



BAMBOO A BOON IN THE TREATMENT OF AILMENTS: A REVIEW

Pharmaceutical Science

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ABSTRACT

Herbal or plant based medicines plays a vital role in the treatment, cure and prevention of several diseases from ancient time. India has rich biological background especially with unexplored medicinally active herbs, few of which is available in several literatures etc. Bamboo is very common plant mostly available in each part of India and has been used to construct houses or huts. Bamboo "*Bambusa arundinacea*" is the one kind of idle vegetable for its being pollution free, low in fat, high in edible fiber and rich in mineral element. Edible bamboo shoot is a traditional vegetable for many people. Along with its edible use it has several claimed medicinal properties too. From ancient time it has been used for the treatment of several ailments such as cancer, anxiety, RA etc. There are several literatures showing its use as a good source of fertilizer. Leaves of bamboo has been claimed as anti-inflammatory and anti ulcer agent. The seed has an anti diabetic effect. Considering the several medicinal properties of "*Bambusa arundinacea*" this review has been done. To prepare this manuscript, extensive literature review has been done and on the basis of reputed literatures the data has been extracted, analyzed and incorporated. This manuscript definitely helpful in guiding the researchers and scholars to explore and scientifically analyze the significant medicinal uses of "*Bambusa arundinacea*".

KEYWORDS

Phytochemical, herbs, diabetes, antioxidant

INTRODUCTION

Bambusa Arundinacea is one of the member of Poaceae which is also known as the family of grasses. But bamboos are quite differ from any other grasses in terms of presence of branches at each node. A bamboo Culm consists of internodes and a node, which is solid and provide structural integrity for the plant. Depending upon species it varies and the buds may be one or more at the nodes, which produce side branches [1].

Regional And Other Names

Gujarati - Vanskapur,
English – Bamboo, Giant Thorny Bamboo
Hindi- Bans-lochana, Banskapur
Bengoli- Bans-Kapur, Baroowa Bans
Sanskrit- Vanshalochana, Venulavanam
Tamil- Munga-luppa, Mullumangila, Mulmunkil, Mungil
Telugu- Veduruppu, Mulkas Vedururu
Kannad- Bidaruppu, Tavakshira
Burma- Vd-chha, Vathega-kiyo, Vasan

Distribution Of Bamboo Plant

As distribution of bamboos are concerned it is distributed throughout the moist parts of India, up to an altitude of 1250 m particularly near river banks, in Central and South India ascending up to 1100 m on the Nilgiri, also cultivated in many places in North-West India and Bengal [2]. The average lifespan of this plant is around 20 years, and it flower once every 7 to 20 years, depending on the species. Surprisingly, all the bamboo species will flower at exactly the same time, regardless of their geographical location. This plant, grows in various climates- it could be in all the continents except Antarctica. [3]

The common known species of bamboos are: *Acidosasa edulis*, *Bambusa bambos*, *Bambusa vulgaris*, *Phyllostachys nigra* (Black Bamboo), *Lophatheri gracilis*, *Coniogramme japonica*, *Phyllostachys pubescens*, *Rhaphis excelsa* and *Phyllostachys bambusoides* [4,5].

Organoleptic Characters

Tensile strength of bamboo is superior to mild steel, and a weight-to-strength ratio better than graphite, bamboo is the strongest growing woody plant on earth. [6] Thorny tree, stems many, tufted on a stout root-stock, grows upto 30 meter high; Inflorescence, enormous panicles often occupying the whole stem. Caryopsis (grain) oblong, 5-8 mm long, grooved on one side. Flowering and Fruiting Once in life time, often during September – May/3,4.

In few countries like India and China, bamboo has been used for medicinal purposes since ancient time. If we see the world wide data, Indian bamboo accounts for 36 % of the world's bamboo [7,8].

Leaves as well as young shoots are often used for preparing delicious soups and pickles. It is highly nutritious [9].

Phytochemicals In Bamboo

Bamboo plant is among one which contains high level of Acetylcholine which is a well known neurotransmitter. Other than acetylcholine it is also reach in several other phytoconstituents such as Cholin, betain, hydrate of silicic acid nuclease, urease, proteolytic enzyme, cyanogenetic glycoside, alkaloid, Vitamin C, Flavonoids, Hydrocyanic acids, Glutelin protein and Benzoic acid are active constituents [10-12]. The silicious substance found near the joint inside is a white camphor like crystalline in appearance, slightly sticky to the tongue and sweet in taste [13]. Shoot has active constituents are Oxalic acid, reducing sugar, resins, waxes, HCN, benzoic acid, diferuloyl arabinosylhexasaccharide, diferuloyl oligosaccharide, (5, 5'-di--(diferul-9, 9'-dioyl)-[α -L-arabinofuranosyl-(1 $\rightarrow$ 3)- O- β -D-xylopyranosyl-9(1 $\rightarrow$ 4)-D-xylopyranose] (taxiphyllin) [14]. Seed contain arginine, cysteine, histidine, isoleucine, leucine, lysine, methionine, phenylamine, threonine, valine, tyrosine, niacin, riboflavin, thiamine. Leaves mainly contain Protein, glutelin, contains lysine, methionine, betain, cholin, proteolytic enzyme, nuclease, urease [15].

Clinical Application Of Bamboo

All parts of the bamboo plant such as rhizomes, culms and bark shavings, resin, shoots, leaves, and seeds have clinical applications [16-22]. In particular, the leaves are used for treatment of fever, hypertension, arteriosclerosis, detoxification, stomach heat, respiratory diseases, chest inflammation, oedema, restlessness and diarrhoea, vomiting and excessive thirst [23,16,24-27]. In addition, several in vitro and in vivo experiments on animals have confirmed important biological and medicinal properties of bamboo leaves extracts such as: antioxidant, antimicrobial, haemolytic activities, anti-inflammatory, anti-ulcer, antihelminthic, anti-diabetic [21,25,26,28-34]. The medicinal effects of bamboo leaves are mostly attributed to their antioxidant capacity [35].

Antioxidants protect cell from damage caused by free radicals. Excessive free radicals and resulting oxidative stress in the body has been implicated in the onset and progression of several diseases such as aging, atherosclerosis, cancer, inflammation, etc. [36-40]. Polyphenols are known for their exceptionally high antioxidative capabilities.

Pharmacological Activity of Bamboo

Table-1 Pharmacological Activity Of Different Parts Of *Bambusa Arundinacea*

Plant Name	Plant Part	Pharmacological Activity
Bambusa Arundinacea	Seeds	Antimicrobial activity [44]

	Leaves	Anti-inflammatory, antiulcer [41], antioxidant [42] and antifertility activity [43]
	Roots	Antihyperglycemic activity [45]
	Shoots	Antifertility effect [46]
	Stem	Antihyperglycemic and analgesic activity [47]
	Fruits	Antihyperglycemic and analgesic activity[47]

CONCLUSION

It is well known that apart from allopathic or we can say modern medicine there are several other system of medicines are existing and playing a vital role in the treatment and cure of several ailments since ancient time. Ayurvedic system of medicine is one of the oldest system which has been practiced in asean countries even before modern medicine came into existence. The scientific evidences now a days explored has shown that phytoconstituents present in the plants can be an alternative in the development of medicine or plant based modern medicine which is safer, economical and easily available as well. This review paper emphasizing on the role of phytoconstituents present in bamboo plants and the same should be explored and the claimed clinical action should be scientifically proven and investigated. Since it has claimed pharmacological actions especially in the treatment of chronic diseases such as diabetes etc, researcher will get benefited with this review while further investigation of this plant and its phytoconstituents.

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