

# Bamboo Plant: Benefit and Future

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**Abstract:** Recently, bamboo has been known to provide wide applications, especially in product fabrication. Unfortunately, the future of bamboo is still in doubt. If bamboo used in applications besides products, is bamboo will show its superior advantages. Therefore, what about the disadvantages of bamboo itself?. The uniqueness and outstanding benefit of bamboo need to search well. This paper discusses the future and different perspectives of bamboo.

**Keywords:** bamboo; bamboo plant; applications.



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## 1. INTRODUCTION

Bamboo is demandly known for industrial applications in furniture, papermaking, construction sector, shoot-based food products, fiber extraction and as a raw material in biotechnology and bioprocesses. Fortunately, young bamboo culms have proven to be a potential material for fiber or starch extraction for food applications. However, further studies are needed to evaluate the potential of the various bamboo species (Silva et al., 2020)

There are several type of bamboos in Malaysia such as *buluh duri* (*Bambusa blumeana*), *buluh tumpat* (*Gigantochloa ligulata*), *buluh galah* (*Bambusa heterostachya*), *buluh beti* (*Gigantochloa wrayi*) and more. These bamboo species currently used as commercial in Malaysia. Especially *buluh duri* for furniture, musical instruments and chopstick. While *buluh beti* was used as higo materials and chopsticks.

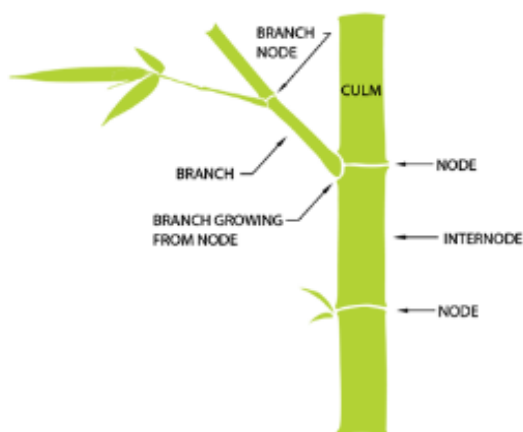
**Table 1.** Types of bamboo species in Malaysia (Azmy Mohamed, Wan Razali Wan Mohd & Fauzidah Ahmad, 1991)

Species	Local name	Uses
<i>Schizostachyum grande</i>	<i>Buluh semeliang/semenyeh</i>	Frames, leaves used for wrapping Chinese glutinous rice dumpling.
<i>Schizostachyum zollingeri</i>	<i>Buluh dinding/kasap</i>	Handicraft, toothpick, skewer sticks
<i>Schizostachyum brachycladum</i>	<i>Buluh nipis/lemang</i>	Handicraft, rice vessels (lemang)

## 2. BAMBOO IS THE FASTEST- GROWING PLANT

Bamboo shoot, the young culms of bamboo plants, has been utilized as a food item in Asian countries. Bamboo shoots are rich in protein, fiber, vitamins and minerals as well as plenty of nutraceuticals including phenols and phytosterols. Bamboo shoots were historically used in medications and recently identified with the diverse health benefits such as hypolipidemic, prebiotic and anti-diabetic activities. However, the rapid postharvest lignification deteriorated the nutritional quality and palatability of fresh bamboo shoots, and the presence of cyanogenic glycosides made them inapplicable being eaten raw. To these ends, physical and chemical regimes were invented for their postharvest storage and various processing methods were adopted to eliminate the toxins and achieve a year-round supply. With their consumption spreading over the continents, bamboo shoots become more important in human diet. The sustainable development, food safety control and the clarification of their potential health effects are suggested in future consideration (Wang, 2020).

Besides that, the anatomy of the bamboo consists of rhizomes, roots and buds that locate at the underground. While stems, branches and foliage locate at the above of ground axis. Bamboo culm is hollow but there is also type of bamboo culm that is solid. Each culm begins with a solid joint called as node. The segments that connect the nodes are known as internodes. At the nodes, the leaves and branches begin grow. The branches also segmented by internodes.



**Figure 1.** Anatomy of the bamboo (Bamboo botanicals, 2021)

## 3. BAMBOO IS STRONG AND DURABLE

Bamboo is a superb plant that can be found all over the world. In construction area, bamboo has been used intensively and extensively for production of building. Bamboo as a building material has high compressive strength and low weight has been one of the most used building material as support for concrete, especially in those locations where it is found in abundance. Bamboo as a building material is used for the construction of scaffolding, bridges and structures of houses.

