iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 11 **Issue:** II **Month of publication:** February 2023

DOI: https://doi.org/10.22214/ijraset.2023.49043

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue II Feb 2023- Available at www.ijraset.com

A Review on Medicinal Bamboo: An Ancient Source Towards Healthy Lifestyle

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Abstract: ***Bamboos are reported as the most valuable among other forest reserves, comfortably available and also sustainable. Bamboos are observed to be a group of evergreen perennial flowering plants belonging to the family Poaceae - (subfamily-Bambusoideae). As per reports bamboos have huge divergence in nature consisting of around 1400 species and 115 genera. Bamboo species are used over a long ancient period to produce textiles, boats, paper, furniture, and as a food. Their dried leaves are also used to wrap up decorative items and even food items to protect from any contamination. Various bamboo species contains chemical constituents such as flavonoids, phenols, tannins, lignins and polysaccharides. Other characteristic compounds present in bamboo are caffeic acid, orientin, vitexin, p-coumaric acid, isoorientin and chlorogenic acid. There are many reported studies which showing a wide use of bamboo leaves in Ancient history and even in today's modern world used in the treatment of cardiovascular diseases, hypertension, arteriosclerosis and even few forms of cancer. We have many studies and literature emphasizing upon use of bamboo in medicinal practice in Asian region and Southeast Asian region, but there's a lot more to be explored in Southern American species. This information shows beneficial results in human health, which are of a great interest in the medical nutrition industry which is an industry that emerged for the convergence between the food and pharma industries.***

Keywords: Bamboo, Convergence, Traditional medicine, Polysaccharides.

I. INTRODUCTION

Since ancient time's mankind is developing, growing and modifying itself as fast than any other creature in our ecosystem which has resulted into various pros and cons to it as well as other creatures. In this developing era we come across with various health issues that are necessary to be addressed and reduced for better mankind. Medicinal bamboos are serving as boon since ancient times; it is most widely used as a traditional medicine for various diseases, disorders and deficiency.

Bamboo species are to be used by humans over a long time since the start of civilization; during period of pre-ceramic around 9500 years old they were used as building substances. During the period of 3300-2800 BC, humans used to prepare bamboo baskets and bamboo mats for their household [1]. Bamboos are present in a large range of bio-geographical regions with numerous functional forms found, including bamboo species which are giant tropical woody species and can reach up to 20 m height and bamboo species of dwarf herbaceous species found in temperate climatic environment [2]. These species have capabilities of tolerating, adapting and growing in unfavorable environments, such as hot, dry, warm, humid and cold [3]. They are naturally found in all continents except Europe region [4]. Bamboo plays a symbolic role in consumer market with its huge variety of renewable product and a versatile raw material [5]. It has its applications in numerous industries such as Household items, pharmaceutical industry, biofuel, chemical, irrigation and biofuel [6]. In Asian countries, the phenolic components of Bamboo are used to formulate various preparations called as antioxidant of Bamboo leaves (AOB), being uses as an antioxidant aid in food. This AOB mainly comprises of lactones, flavonoids and phenolic acids such as flavones.

Fig. No.1: Bamboo Tree	Fig. No.2: Bamboo Roots
	

Table No.1: Vernacular Names of Bamboo [7]

Sr. No	Language	Vernacular Names
1	Hindi	Kanta Bans
2	Manipuri	Wa
3	Malayalam	Mula
4	Tamil	Moongil
5	Nepali	Baans
6	Gujarati	Wans
7	Kannada	Habbidiru
8	Sanskrit	Bahupallava vansa
9	Telugu	Mullabongu
10	Bengali	Katausi

Table No.2: Taxonomical Status [8]

Kingdom:	Plantae
Phylum (Division):	Magnoliophyta
Class	Liliopsida
Subclass:	Commelinidae
Order:	Cyperales
Family:	Gramineae (Poaceae)
Subfamily:	Bambusoideae
Tribe:	Bambuseae
Subtribe:	Bambusinae

II. CHEMICAL COMPOSITION

Lignin, Cellulose and hemicelluloses are reported to be the three most important chemical compositions of plant bamboo; they even have same resemblance in their chemical structures [9]. The other minor components present are pectin's, fats, tannins, ash and proteins. Other products like inorganic salts, resins and waxes. These chemical constituents plays very abundant role in bamboo's physiological and physico-chemical activities. Its composition roughly resembles to wood, the only change making difference is that bamboo has higher content value compared to wood [10]. Table No.3 showed us the chemical composition present in the bamboo fibers.

