



Ficus geniculata (Putkal): A boon

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Abstract

In India, there is lots of community are living and they are consuming in different varieties of wildy leafy vegetables for eating as well as medicinal purpose. *Ficus Geniculata* is one of them which is being under- utilized and commonly known “putkal” which belong from species Moraceae. It also shows the different antioxidant and antimicrobial properties. It also used for curing leucorrhoea, urinary tract infection and gastro-intestinal infection. The main concern is that flower of the *Ficus geniculata* is not available all the year as well as the people are not aware about its benefits. Young leaves and buds are cooked and consumed by the tribal people. Pickle are also made from that and consume throughout the year. The tender shoots that sprouts from the trees are traditionally used for eating purposes which are being dried and used in different pulses which act as functional food. So, different value-added product can be prepared for curing different diseases and also making people aware about its consumption.

Keywords: Antimicrobial, gastro-intestinal properties, antioxidant

1. Introduction

India is blessed with the variety of the “fig” species which are being used in different forms in different places according to the culture and traditional knowledge about it. The evidence of the fig species are being promoted from the Sumerian civilization, Old Chinese and Greek which give us an idea about its storage and its consumption. The Fig is originated in the Asia but now a day it has been grown throughout the world but in some place growth is in large concentration, which is widely distributed in different countries (Turkey, Algeria, Spain Tunisia, Syria, Jordan, England, Puerto Rico, United States, Greece, Israel, China, Australia, Italy, and New Zealand). According to (Mawa *et al.*, 2013) [11] it is also an imperative world crop today with the major producers of edible figs. It provides shade, fruits and woods etc. It is found in the different part of the world and it is known by diverse name which are “fig” in English, “anjir” in India, “higo” in Spanish, “Figue” in French and “fieke” in German (Imran *et al.*, 2011) [5]. *Ficus* belong to moraceae family which is an evergreen and deciduous tree and its taxonomy detail are *Ficus* is classified as Kingdom: Plantae, Division: Magnoliophyta, Class: Magnoliopsida, Order: Urticales, Family: Moraceae, Genus: *Ficus*, Species: carica. They are found in tropical and also subtropical territories (Kala *et al.*). Vegetative characteristics of the ficus are extremely variables. These are generally organized in the ficus are stipules, leaves and fruits, sometimes trunk and formation of prop root. In all ficus we find a “Milky white fluid” fluid when we broke it any parts of the plants. Stipules which is a commonly present in which pair of stipules encloses the end of each twig providing a sheath for the new leaf and most of cases stipules falls at early stages (deciduous in nature). Leaves varies from different species of ficus is like alternate, simple, wavy margin, ovate, flogate. Fig carcia leaves is having deeply lobed leaves (Brown *et al.*, 2016). *Ficus carcia*

shows many traditional health effects cure the disorders of the endocrine system (diabetes), respiratory system (liver diseases, asthma, and cough), gastrointestinal tract (ulcer and vomiting), reproductive system (menstruation pain), and infectious diseases (skin disease, scabies, and gonorrhea) (Prasad *et al.*, 2006). The nutrient supplement of dried figs, they are the rich source of minerals and vitamins, giving per 100 g serving the accompanying: iron, 30%; calcium, 15.8%; potassium, 14%; thiamin (B1) 7.1%; and riboflavin (B2) 6.2%. Figs are without sodium and in addition fat and cholesterol free. Fig natural products contain minimum 17 amino acids, among which aspartic acid and glutamine are the most amazing ones. Dried figs contain moderately high amount of unrefined crude fibre (5.8%, w/w), higher than those of all other regular natural products. Over 28% of the fiber is of the solvent type, which has aid to control of blood sugar and blood cholesterol and useful in weight reduction. The concentration of polyphenols in dried figs is high among the commonly consumed fruit and beverages (Salmon *et al.*, 2006). *Ficus* species are utilized as nourishment, encourage, restorative reason. *Ficus racemose* are utilized as a part of gastrointestinal issues and barks of *F.arnottiana* and *F. hispodia* additionally indicate hypoglycaemia activity. *F.bengalis* likewise demonstrates anthelmintic movement which represses insulin action from liver and kidney. It additionally demonstrates displays hostile to tumor action. They are additionally use in gastric issues and scables, respiratory confusion, gonorrhea, draining, loss of motion, diabetes, loose bowels, bone break, disinfectant, astringent cure. (Sirsha *et al.*, 2010). Among all the fig varities *Ficus geniculata* is one of them which isn't being touch in the field of research till now. In India there are extensive number of group are living and from the old time frame they are generally utilizing the wildy verdant vegetables for eating and

also therapeutic treatment. But these learning are simply known just by the neighborhood and clan community. Jharkhand is a state in eastern India where 26.2% of aggregate rate is of the calendar clan individuals and Oraon are the second biggest clans which is completely relied upon the horticulture of vocation (Jerath *et al.*, 2015)^[4]. They use as various purposes. More as 130 assortments of indigenous nourishment are distinguished; huge numbers of them are rich wellspring of micronutrient and macronutrients. In beneath some rundown of the vegetables are given which is being not known by the all individuals because of absence of absence of information regarding this species.