Due to a distinctive rhizome-dependent system, bamboos are one of the fastest-growing plants in the world and their growth is three times faster than most other species of plants. They are renewable and extremely versatile resource with multi-purpose usage. Among many uses of bamboo, Housing is one of the major areas applications especially in the wake of residential shortages around the globe. Bamboo as a building material is conventionally associated with the region of Southeast Asia and South America where climate is best suitable for its cultivation. In many of the nations, bamboo is used to hold up suspension bridges or simply make places of dwelling.

Bamboos are treated in such a way that they assume desired shapes and structures while they grow: (The constructor, 2021)

1. Squared cross-section can be obtained by compressing the growing stalk of bamboo within a square section.
2. Arch shapes of bamboo can also be created by compressing the bamboo's growth into the desired shape. This would cost lesser than it would to get the same form with normal timber.
3. Curved and Flat shapes of bamboo are achieved through traditional techniques like applying heat and pressure.

#### **4. BAMBOO IS SAFE AND HYGIENIC**

Bamboo can be applied as utensil material in a kitchen. Utensils are essential elements in the house and are an important part of the kitchen. The requirement for the upkeep of utensils is maintenance and usage. The need of proper hygiene when handling bamboo utensils is a good in remains its safety. Hygiene practices include cleaning, drying, and storing bamboo utensils in a suitable place.

Bamboo is actually a grass that can be used in many similar ways as would with wood. That means it have fewer reasons to cut down trees. Thus, the utensils made from bamboo are eco-friendly with the environment. Bamboo is organic so that makes it a safe material alternative to use in the kitchen. Even when it comes to going out for a picnic and having fun with family, the easiest and lightweight utensils are the ones made from bamboo. They are easy to wash and convenient to carry. Bamboo made utensils are a good fit in every way (Atanda, 2015).

The durability of the product is long-lasting without breaking or cracking. With minimal care and daily usage, the utensils can survive a long way with due care. Thus, bamboo utensils can work just as well as compared to wooden or steel utensils. Unlike the utensils that are made of steel or wood, the bamboo utensils do not have any stain problem nor do they retain any smell. With an easy wash from any liquid cleaner, the utensils can be stored and kept safe without any germs and bacteria. The bamboo utensils are made in a way that they remain smooth for quite a long time, unlike the woodblock utensils. These utensils are rubbed and painted to retain their smooth surface which prevents the surface from being porous. A porous surface attracts and absorbs germs and bacteria.

#### **5. BAMBOO IS GREAT FOR THE HUMAN BEING**

Despite the fact that some plants can grow as tall as the tallest trees, bamboo isn't actually a tree. It is, in fact, a grass, and one of the most persistent and versatile grasses on the planet. It grows exceptionally fast and can be made into anything from homes to plastic. It is naturally renewable and requires little maintenance to farm. These days everyone is talking about bamboo. From walls to flooring, bamboo is regaled as the environmental answer to wood. Bamboo flooring is common place from showrooms to homes, and the building community expects that it will be used in plywood next. One of the main benefits of bamboo for many is how it is often touted as a sustainable building material. Bamboo products and bamboo construction are regarded for their environmentally conscious nature.

Bamboo is a very popular building material. The primary reason it is used so frequently is because it is quite strong. Bamboo is very strong and sturdy for how lightweight it is. This makes it very easy to build with, and eliminates a good deal of heavy lifting. Additionally, bamboo is very plentiful. It grows quickly, and is found very commonly in many regions of the world. It grows mostly

in Asia, and that is where the majority of bamboo construction is done. However, its use is seen all around the world (Green Building Elements, 2011).

Typical projects that can be built with bamboo include bamboo buildings such as houses, storage buildings, commercial use buildings, and more. Typically, bamboo is used as a supplementary construction material for support poles. It is heavily used in scaffolding at construction sites, or to support the frame of structures or bridges. Bamboo is also quite a stylish design element. Bamboo architecture will typically implement bamboo on full display as a design choice. It is used in landscaping, as well as in the design of various decorative pieces or aspects of a home's interior and exterior design. Bamboo wood is also strong and durable, and can be used as a substitute for other types of wood in woodworking items. Items such as chopsticks and wooden plates are often made of bamboo, but its use extends to many other types of products as well. As you can see, bamboo is highly durable and flexible.

## 6. CONCLUSION

As conclusion, there are a lot of benefits and advantages that can we get from a bamboo. As long as this bamboo remain it advantages, no doubt, one day bamboo will be one of the strongest competitive material in the world.

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