  
Bengali: Asvattha, Ashud, Ashvattha  
English: Pipal tree  
Gujrati: Piplo, Jari, Piparo, Pipalo  
Hindi: Pipala, Pipal  
Kannada: Arlo, Ranji, Basri, Ashvatthanara, Ashwatha, Aralimara, Aralegida, Ashvathamara, Basari, Ashvattha  
Kashmiri: Bad  
Malayalam: Arayal  
Marathi: Pipal, Pimpal, Pippal  
Oriya: Aswatha  
Punjabi: Pipal, Pippal  
Tamil: Ashwarthan, Arasamaram, Arasan, Arasu, Arara  
Telugu: Ravichettu

**Morphological characteristic**

This big and old tree is of 30m long. They shatter bark and are of white or brown in color. The leaves are shiny, thin, and bear 5–7 veins. Fruits are small, about ½ inch in diameter, similar to that of eye pupil. It is circular in shape and compressed. When it is raw, it is of green color and turns black when it is ripe. The tree fruits in summer and the fruits get ripened by rainy season.

The leaves show more or less sigmoid growth pattern, each leaf increases in size in 9 days from about 425 to 4025mm<sup>2</sup> (as judged by the average mature leaf size) after its emergence from the spathe.

The frequency of stomata per square millimeter increases from 33.3 to 400 per mm<sup>2</sup> with the growth of the leaves, while the number of upper epidermal cells decreases

from 5600 to 1110. The number of areoles per square millimeter decreases from 15.5 to 2.7, while the number of vein endings and vein tips per areole show no correlation either with one another or with leaf size.<sup>[7]</sup>

### Botanical description

Taxonomy

Domain: Eukaryota

Kingdom: Plantae

Subkingdom: Viridiaeplantae

Phylum: Tracheophyta

Subphylum: Euphyllophytina

Infraphylum: Radiatopses

Class: Magnoliopsida

Subclass: Dilleniidae

Superorder: Urticanae

Order: Urticales

Family: Moraceae

Tribe: Ficeae

Genus: Ficus

Specific epithet: Religiosa Linnaeus

Botanical name : Ficus religiosa

### Geographical Source

Ficus religiosa is native to most of the Indian subcontinent – Bangladesh, Bhutan, Nepal, Pakistan and India including the Assam region, Eastern Himalaya and the Nicobar Islands, as well as part of Indochina – the Andaman Islands, Thailand, Myanmar and Peninsular Malaysia.

### Chemical constituents

The stem bark of F. religiosa are reported phytoconstituents of phenols, tannins, steroids, alkaloids and flavonoids,  $\beta$ -sitosteryl-D-glucoside, vitamin K, n-octacosanol, methyl oleanolate, lanosterol, stigmasterol, lupen-3-one. The active constituent from the root bark F. religiosa was found to be  $\beta$ -sitosteryl-D-glucoside, which showed a peroral hypoglycemic effect in fasting and alloxan-diabetic rabbits and in pituitary-diabetic rats.<sup>[8]</sup>

### Phytochemistry

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The active constituent from the root bark F. religiosa was found to be  $\beta$ -sitosteryl-D-glucoside, which showed a peroral hypoglycemic effect in fasting and alloxan-diabetic rabbits and in pituitary-diabetic rats. The fruits contain 4.9% protein having the essential amino acids, isoleucine, and phenylalanine.<sup>[10]</sup>

The seeds contain phytosterolin,  $\beta$ -sitosterol, and its glycoside, albuminoids, carbohydrate, fatty matter, coloring matter, caoutchou 0.7–5.1%.<sup>[11]</sup>

## PHARMACOLOGY

### 1. Hypolipidemic activity

Dietary fiber content of food namely peepalbanti (F. religiosa), cellulose, and lignin were predominating constituents in peepalbanti, fed at 10% dietary level to rats, induced a greater resistance to hyperlipidemia than cellulose. Teent had the most pronounced hypocholesterolemic effect that appeared to operate through increased fecal excretion of cholesterol as well as bile acids. Dietary hemicellulose showed a significant negative correlation with serum and liver cholesterol and a significant positive correlation with fecal bile acids. The dietary fiber influenced total lipids, cholesterol, triglycerides, and phospholipids of the liver to varying extents.<sup>[12]</sup>

### 2. Antibacterial activity

Aqueous and ethanolic extracts of F. religiosa leaves showed antibacterial effect against Staphylococcus aureus, Salmonella paratyphi, Shigella dysenteriae, S. typhimurium, Pseudomonas aeruginosa, Bacillus subtilis, S. aureus, Escherichia coli, S. typhi.<sup>[13]</sup>

### 3. Antioxidant activity

The oxidative stress and oxidative damage to tissues are common end points of chronic diseases such as diabetes, atherosclerosis, and rheumatoid arthritis.

Decrease in uptake of glucose, free fatty acids from circulation, accelerated  $\beta$ -oxidation in adipose tissue lead to weight loss in diabetes. The aqueous extract of F. religiosa improved the body weight of diabetic rats.<sup>[14]</sup>

### 4. Immunomodulatory activity

The immunomodulatory effect of alcoholic extract of the bark of F. religiosa (moraceae) was investigated in mice. The study was carried out by various hematological and serological tests. Administration of extract remarkably ameliorated both cellular and humoral antibody response. It is concluded that extract possessed promising immunostimulant properties.<sup>[15]</sup>

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