Table no.3: Chemical composition present in Bamboo plant fibers [11]

Sr.no	Chemical composition present in Bamboo	Content (in %)
1	Pectin	0.37%
2	Lignin	10.15%
3	Hemicelluloses	12.49%
4	Aqueous extract	3.16%
5	Cellulose	73.83

III. MEDICINAL USES OF BAMBOOS

Human civilization have great ancient traditional knowledge about the real potential of bamboo in their livelihood, therefore humans has been using bamboo and its pharmaceutical formulations like bamboo vinegar, bamboo salts, and bamboo extracts mainly to control diabetes and also to lower down the cholesterol levels in the body [12]. Bamboos and their extracts have been used in Korea and its neighboring countries for their traditional therapy in treating sweating, hypertension and paralysis. It has also been reported that bamboo plant extract carries antioxidant properties and anti-inflammatory properties [13, 14]. *Bambusa arundinacea* has a great significant ayurvedic role as a medicinal plant. All parts of bamboo are found to be useful and worthy such as root, leaf, seed and shoot all have various properties likewise anti-oxidant, anti-ulcer, anti-inflammatory, anti-diabetic, astringent and anthelmintic activity. Numerous parameters specifically for phyto-pharmacological evaluation parameters were carried out for *Bambusa arundinacea* [15].

The root part of bamboo tree when heated and burnt completely and after drying when applied over skin disorders/ infections such as ringworm, it was found to be effective. Even it's believed to be used over arthritis and bleeding gums. Bamboo bark has similar effect and is used to treat skin obstructions and eruptions. Bamboo leaf has good anti-coagulation and anti-leprotic properties and also it is said to be deployed in haemoptysis [16]. Bamboo seeds are used in urinary discharges and even strangury as they have laxative effect [17]. A study was conducted wherein they combined Modern day Medicine (NSAISs) with methanolic extract of *Bambusa arundinacea*, it showed great anti-inflammatory effect and also increased natural potency of drug. This tells us that the drug can be used for chronic anti-inflammatory treatments in disorders like arthritis (rheumatoid) with ulcer (peptic) [18]. *Bambusa arundinacea* also have anti-diabetic properties when observed along standard glibenclamide [19]. Bamboo also had anti-fungal and anti-microbial properties in the form of pyrolyzates [20]. Its constituents also show good effect in protecting neurons from any substantial oxidative stress [21]. Bamboo pyrolyzates are even useful in cases of apoptosis and as an adjunct for ischemic injury treatment [22]. Bamboo shoots are reported to intensify one's craving, also help in digestion and metabolism. Bamboo Buds have estrogenic property. In one study when extract of bamboo bud was ingested in rats, they showed anti-fertility activity in rats [23]. These bamboo shoots can also be used as contraceptives and birth controlling natural aid to humans [24]. Bamboo shoots are also described to have cancer treating properties and even in lowering blood pressure and cholesterol levels. Recent researches have shown that bamboo shoots tend to have greater health benefits likewise enhancing digestive capability, easy weight loss, treating heart disorders and having anti-bacterial, anti-oxidant properties [25].

IV. CONCLUSION

Bamboo plants are usually used in building homes in rural areas. But, in villages it is also used as raw materials for food, producing papers and varied artwork done on handicrafts. Bamboo shoots have many benefits of using as a delicacy because it has been significant in providing good health support. Researchers also claimed that bamboo is worthy in treating many death taking disorders such as cancer, hypertension, diabetes and even arthritis. Bamboo is also enriched with anti-bacterial activity, anti-inflammatory activity, anti-apoptotic activity, anti-oxidant activity and many more. Therefore, it's very certain to encourage growth of bamboo production throughout the world by following different cultivation methods. The extracts of bamboo have been part of ancient knowledge used as traditional medicine to treat many disorders and now-a-days it has been started getting implemented in modern world.