2. *Ficus geniculata*

Among all the cultivated fruit species which are grown throughout the world with subtropical climate fig (belong to genus ficus) is the most oldest, which is well known by its nutritional as well as ethano-medicinal values. It is used as fresh and in it's desiccated because of its photochemical. The plant of this species available widely in different part of the country and known by different name such as fig (English), anjir (India), higo (Spanish), Figue (French) and fiege (German). It is being utilised as medicines for haemorrhage, giving relief in pain, stomach disorder, gastrointestinal, arthritis, headache, cardiovascular disorder etc. (Imran *et al.*, 2011)^[5]. They possess a wide range of components include carbohydrates, protein, amino acids, minerals, photochemical etc., showed in Figure 2 and Figure 3. (Solomon *et al.*, 2006). Beside this the main species of ficus, it have different other species such as *Ficus benjamina*, *Ficus arnottiana*, *Ficus hispodia* which cure different diseases (Sirisha *et al.*, 2010). Among these *Ficus geniculata* is one which is still untouched by the researchers and under process till date and one of the most underutilized. It is known as Putkal (Jharkhand), Mong lor (meghlay), Phak Huead Daeng (Thailand), Khongnang Taru (Manipur and Duba), Jan and Nala and so forth in Assam. Traditionally the shoot of this plant is being utilized in the month of May-August for preparation of curry (as vegetables), pickles as well as dried shoot use as different additives as a curry.

3. Area and Production

Ficus geniculata belong to family moraceaes, showed in Figure 1 and it was first time revealed in India in Manipur and later on its presences are also noticed in the Jharkhand by the tribe people. It's blooms in the month of March-April and fruits in May – August. Its propensity is tree and territory in deciduous woods edge and its tree are found in the forest, showed in Table 1 (Singh *et al.*, 2014)^[4]. *Ficus geniculata* is available all around in Asia, Bangladesh, China, India, Laos, Myanmar, Nepal, and Thailand. The state where its presences are seen are Andaman & Nicobar privately dispersed Arunachal Pradesh, Assam, Jharkhand, Bihar, West Bengal, Meghalaya, Orissa, Sikkim and Tamil Nadu. It is for the most part discovered Oran innate of Jharkhand. (Chaudhary *et al.*, 2012).

Total flavanol content in *Ficus geniculata* of dry material on the basis of aqueous extract is 41.73±0.011 mg/g and with acetone extraction is 7.35 ±0.03mg/g. Reducing power (ascorbic acid equivalent) of the plant extracted with aqueous methanol was 10.56±0.08 mg/g and with acetone extract is 7.14±0.18mg/g.

The reducing ability of the aqueous methanol extract of the nine wild edible plants in descending order was *B. purpurea* > *D. pentagyna* > *G. pedicellata* > *F. geniculata* > *F. pomifera* > *F. clavata* (Tapan *et al.*, 2011)^[22]. 6.04±0.29 phenol content is present in the *Ficus geniculata* (Mahadkar *et al.*, 2013)^[9]. When *Ficus geniculata* leaves were extracted with Aqueous methanol extract then it gave phenolic content 12.07±0.20mg/g and when it is extracted with acetone extract then it gave 6.04±0.10mg/g (Seal, 2011). Polyphenol is the largest group of phytochemicals which shows the excellent properties of antioxidant and play a major role in the scavenger which are required for redox homeostasis which are responsible for degenerative diseases. And its shoots are cooked as saag, as ate in raw form and dried for storage for whole round year (Gupta *et al.*, 2017). In Thailand its green leaves and shoots are cooked as curry and eaten as salad (Chantarasuwan *et al.*, 2012).