V. ACKNOWLEDGEMENT

We would like to appreciate and thank all above authors for their support and valuable advice.

A. Conflict of Interest

The above authors mention no conflict of interest to this review paper.

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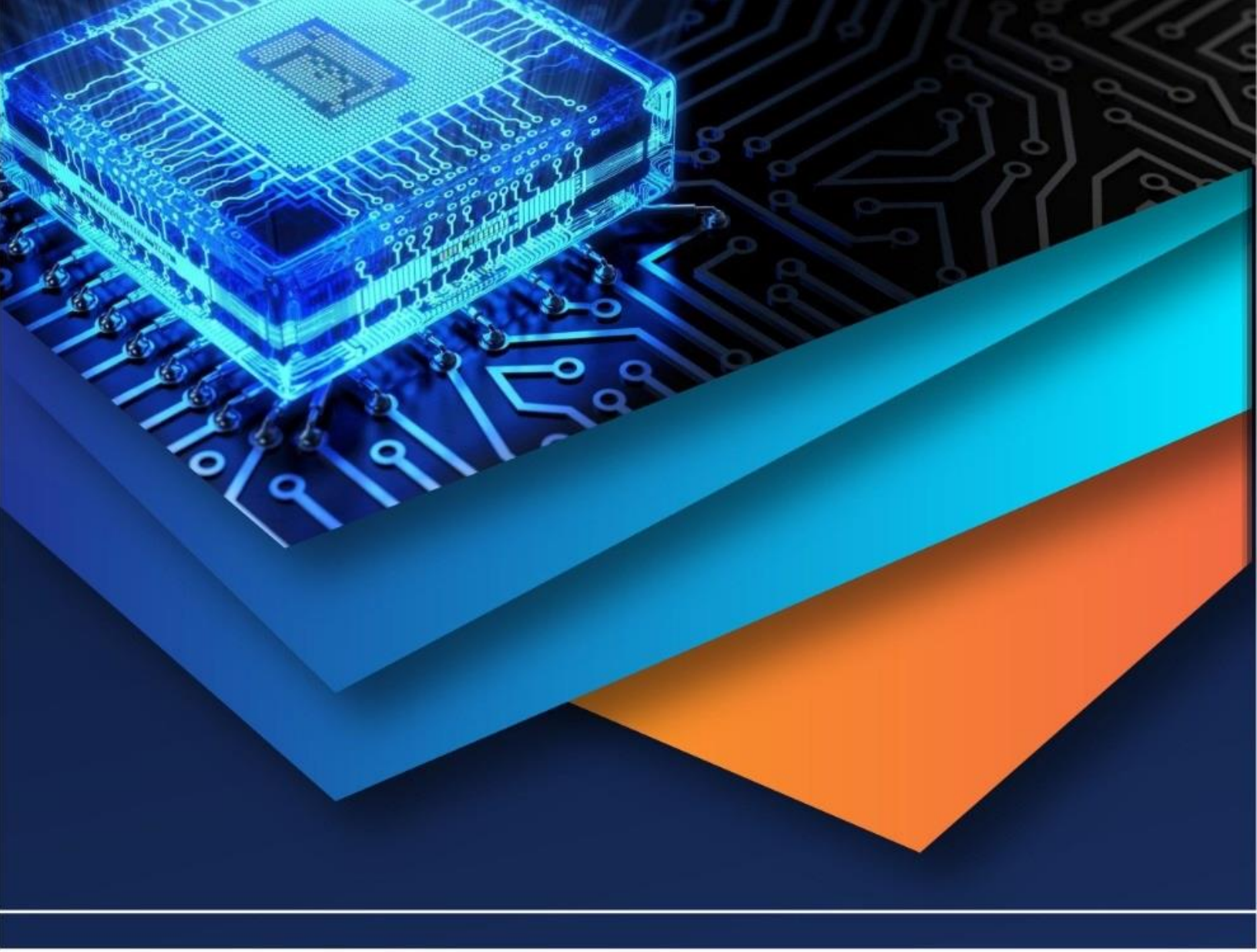

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