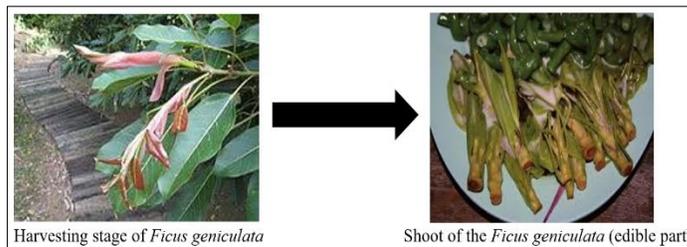


Fig 1: Plantation stages of *Ficus geniculata* (Edible part)

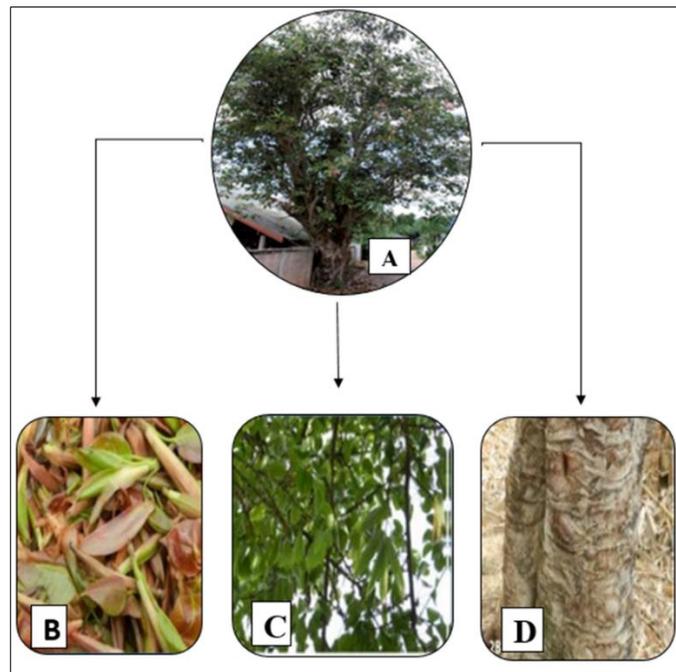


Fig 2: Different parts of the *Ficus geniculata*
A: *Ficus geniculata* tree, B: Shoot of the *Ficus geniculata*, C: Leaves of the *Ficus geniculata* D: Bark of the *Ficus geniculata*

Table 1: Classification of *Ficus geniculata*

Sr No.	Botanical Name	Family	Genus	Species
1	<i>Ficus geniculata</i>	Moraceae	Ficus	Geniculata

Table 1: Composition *Ficus geniculata* (on the dry basis)

Sr.no.	Attributes (%)	Amount
1.	Protein	18.7g/100g
2.	Total fat	1.8g/100g
3.	Total carbohydrates	58.4g/100g
4.	Dietary fiber	45.1g/100g
5.	Vit A (β -carotene)	530 μ g/100g
6.	Vitamin C	5mg/100g
7.	Calcium	672mg/100g
8.	Iron	8.89mg/100g
9.	Zinc	4.63mg/100g
10.	Sodium	11.3mg/100g
11.	Folic acid	10.9 μ g/100g
12.	Energy	324Kcal/100g
13.	Ascorbic acid (Vitamin C)	146.00 mg/100g
14.	Magnesium	41.11 mg/100g
15.	Potassium	6.33 mg/100g
16.	Sulphur	13.36 mg/100g
17.	Iron content	1.33 mg/100g
18.	Calcium content	27.82 mg/100g
19.	Phosphorous content	13.32 mg/100g
20.	Ferrous content	1.33 mg/100g
21.	Manganese	0.99mg/100g
22.	Zinc	0.11 mg/100g
23.	Tannin	0.46mg/ 100g

(Source: (Jerath *et al.*, 2015; Gupta *et al.*, 2017))

4. Utilization of *Ficus geniculata*

Young leaves and buds are cooked and consumed by the tribal people. Pickle are also made from that and consume throughout the year (Singh *et al.*, 2014)^[4]. The tender shoots that sprouts from the trees are traditionally used for eating purposes which are being dried and used in different pulses.

Leucorrhoea is a vaginal discharge at the time of female reproductive cycle. It is generally caused by the improper diets as well as loss of iron in the blood. Sometimes due to diabetics also lead to leucorrhoea. Due to which wound is caused on vagina lead to itching. In that case combination of all these help in curing problems i.e., root of jhjhuni (*Mirabilis jalapa*), Kela and putkal (*Ficus geniculata*) are crushed together and juice is made from that. And this is consumed 2 time in a day (Tomar *et al.*, 2012).

Polyphenol is the largest group of phytochemicals which shows the excellent properties of antioxidant and play a major role in the scavenger which are required for redox homeostasis which are responsible for degenerative diseases. And the *Ficus geniculata* contain 6.04 \pm 0.29 phenol content (Mahadkar *et al.*, 2013)^[9]. Its shoots are cooked as saag, as ate in raw form and dried for storage for whole round year (Gupta *et al.*, 2017). In Thailand its green leaves and shoots are cooked as curry and eaten as salad (Chantarasuwan *et al.*, 2012).

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